

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-1	SHEET 1 OF 5

SOIL BORING LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686804.8 N, 2012129.3 E)

ELEVATION: 261.3 ft MSL (NGVD 29)

DRILLING CONTRACTOR: R. Norwood/M. Mosely, S&ME

DRILLING EQUIPMENT AND METHOD: BK-51, Tricone Bit, 24 Split Spoon, 140 lb. Hammer and Cathead ORIENTATION: Vertical

					CONE BIL, 24 Split Spoon, 140 b. Hammer and Catheac		100	ORIENTATION : Vertical
WATER						END : 4/21	/06 1	
DEP (H B			RADE (ft)	STANDARD PENETRATION	SOIL DESCRIPTION		၅	COMMENTS
	INTERV	AL (ft)		TEST RESULTS	COIL NAME LISCS CROLID SYMBOL COLOR	n	CLC	DEDTIL OF CASING DOULING DATE
		RECOVI	ERY (in)		SOIL NAME, USCS GROUP SYMBOL, COLOF MOISTURE CONTENT, RELATIVE DENSITY O	R, OR	OLI	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND
			#TYPE	6"-6"-6" (N)	CONSISTENCY, SOIL STRUCTURE, MINERALO		SYMBOLIC LOG	INSTRUMENTATION
261.3 - - -	0.0	12.0	SS1SS	11-9-50/1 (59/7")	Clay (CL) 0.0-1.0' - brown, mottled, moist, hard, fine grained, plasticity, slow dilatancy, v	, low -		- - -
_	2.0					_		
-	2.5 4.5	11.0	SS2SS	19-50/5 (50/5")	Clay (CL) 2.5-3.5' - brown, mottled, moist, hard, fine grained, plasticity, slow dilatancy, trace coarse gravel	, low -		PT-1 collected 3.0-5.0' -
5	4.5					-		=
256.3 - -	5.0	3.0	SS3SS	50/3 (50/3")	Clayey Sand (SC) 5.0-5.3' - gray, moist, very dense, very fine to med grained, weakly cemented, 40-45% fines		7772	Drillers Remark: soft from 5.0-7.0'
_	7.0					_		DT 2 called ad
-	7.5	4.0	SS4SS	50/4	Clayey Sand (SC) 7.5-7.8' - gray, moist, very dense, very fine to med grained, subangular to rounded, weakly cemented			PT-2 collected 7.0-9.0' Offset: 4.2' S59W of BPA-1 Lab Results USCS: SC
- 10 _	9.5			(50/4")	\fines			-
251.3 - - -	10.0	4.0	SS5SS	50/4 (50/4")	Clayey Sand (SC) 10.0-10.3' - gray, moist, very dense, very fine to medium grained, subangular to rounded, weakly cemented, >25% fines			
_	12.0					_		Drillers Remark: Harder drilling beginning at 11.5' -
_	, 12.5	3.0	00000		Class (CL)		////	Soil sampling completed at 15:15 on 4/20/06
- -	12.8	3.0	SS6SS	50/3 (50/3")	Clay (CL) 12.5-12.8' - reddish brown, very hard Begin Rock Coring at 12.8 ft bgs See the next sheet for the rock core log		,,,,	- - -
15 <u></u> 246.3								_
-						- -		- -
- -						- - -		- - -
- - -						- - -		- - -
20								



PROJECT NUMBER:

338884

BPA-1

SHEET 2 OF 5

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686804.8 N, 2012129.3 E)

ELEVATION: 261.3 ft MSL (NGVD 29)

DRILLING CONTRACTOR: R. Norwood/M. Mosely, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

WATER	ATER LEVELS : 3.3 ft bgs		ļS	START : 4/20/06 13	:29	END: 4/21/06 11:55	LOGGER : DT/JS	
	(%)			DISCONTINUITIES	၂ ဗွ	LITHOLOGY	COMMENTS	
QN (#)	Ä, ANC (3C		ZES T	DESCRIPTION	O LC	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.	
-	12.8		1	13.1' - Fracture, horizontal and 40 deg, rough, undulating, loose fit	× × × × × × × ×	Siltstone 12.8-14.5' - reddish brown, scattered green mottling, soft, slightly weathered, fine grained	Rock coring began at 15:48 - on 4/20/06	
15 246.3			1	15.0' - Fracture, horizontal, rough, undulating, loose fit	× × × × × × × × × ×	Sandstone 14.5-14.6' - light gray, very thin bedding, fine sand to medium sand, slightly weathered, undulating bedding	R1: 15:48-16:00 and 16:05- 16:15 on 04/20/06 - — -	
- - - -	R1NQ 7.7 ft 95%	92	1	17.5' - Fracture, rough, undulating	× × × × × × × × • × ×	 Siltstone At 14.6' - reddish brown, scattered green mottling, soft, fine grained 14.6-18.7' - slightly weathered 17.1-18.7' - purple-gray, green and white mottling 	- - - -	
-			1	18.25' - Fracture, 25 deg, smooth, undulating	× × × × × × × ×	- 18.7-36.2' - fresh	- - -	
20 241.3	20.5		0	– 20.5-25.8' - Microfractures in capillary zones	× × × × × × × × × × × ×	- -	- R2: 16:25-16:50	
-			0		× × × × × × × ×	- - -	- - -	
			0		× × × × × × × × × ×	- - - 23.8-24.1' - slightly weathered	- - -	
25 236.3	R2NQ 10 ft	92 6	2	24.8' - Fracture, 40 deg, smooth, undulating, — tight fit	× × × × × × × ×	- - -	- -	
-	95%	02.0	0	25.2' - Fracture, 70 deg, smooth, undulating, green stains, loose fit	× × × × × × × × × ×	- 25.8-30.0' - scattered sand sized white inclusions, much fewer microfractures 26.0-27.5' - up to 25% white fine to medium sand, angular	-	
			0		× × × × × × × × × ×	27.7-29.0' - <10% gravel sized white clasts, subrounded	- -	
30_ 231.3	30.5		2	29.3' - Fracture, 70 deg and 70 deg, rough, undulating, loose fit 29.6' - Fracture, horizontal, smooth, stepped,	× × × × × × × × × ×	- - —	- - -	
-	JU.5		0 0	loose fit	× × × × × × × × × × × × × × × × × × ×	30.5' - grayish red to reddish brown, fresh, up to 10% fine to very fine sand, subangular, occasional round, gravel sized white clastsbecoming infrequent with depth	R3: 17:15-17:50 - - -	
					^ *			

2BB-3 Rev. 1



PROJECT NUMBER:	BORING NUMBER:					
338884	BPA-1	SHEET	3	OF	5	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686804.8 N, 2012129.3 E)

ELEVATION: 261.3 ft MSL (NGVD 29)

DRILLING CONTRACTOR: R. Norwood/M. Mosely, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

WATER	ATER LEVELS: 3.3 ft bgs		ıs	START : 4/20/06 13	3:29	END: 4/21/06 11:55	LOGGER : DT/JS
	(%)			DISCONTINUITIES	ي	LITHOLOGY	COMMENTS
QZ (£)	N, AND 3Y (%	_	ZES T	DESCRIPTION] c	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLICLOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
-			1	32.7' - Fracture, horizontal, smooth, stepped, tight fit	- × × ×	× ×	-
-			0		- × - × ×	** *- *	-
35 <u> </u>	R3NQ	94	1	- 35.3' - Fracture, 60 deg, smooth, undulating,	- × - × - × ×	*_ *_ *	-
	10 ft 100%	94	10+	tight, fit laminae 36.2-36.8' - Fracture zone, slickensided, shear	- × - × - × - ×	36.2-36.8' - highly weathered]
-			0	zone	- × - × - ×	36.8-37.4' - green mottling 36.8-43.7' - fresh	_
-			0		- × - × - ×	* * * *]
-			0		- × - × - ×	2 × × ×-	
40 221.3	40.5		0	- 40.5' Fracture 60 dec rough undulation	- × - × - ×	40.5-43.7' - mottling along former	R4: 08:45-08:55 and
-			1	40.5' - Fracture, 60 deg, rough, undulating, tight fit	- × - × - ×	40.5-45.7 - mouning along former ractures	08:47-09:02 on 04/21/06 -
-			0		- × - × - ×	* * * *	
-			0	43.6' - Fracture, rough, undulating	- × - × - ×	*- *- *-	
-			2	44.3' - Fracture, horizontal, tight fit	- :: - ::	Sandstone 43.7-46.9' - gray to brown, soft to har fine sand to coarse sand, fresh, fining	rd, g -
45 216.3	R4NQ 10 ft	95	0	_	upward sequence	_	
-	100%		1	46.3' - Fracture, 55 deg, rough, undulating	- :: - ::	- -	-
-			0		- × - × - ×	Siltstone 46.9-61.0' - dark reddish brown, greenish gray mottling near former	
-			2	47.8' - Fractures (2), 20 deg, smooth, undulating, tight fit	- × × × ×	XI č.	
50			2	48.8' - Fractures (2), 70 deg, rough, undulating, tight fit	×	x- x- x- x-	
211 3	50.5		2	50.1' - Fracture, 60 deg, rough, undulating 50.3' - Fracture, 60 deg, smooth, undulating	- × - × - × - ×	*— *- *- *	R5: No time recorded
			1	50.9' - Fracture, 40 deg, smooth, undulating, loose fit	- I ×	x x x	
_			0		- × - × - ×	<u>*</u>	



PROJECT NUMBER:	BORING NUMBER:				
338884	BPA-1	SHEET	4	OF	5

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686804.8 N, 2012129.3 E)

ELEVATION: 261.3 ft MSL (NGVD 29)

DRILLING CONTRACTOR: R. Norwood/M. Mosely, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

				THOD . BR-31, NQ Double Barrel			ORIENTATION: Vertical
WATER	LEVELS : 3.	3 ft bo	ļS	START : 4/20/06 13	:29	END : 4/21/06 11:55	LOGGER : DT/JS
_	<u>%</u>		l	DISCONTINUITIES	90	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
_			0		×	-	-
-			0		× × × × ×	× × × ×	- - -
55_ 206.3	R5NQ		1	-	××××	<u></u>	_
-	10 ft 94%	92.5	1	55.5' - Fracture, horizontal, slickensided, slickensides not well developed, but present along bedding surfaces	×××××××××××××××××××××××××××××××××××××××	× × × × × × × × × × × × × × × × × × ×	- - -
-			1	55.7' - Fracture, horizontal, loose fit	×××	x- x- x-	-
_			0	57.4' - Fracture, horizontal, smooth, undulating, loose fit	× × × ×	x x x x	-
_			0		×××××××××××××××××××××××××××××××××××××××	*\[\frac{1}{2} \]	
60_ 201.3_	60.5		1	– 60.2' - Fracture, horizontal, rough, undulating, loose fit	×××××××××××××××××××××××××××××××××××××××	X X— X X	R6: No time recorded
-			0	60.5-61.5' - Microfracturing	×	Sandstone 61.0-63.5' - pale red to grayish red, mottled light gray along fractures and	SC-1 collected 60.5-61.4'
-			0		 	dark reddish brown, medium bedding, very fine sand, fresh, 50% silt	- -
-			0		:: ::	Siltstone	-
- 65			1	63.9' - Fracture, horizontal, smooth, undulating, tight fit	× × × ×	63.5-66.9' - dark reddish brown, greenish gray mottling near former fractures, soft, fresh, fine grained	- -
196.3	R6NQ 10 ft 100%	75	1	– 65.2' - Fracture, horizontal, smooth, undulating, tight fit	× × × ×	63.8-66.9' - reddish brown to blue gray, laminated bedding 65.0-66.0' - laminated bedding,	
-	10070		2	65.7' - Fracture, smooth, undulating 66.3' - Fracture, 15 deg, loose fit	××××	X- laminae are disturbed X- x-	-
-			4	66.6' - Fracture, horizontal and 70 deg, rough, undulating, loose fit 66.9' - Fracture, horizontal and 70 deg, rough,	× × × ×	Siltstone 66.9-70.5' - blue-gray, soft, laminated	<u>-</u>
-			10+	undulating, loose fit 67.2' - Fracture, horizontal and 70 deg, rough, undulating, loose fit 67.3' - Fracture, horizontal and 70 deg, rough,	× × × × ×	bedding, fine grained, bedding surfaces are irregularly oriented, shiny with slickensides 66.9-67.5' - fresh	- -
			1	67.3 - Fracture, nonzontal and 70 deg, rough, undulating, loose fit 67.5-68.5' - Fracture zone, slickensided, mass slippage or shear zone, slickensides on	× × × ×	68.4-70.5' - highly weathered 68.4-70.5' - mottled brown and red along fractures	- -
70 <u> </u>	70.5		10+	fragments (all sides) and bedding pieces, shear zone affected a significant thickness of material	×××××	70.0-70.5' - fresh	R7: No time recorded
-			10+	69.0' - Fracture, 25 deg, rough, undulating, tight fit 70.0' - Fracture, horizontal and 45 deg, rough,	× × × × ×	70.5-76.3' - reddish brown, mottled green around former fractures, soft, fresh, fine grained	- -
_			0	undulating, loose to tight fit 70.5-80.5' - Microfracturing, capillary pattern	- × - × - × - ×	- 70.5-72.0' - 0-30% fine grained sand, decreases with depth	- -
						-	

2BB-5 Rev. 1



PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-1	SHEET 5 OF 5

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686804.8 N, 2012129.3 E)

ELEVATION: 261.3 ft MSL (NGVD 29)

DRILLING CONTRACTOR: R. Norwood/M. Mosely, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

MATER_LEGES.3 1 to DISCONTINUITIES START.4(2006 13:26) S					THOD . BR-31, NQ Double Barrer				ORIENTATION : Vertical
Second Process Seco	WATER	LEVELS: 3.	3 ft bg	S		29	_	END : 4/21/06 11:55	LOGGER : DT/JS
75 186.3 10 10 10 188% 88 0		. (9				ق	L	LITHOLOGY	COMMENTS
75 186.3 10 10 10 188% 88 0	Qz €	Q.S. Z.S.≻.		ES-	DESCRIPTION	13		ROCK TYPE, COLOR,	CIZE AND DEDTH OF CACING
75 186.3 10 10 10 188% 88 0	AE Z	RUR H. / IER	(%)	문 도	DEDTH TYPE OPIENTATION POLICHNIESS	1 💥	l	MINERALOGY, TEXTURE,	FLUID LOSS, CORING RATE AND
75 186.3 10 10 10 188% 88 0	EVA LOV RF/	A PAGO COO	ΩC	ACI R F(PLANARITY, INFILLING MATERIAL AND	MB(l	AND ROCK MASS	SMOOTHNESS, CAVING ROD
75. 186.3 10.0	吊크띪S	응필版	RO	氏 形	THICKNESS, SURFACE STAINING, AND TIGHTNESS	λ	l	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
75 186.3 R7NQ 10.1 88% 0 0	_			0		×	⇟		_
75 186.3 R7NQ 10.1 88% 0 0	_				_	lŷ 3	1		_
75 186.3 R7ND 10 ft 88% 0 0				_		× >	1		
75 R7NQ 10 ft 88% 88 0				U		× >	T		Ī
186.3 R7NQ 188	75				•	× >	1		1
10 ft 88% 88	186.3	R7NQ		0	_	× >	╊	_	_
Sandstone 76.3-78.0 °- gray, soft, medium bedding, fine sand to medium sand, fresh 78.0-82.7 °- reddish brown, mottled green around former fractures, soft, fresh, fine grained R8: No time recorded First water level = 3.3' bgs First	-	10 ft	88				╊		-
80 181.3 80.5 R8NO 2.2 ft 100 0 0 82.7 solutions and 100 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	-	88%		0		×:	1		-
80 1813 80.5 Rand 2.2 ft 100% 82.7 Bottom of Boring at 82.7 ft bgs on 4/21/06 11:55	_						┢	Sandstone	-
80 181.3 80.5 Siltstone 7				٨]∷∷	L	76.3-78.0' - gray, soft, medium	_
80 181.3 80.5				0		: : :	l	bedding, fine sand to medium sand,	
80				_		1:::	Γ	ilesii	1
80	-			0			1	Siltstone	1 1
80	_					1× >	╊	78.0-82.7' - reddish brown, mottled	-
80 80.5 R8: No time recorded R8: No time recorded First water level = 3.3' bgs taken 4/25/06 at 07:35 R-Scale not performed on rock core samples R8: No time recorded First water level = 3.3' bgs taken 4/25/06 at 07:35 R-Scale not performed on rock core samples R8: No time recorded First water level = 3.3' bgs taken 4/25/06 at 07:35 R-Scale not performed on rock core samples R8: No time recorded First water level = 3.3' bgs taken 4/25/06 at 07:35 R-Scale not performed on rock core samples R8: No time recorded First water level = 3.3' bgs taken 4/25/06 at 07:35 R-Scale not performed on rock core samples R8: No time recorded First water level = 3.3' bgs taken 4/25/06 at 07:35 R-Scale not performed on rock core samples R8: No time recorded First water level = 3.3' bgs taken 4/25/06 at 07:35 R-Scale not performed on rock core samples R8: No time recorded First water level = 3.3' bgs taken 4/25/06 at 07:35 R-Scale not performed on rock core samples R8: No time recorded First water level = 3.3' bgs taken 4/25/06 at 07:35 R-Scale not performed on rock core samples R8: No time recorded First water level = 3.3' bgs taken 4/25/06 at 07:35 R-Scale not performed on rock core samples R8: No time recorded First water level = 3.3' bgs taken 4/25/06 at 07:35 R-Scale not performed on rock core samples R8: No time recorded First water level = 3.3' bgs taken 4/25/06 at 07:35 R-Scale not performed on rock core samples R8: No time recorded R8: No time record	-			0		1× >	₽	green around former fractures, soft, fresh, fine grained	-
R8: No time recorded First water level = 3.3' bgs taken 4/25/06 at 07:35 R8NQ 2.2 ft 100 0 82.7 Bottom of Boring at 82.7 ft bgs on 4/21/06 11:55 Bottom of Boring at 82.7 ft bgs on 4/21/06 11:55	_					- × >	1	nesh, inte granted	-
80.5 R8NQ 2.2 ft 100 0 82.7 Bottom of Boring at 82.7 ft bgs on 4/21/06 11:55 Bottom of Boring at 82.7 ft bgs on 4/21/06 11:55 Bottom of Boring at 82.7 ft bgs on 4/21/06 11:55	80			\bowtie	_		L	_	
R8NQ 2.2 ft 100 0 0	181.3	80.5		\ggg		× :	1		
R8NQ 2.2 ft 100% 100 0 R-Scale not performed on rock core samples - R-Scale not performed on rock core samples						× >	1		First water level = 3.3' bgs
85 176.3	-	R8NQ		0		× >	1		taken 4/25/06 at 07:35 -
85- 176.3	_	2.2 ft	100			× >	ŧ		R-Scale not performed on
82.7	-	100%		0		\times	ł		rock core samples -
4/21/06 11:55 - 4/21/06 11:55	_	82.7					Ł		-
-	_					Γ	F	Bottom of Boring at 82.7 ft bgs on	_
176.3	_						L	4/21/06 11:55	_
176.3]	L		_
176.3							l		
176.3	85					1	Γ		1
	176.3				_	1	H	_	
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PROJECT NUMBER:	BORING NUMBER:				
338884	BPA-2	SHEET	1	OF	6

SOIL BORING LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686894.0 N, 2012134.4 E)

ELEVATION: 259.7 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

DRILLING EQUIPMENT AND METHOD: CME-550, Tricone Bit, 24 Split Spoon and 140 lb. Automatic Hammer ORIENTATION: Vertical

				HOD : CIVIE-550	Tricone Bit, 24 Split Spoon and 140 lb. Automatic Ham				ORIENTATION : Vertical
	LEVELS		•			ND : 7	6/06 1	1:00	LOGGER : JF/LH
DEPTH B	ELOW EX		RADE (ft)	STANDARD PENETRATION	SOIL DESCRIPTION		— ე	\vdash	COMMENTS
	INTERV	`		TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR	2) 	l	DEPTH OF CASING, DRILLING RATE,
		RECOVI			MOISTURE CONTENT, RELATIVE DENSITY O	Ŕ	BOL	(TSF)	DRILLING FLUID LOSS, TESTS, AND
			#TYPE	6"-6"-6" (N)	CONSISTENCY, SOIL STRUCTURE, MINERALC	JGY	SYMBOLIC LOG	<u>В</u>	INSTRUMENTATION
259.7	0.0			(1.7)	Silt (ML)		+	t	
-					0.0-Ò.7' - dark reddish brown, moist, medium dense possibly reworked native material	e,	/- -		-
-		14.0	SS1SS	2-4-5-9 (9)	¬ Silty Sand (SM)	/	\prod	2.0	-
-	2.0			(9)	\ 0.7-1.2' - light brownish gray, dry to moist, very loo	se,	/ -	l	-
_	2.0				possible fill material	/	1	l	-
_	2.5				Silty Sand (SM)			1	
-					2.5-3.8' - light brownish gray, dry to moist, very look very fine to fine grained, possible fill material	se,	1	1	-
_		15.0	SS2SS	6-32-50/3 (82/9")	very line to line grained, possible illi material		- : .	1	-
_	4.5			(02/3)			1	l	-
5	7.0						1	l	
254.7	5.0				Silty Sand (SM)		<u> </u>	1	_
_					5.0-5.3' - light brownish gray, dry to moist, very der fine grained. friable	nse,	/ 🕇	l	
-		4.0	SS3SS	50/4 (50/4")	3	/	1		
_	7.0			(30/4)			1	l	
_	7.0						1	l	-
_	7.5				Clay (CL)				-
_					7.5-8.4' - dark reddish brown, moist, dense, fine grained, becoming lithified				-
_		10.0	SS4SS	32-29-21-21 (50)	granted, becoming numed		´†	l	-
_	9.5			(66)			1	l	-
10	0.0						1	l	-
249.7	10.0				Silt (ML)		T	1	_
_			00500		10.0-10.5' - dark reddish brown, dry to moist, densifine grained, some black mottling	e,	/	1	-
_		5.0	SS5SS	50/5 (50/5")	(,	/	1	l	PT-1 collected
_	12.0			(==,=)			1	l	11.0-13.0' Offset: 6.3' S35E of BPA-2
_							1	l	Lab Results USCS: SC
-	12.5				Silt (ML)		Ш		
			00000	40 50/5	 12.5-13.0' - dark reddish brown, dry to moist, dense fine grained, some black mottling 	e,	/	1	
		6.0	SS6SS	12-50/5 (50/5")		/]	1	
	14.5]		
15]	
244.7	15.0				Silt (ML)			1	_
		11.0	SS7SS	13-50/5	15.0-16.0' - dark reddish brown, dry to moist, dense fine grained, some black mottling	ᠸ,			
		11.0	33/33	(50/5")				1	
	17.0							1	
									Soil sampling completed at 15:35 on 6/30/06
	17.5 <i>f</i>	2.0	SS8SS,	50/2	Silt (ML) 17.5-17.7' - dark reddish brown, dry to moist, dens		/	1	0,30,00
				(50/2")	fine grained, nonplastic to low plasticity, some blac	k ,	']		
					mottling	/			
_					Begin Rock Coring at 17.7 ft bgs See the next sheet for the rock core log			1	
20_					-				
								1	
								1	



PROJECT NUMBER:

338884

BPA-2

SHEET 2 OF 6

ROCK CORE LOG

ORIENTATION : Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686894.0 N, 2012134.4 E)

ELEVATION: 259.7 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

COMING	CORING EQUIPMENT AND METHOD: CME-550, NQ Double Barrel ORIENTATION: Vertical											
WATER	LEVELS: 8.	6 ft bo	ıs	START : 6/30/06 13	:25	END : 7/6/06 11:00	LOGGER : JF/LH					
	- (%			DISCONTINUITIES	ပ္ခ	LITHOLOGY	COMMENTS					
DEPTH AND ELEVATION BELOW SURFACE (#)	CORE RUN, LENGTH, AND RECOVERY (%)		FRACTURES PER FOOT	DESCRIPTION	10 LOG	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,					
ATI A	E RI STH, OVE	(%) Q	LE SOL	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	BOL	MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD					
BELC SURI	COR	A O	FRA(PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC	AND ROCK MASS CHARACTERISTICS	DROPS, TEST RESULTS, ETC.					
	17.7	_			× ×	Siltstone	Rock coring began at 10:45					
	DANO		0		× × × ×	17.7-22.0' - dark reddish brown, fine	on 7/5/06					
	R1NQ 2.3 ft	0			Î ŝ	 grained, very soft, highly weathered 	R1: 10:45-10:53 on					
	100%		0		$\stackrel{\circ}{\underset{\times}{\times}}$		At 17.7-20.0': R-Scale = R0					
20_	20.0		1		× ×							
239.7			0		××		R2: 11:00-11:12					
			U		××		At 20.0-25.0': R-Scale = R0- R1					
			0		$]_{\overset{\circ}{\sim}}\overset{\circ}{\sim}$		SC-1 collected					
			U		Î X		21.3-22.4'					
	R2NQ 5 ft	0	0]::::	Sandstone 22.0-26.2' - light reddish gray, very						
	100%	U	U]:::	soft, fine sand to medium sand, highly						
			1]:::	weathered, numerous black linear mottles						
			'	23.5' - Fracture, 60 deg, rough, undulating, black staining] : : : : : :	At 22.0' - grades from overlying						
l _			1	24.2-24.4' - Fracture, 60 deg, rough,]: : :	siltstone to sandstone	_					
25	25.0		'	undulating, black staining]:::							
234.7			10+]:::		R3: 11:15-11:28					
l _			10.	25.6-25.9' - Fracture zone, friable material]:::		_					
1 _			10+	26.2-26.4' - Fracture zone, dark purple, baked		26.2-26.4' - dark purple, soil-like	At 25.0-31.0': R-Scale = R0- R1 -					
l _			101	zone 26.4' - Fracture, 50 deg, slickensided, planar	x x	Siltstone	_					
_	R3NQ 5 ft	0	10+	26.7' - Fracture, 50 deg, slickerisided, planar 26.7' - Fracture, rough, undulating,	× ×	At 26.4' - dark reddish brown, fine grained, very soft	_					
l _	100%		10.	slickensided 27.1' - Fracture, rough, undulating,	××	26.4-31.0' - highly weathered, fractured rock, soil-like areas, more	_					
_			1	slickensided	× × × ×	competent at bottom	_					
_			·	27.3' - Fracture, rough, undulating, slickensided	x x		_					
_			10+	28.4' - Fracture, 50 deg, rough, undulating,	×××	29.0' - blue-green mottling	_					
30	30.0		10	yellow staining, slickensided 28.8-29.5' - Fracture, vertical and 50 deg, —	××							
229.7			10+	slickensided	× ×	31.0-45.6' - fresh	R4: 11:39-12:05					
_				29.8' - Fracture, 30 deg and 50 deg, slickensided, planar	××		_					
_			2	30.0-31.0' - Fracture, 60 deg, rough,	× × × ×	31.0-33.2' - numerous clay clasts, 5% - white speckles	_					
_				undulating, heavily fractured at bottom 31.4' - Fracture, rough, undulating,	$\frac{1}{x}$	-	_					
_	R4NQ 5 ft	70	0	slickensided, rough v notch	××	-	At 32.3': R-Scale = R3 -					
-	100%			31.8' - Fracture, 20 deg, rough, undulating, dark staining	××	-	_					
-			0	33.1-35.0' - Fracture zone, 65 deg, numerous existing cracks at 65 deg	××	-	_					
-				evianilà ciacus ar oo neà	× × × ×		_					
1 -			1		x x	34.0' - blue-green mottling	-					
35_ 224.7	35.0			_	××		DE: 10:05 10:00					
			2	35.3' - Fracture, 30 deg, slickensided,	× × × ×	<u></u>	R5: 12:35-13:00					
-				undulating 35.8' - Fracture, horizontal and 50 deg,	× ×	_	-					
1 -			2	slickensided, undulating	× × × ×	-	-					
- R5NQ				36.3' - Fracture, 50 deg, slickensided, undulating	× ×	36.6-37.0' - blue-green mottling, clay clasts	-					
L -	5 ft	70	0	anddanig	× ×	-						
1	1	1	i l		1		I					

2BB-8 Rev. 1



PROJECT NUMBER:	BORING NUMBER:					_
338884	BPA-2	SHEET	3	OF	6	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686894.0 N, 2012134.4 E)

ELEVATION: 259.7 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				HOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS : 8.	6 ft bo	S	START : 6/30/06 13 DISCONTINUITIES	:25	END : 7/6/06 11:00 LITHOLOGY	LOGGER : JF/LH COMMENTS
	□ (%)				90	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
- - - 40 219.7 - - -	92% 40.0 R6NQ 5 ft 108%	74	2 0 2 2 2	36.5' - Fracture, 40 deg, slickensided, undulating, opposite direction of above fractures 38.0-38.3' - Fracture, 60 deg, slickensided, undulating, same direction as first few 38.3-38.5' - Fracture, 60 deg, slickensided, undulating, opposite direction as above (same as 36.5') so wedge of 120 deg 40.5-42.0' - Fracture, vertical, rough, undulating	- x x x x x x x x x x x x x x x x x x x	38.5-38.9' - blue-green mottling, clay clasts 39.0-40.0' - trace very fine to fine sand 40.0-45.0' - very fine to fine sand	At 38.7': R-Scale = R1 R6: 13:08-13:40
- - - 45	45.0		0		- × × × × × × × × × × × × × × × × × × ×	- 43.5-44.3' - heavily mottled - -	At 43.1': R-Scale = R3 SC-2 collected 43.5-44.6'
214.7 - -	1010		3	46.0-46.4' - Fractures, 60 deg and horizontal, rough, undulating, to smooth and undulating	- × × - × × - × × - × × - × ×	45.0-45.6' - very soft to soft, grades to sandstone Sandstone 45.6-45.8' - white and very dark gray, soft to hard, very fine sand, fresh Siltstone	R7: 13:45-14:25 - - -
- - - - - 50	R7NQ 5 ft 100% 50.0	100	0 0	47.0' - Fracture, horizontal, rough, undulating 48.0' - Fracture, 10 deg, rough, undulating	- X X X X X X X X X X X X X X X X X X X	45.8-47.2' - dark reddish brown, very soft to soft, fresh, fine grained Sandstone 47.2-48.0' - white and very dark gray, soft to hard, very fine sand, fresh Siltstone 48.0-49.3' - dark reddish brown, very soft to soft, fresh	
209.7			2	50.7' - Fracture, 30 deg, rough, slickensided 51.0-51.8' - Fracture (2), horizontal and vertical, rough, undulating, tightly healed at 51.45-51.75'	- × × × × × × × × × × × × × × × × × × ×	Sandstone 49.3-49.9' - white and very dark gray, mottled greenish gray and reddish black, soft to hard, very fine sand, fresh, some laminations Siltstone At 49.9' - dark reddish brown, soft	R8: 14:37-15:03
-	R8NQ 5 ft 100%	88	2	52.4' - Fracture, 15 deg, rough, slickensided 52.7' - Fracture, 15 deg, rough, slickensided	- × × - × × - × ×	49.9-71.0' - fresh 50.0-51.0' - trace medium sand	At 52.3': R-Scale = R2-R3 -
-			4	53.3-53.6' - Fracture (1), vertical, rough, undulating, slickensided, smooth	- × × - × × - × ×	53.5-55.8' - bedding on 45 degree - angle	-
55_ 204.7 -	55.0		1	54.9' - Fracture, horizontal, rough, undulating – 55.8' - Fracture, horizontal and 20 deg, rough, undulating	- × × - × × - × × - × ×		R9: 15:10-15:30
- - -	R9NQ 5 ft	72	0	56.0-56.2' - Fracture (2), horizontal and 45 deg, slickensided, undulating 56.8' - Fracture, horizontal, slickensided, undulating, smooth	- × × - × × - × × - × ×	56.8' - large greenish gray mottle, 0.1' thick, throughout width of core	

2BB-9 Rev. 1



PROJECT NUMBER:

338884

BPA-2

SHEET 4 OF 6

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686894.0 N, 2012134.4 E)

ELEVATION: 259.7 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

-			HOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER LEVELS:	8.6 ft t	ogs	START : 6/30/06 13 DISCONTINUITIES	3:25	END : 7/6/06 11:00 LITHOLOGY	LOGGER : JF/LH COMMENTS
g Q ^(%)		1,0	DESCRIPTION	-09		COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft) CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHINESS, CAVING ROD DROPS, TEST RESULTS, ETC.
60 60.0 199.7 - - - - - - - - - - 100	NQ t 100	4 10+ 0 0 0	58.7' - Fracture, horizontal, rough, undulating 59.3' - Fracture zone, 60 deg, rough, undulating _	××××××××××××××××××××××××××××××××××××××	- - - - - - - - -	R10: 15:38-15:55 At 61.6': R-Scale = R3
65_65.0 194.7 - - - - - - - - - - - - - - - - - - -	t 100	0 0 0	-	- × × × × × × × × × × × × × × × × × × ×	- - - -	R11: 16:01-16:17
70 70.0	%	0		- × × - × × - × × - × × - × ×	68.0-69.7' - laminated beds on 45 degree angle	At 68.4': R-Scale = R3
189.7 - - - - - - - - - - 5 f 965	t 43°	1	70.1' - Fracture, 30 deg, smooth, undulating 70.6' - Fracture, slickensided, undulating, parabolic shaped 70.8' - Fracture, 35 deg, rough, slickensided 71.0-71.8' - Fracture zone, rough, slickensided 72.0-72.1' - Fracture zone, rough, undulating 72.2-72.4' - clay and siltstone alternating, friable material 72.4' - Fracture (2), horizontal and 45 deg, slickensided, undulating 73.7' - Fracture, 35 deg, slickensided, smooth	X	71.0-72.4' - moderately weathered 71.8-72.0' - clay seam, very soft, friable material 72.4-73.7' - fresh Siltstone At 73.7' - greenish gray, mottled olive,	R12: 16:34-16:48
75 75.0 184.7 - - - - - - - - - - - - 51		2 ××× 0 0 0	74.2' - Fracture, 30 deg, slickensided, smooth 74.5' - Fracture, horizontal, rough, undulating –	- × × × × × × × × × × × × × × × × × × ×	very soft, fresh, bedding on 30 degree angle to 74.2' 75.0' - heavily mottled, becomes multicolored—reddish brown, blue gray, olive yellow—fine grained	R13: 08:10-08:45 on 07/06/06 - SC-3 collected 76.3-77.5' -



PROJECT NUMBER:

338884

BPA-2

SHEET 5 OF 6

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686894.0 N, 2012134.4 E)

ELEVATION: 259.7 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS: 8.	6 ft bo	ıs	START : 6/30/06 1	3:25	END : 7/6/06 11:00	LOGGER : JF/LH
	(9)			DISCONTINUITIES	Ō	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
- - -	94%		0		- × × × × × × × × × × × × × × × × × × ×	Siltstone At 78.2' - very dusky red to dark reddish brown, mottled blue gray and dark purple, very soft to soft, fresh	
80 179.7 - - -	80.0		0	-	- × × × × × × × × × × × × × × × × × × ×		R14: 08:50-09:12 -
-	R14NQ 5 ft 1 106%	106% 1 83.9' - Fracture, 10 deg, rough, undulating 84.4-85.0' - Fracture, 70 deg and 80 deg.		- - - 84.0' - clay seam at bottom of R14	At 82.3': R-Scale = R3-R4		
85 174.7 - -	85.0		- × × × × × × × × × × × × × × × × × × ×	85.0-96.8'	R15: 09:17-09:45		
- - - -	R15NQ 5 ft 100%	80	1 0	87.5-87.7' - Fracture, 60 deg, rough, undulating	- × × × × × × × × × × × × × × × × × × ×	- - - -	At 87.2': R-Scale = R3
90	90.0 R16NQ		0	-		- - -	R16: 09:50-10:16
-	5 ft 100%	100	1 0	93.6' - Fracture, 30 deg, slickensided, undulating	- × × × × × × × × × × × × × × × × × × ×	- - - - - -	At 93.1': R-Scale = R3
95 164.7 - - -	95.0 R17NQ		0	-	- × × × × × × × × × × × × × × × × × × ×	95.6-96.1' - trace very fine to fine sand 96.3-96.4' - trace very fine to fine sand 96.8-97.5' - blue green, dark purple, and reddish black mottling	R17: 10:20-10:50
	5 ft	100	0		7× ×	F ,	

2BB-11 Rev. 1



CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

PROJECT NUMBER:	BORING NUMBER:					
338884	BPA-2	SHEET	6	OF	6	

ROCK CORE LOG

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686894.0 N, 2012134.4 E)

ELEVATION: 259.7 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

OOM	J LQOII WILL	11 / 11 1	D IVIL	THOD . CIVIE-330, INQ DOUBLE Barrel				ORIENTATION : Vertical
WATER	LEVELS: 8.	6 ft b	gs	START : 6/30/06 13	:25		END: 7/6/06 11:00	LOGGER : JF/LH
)			DISCONTINUITIES	(Ţ	LITHOLOGY	COMMENTS
- F	CORE RUN, LENGTH, AND RECOVERY (%)		S	DESCRIPTION	SYMBOLICION	Í	ROCK TYPE, COLOR,	
NO H	NA PA	(9)	A.F.	BESONII HON	<u>-</u>	2	MINERALOGY TEXTURE	SIZE AND DEPTH OF CASING,
£¥8¥	유트	6) (I	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	2		WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
DEPTH AND ELEVATION BELOW SURFACE (ft)	RASS	RQD(%)	FRACTURES PER FOOT	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS			AND ROCK MASS CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
Ошшо		22	ΕД	THISTANCES, SOLVE AGE STAINING, AND HOTTINESS	Ů.	'	CHARACTERISTICS	
-	104%				−X × ×	*	-	First water level = 8.6' bgs
_			0		××	X	_	taken 7/6/06 at 13:50; second water level = 3.2'
			"		×	X		bgs taken 7/7/06 at 15:50
-	1				√×	X	99.0-100.0' - trace very fine to fine	R-Scale performed after
-	-		0		⊢× ×	X-	- sand	drilling on stored samples
100_	100.0				×	X		
159.7			XXX				Bottom of Boring at 100.0 ft bgs on - 7/6/06 11:00	
I -					1	I	- 7/6/06 11.00	_
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PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-3	SHEET 1 OF 9

SOIL BORING LOG

 PROJECT : PEC COLA, New Hill, NC
 LOCATION : (NAD 27) (686836.6 N, 2012199.0 E)

 ELEVATION : 260.6 ft MSL (NGVD 29)
 DRILLING CONTRACTOR : D. Hedges, S&ME

DRILLING EQUIPMENT AND METHOD: CME-550, 3-5/8 Tricone Bit, 24 Split Spoon and 140 lb. Automatic Hammer ORIENTATION: Vertical WATER LEVELS: 29.2 ft bgs START: 6/18/06 08:30 END: 6/20/06 09:12 LOGGER: LH DEPTH BELOW EXISTING GRADE (ft) SOIL DESCRIPTION COMMENTS STANDARD PENETRATION LOG INTERVAL (ft) TEST RESULTS SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY SYMBOLIC DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION RECOVERY (in) 6"-6"-6" #TYPE (N) 260.6 0.0 Silty Gravel (GM) 0.0-0.8' - pale red, white, and reddish gray, dry, medium dense, very fine to medium grained 23.0 SS1SS 12-9-7-7 Clay (CL) (16)0.8-1.9' - reddish brown, mottled light greenish gray, 20 dry, very stiff, laminated bedding, trace gravel Soil sampling completed at 08:42 on 6/18/06 1.0 ASS2SS 2.6 2.9 50/1 2.5-2.6' - reddish brown, mottled light greenish gray, (50/1")dry, very stiff, laminated bedding, trace gravel Begin Rock Coring at 2.9 ft bgs See the next sheet for the rock core log 5 255.6 10 250.6 15 245.6 20



PROJECT NUMBER:

338884

BPA-3

SHEET 2 OF 9

ROCK CORE LOG

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686836.6 N, 2012199.0 E)

ELEVATION: 260.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	LEVELS : 29	9.2 ft b	gs	START : 6/18/06 08	3:30	END : 6/20/06 09:12	LOGGER : LH
	(9)			DISCONTINUITIES	ß	LITHOLOGY	COMMENTS
gz €	CORE RUN, LENGTH, AND RECOVERY (%)		ES	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ff	TH,	R Q D (%)	CTURES R FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS,		MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND
	ORE ECC	g	FRAC PER F	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	×₩	AND ROCK MASS CHARACTERISTICS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
- ш ш ю	2.9	IĽ.	шп			Siltstone	Rock coring began at 09:21
l _	1.3 ft	38	2	3.1' - Fracture, horizontal, rough, planar	× × × ×	2.9-4.2' - reddish brown, mottled light	on 6/18/06
_	77%		$\times\!\!\times\!\!\times$	3.4' - Fracture, horizontal, rough, undulating	_ × ×	greenish gray, very soft, laminated bedding, slightly weathered	R1: 09:21-09:27 on 06/18/06.
_	4.2				_ ×. ×	- Sandstone	At 2.9-4.2' rock is so soft
5			0	_]:::	4.2-8.4' - dark reddish brown and light	that it was washed away
255.6]:::	reddish brown, mottled greenish gray and reddish black, soft, very thin to	partially during coring. — At 2.9-4.2': R-Scale = R0-
			1	5.6' - Fracture, 30 deg, smooth, undulating]:::	medium bedding, very fine sand to	R1
	R2NQ				1:::	coarse sand, angular to subrounded, poorly sorted, slightly weathered, finer	R2: 12:20-12:34 - At 4.2-6.0': R-Scale = R3-
	5 ft	80	0] ::::	and coarser grained beds	R5
	102%] :::		At 6.0-10.0': R-Scale = R3
			2	7.5' - Fracture, horizontal, rough, undulating	7:::		
				7.7' - Fracture, horizontal, rough, undulating	7:::		1
			1	8.5' - Fracture, horizontal, rough, undulating,	× ×	Siltstone At 8.4' - dark reddish brown and light	SC-1 collected - 8.4-9.2'
	9.2		WW	connected to 45 deg fracture	T:::	reddish brown, mottled greenish gray	R3: 13:20-13:27
10			2		1 :::	and reddish black, soft, slightly weathered	10. 10.20 10.27
250.6				-		8.8' - large reddish black mottle, 0.05'	At 10.1-12.5': R-Scale = R2
_			0		× × × ×	hick, 0.1' long Sandstone	1
-	R3NQ				Tx x	9.0-10.1' - dark reddish brown and	1
-	5 ft	66	0		Tx x	light reddish brown, mottled greenish	1
_	99%				× ×	gray and reddish black, soft, very thin to medium bedding, very fine sand to	1
-			4	12.5-13.7' - Fracture zone, horizontal, rough,	- × ×	coarse sand, angular to subrounded, poorly sorted, slightly weathered, finer	At 12.5-14.0': R-Scale = R0
-				undulating, clay seams throughout, very soft to hard	- × ×	and coarser grained beds	1
-			3	Haid	× ×	Siltstone	1
-	14.2			14.2.45.41. Freeting was 0.01thick along your	- × × × ×	At 10.1' - dark reddish brown, mottled greenish gray and reddish black, very	At 14.0-14.6': R-Scale = R1
15			10+	14.2-15.4' - Fracture zone, 0.8' thick clay, very soft, friable material	Tx x	soft, laminated bedding	R4: 13:33-13:43
245.6				<u>-</u>	√x ×	— 10.1-10.2' - clay seam, very soft, friable material	_
-			3		- × ×	10.1-12.5' - slightly weathered	1
-	D4NO				- × ×	12.5-15.4' - highly weathered 14.2-17.7' - very soft to soft, some	- At 16.1': R-Scale = R3
-	R4NQ 5 ft	76	0		$\stackrel{\times}{\times}$	laminated beds	7 to 1911 to Godie The
_	104%				- × ×	_ 15.4-17.7' - fresh	1
-			0		- <u>^``</u> ×		
-					× ×	Sandstone 17.7-17.9' - fresh	1 +
-			0		× × × ×	Siltstone	-
-	19.2				- × ×	_ 17.9-19.3' - dark reddish brown, mottled greenish gray and reddish]
			0		-[:::	black, very soft to soft, fresh, some	R5: 13:47-13:58
20 <u> </u>				_	1:::	∖laminated beds Sandstone] -
-			0	20.3' - Contact between sandstones, 10 deg,	-	19.3-20.3' - white and dark gray,	At 20.3': R-Scale = R3 -
-				tightly healed	- ∷∷	 mottled dark reddish brown, thin bedding, very fine sand to fine sand, 	-
-	R5NQ 5 ft	100	0		∃ ∷:	subangular to subrounded, well	-
-	100%		<u> </u>		- ∷:	sorted, fresh	-
-			0		∤ ∷:	-	At 22.3': R-Scale = R3 -
					1		



PROJECT NUMBER:

338884

BPA-3 SHEET 3 OF 9

ROCK CORE LOG

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686836.6 N, 2012199.0 E)

ELEVATION: 260.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	LEVELS : 29).2 ft b	2 ft bgs START : 6/18/06 0		08:30 END : 6/20/06 09:12		LOGGER : LH	
	(%)			DISCONTINUITIES	စ္ခ	LITHOLOGY	COMMENTS	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.	
-	24.2		0			Conglomeratic Sandstone At 20.3' - white and dark gray, soft, fine sand to medium gravel, subangular to rounded, poorly sorted, fresh, coarsens with depth 24.2-28.5' - dark greenish gray fine to	R6: 14:02-14:10	
25235.6 			0	_		medium gravel	At 24.9': R-Scale = R3	
- -	R6NQ 5 ft 104%	96	0		- - -	- At 26.8': R-Scale = R3 -		
-			2	28.5' - Contact between siltstone and	 	Siltstone	_	
30_ 230.6	29.2		0	sandstone, 45 deg, tightly healed 28.7-29.1' - Fractures (2), 45 deg, slickensided, undulating 29.8' - Contact between siltstone and	× × · · · · · · · · · · · · · · · ·	- 28.5-29.2' - dark reddish brown, mottled greenish gray, very soft to soft, fresh Conglomeratic Sandstone	R7: 14:16-14:25 At 29.5': R-Scale = R4 At 29.8-31.7': R-Scale = R2	
-	R7NQ		4	sandstone, 45 deg, tightly healed 30.4-30.5' - Fractures (2), horizontal, rough, undulating, sandstone lense runs 45 deg of fractures	× × × ×	29.2-29.8' - white and dark gray, soft, fine sand to medium gravel, subangular to rounded, poorly sorted, fresh, coarsens with depth		
-	5 ft 98%	86	10+	30.9' - Fracture, horizontal, rough, undulating 31.1' - Fracture, 30 deg, rough, undulating 31.2' - Fracture, horizontal, rough, undulating 31.3-31.4' - Fracture zone, rough, undulating,	× × × × × × × × × ×	Siltstone 29.8-30.4' - dark reddish brown, mottled greenish gray and reddish black, very soft to soft, fresh, some	At 31.7-31.9': R-Scale = R1	
-	34.2		1	siltstone, very soft 32.6' - Fracture, horizontal, smooth, planar, greenish gray in fracture 33.5' - Fracture, horizontal, smooth, planar	× × × × × × × ×	laminated beds Sandstone 30.4-30.7' - fresh, on 45 degree angle, <0.07' thick	At 33.5-34.2': R-Scale = R0	
35 <u> </u>			10+	34.4-34.6' - Fracture zone, horizontal, rough, undulating, clay seams, very soft, friable material	× × × × × × × ×	Siltstone 30.7-31.1' - dark reddish brown, mottled greenish gray and reddish	At 34.2-34.8': R-Scale = R1 R8: 14:30-14:40 At 35.1': R-Scale = R3-R4	
- -	R8NQ 5 ft 98%	98	0	34.8' - Fracture, horizontal, rough, planar	X	black, very soft to soft, fresh, some laminated beds Sandstone 31.1-31.2' - fresh, on 45 degree angle, <0.07' thick		
-	3070		0		× × × × × × × ×	Siltstone At 31.2' - dark reddish brown, heavily mottled greenish gray and reddish black, very soft to soft, some laminated	At 37.2': R-Scale = R3-R4	
40	39.2		0		× × × × × × × ×	 beds 31.2-31.3' - fresh 31.3-34.8' - slightly weathered 31.7-31.8' - clay seam, very soft, friable material 	R9: 14:48-15:00	
220.6			0	_	× × × × × × × ×		At 40.1': R-Scale = R3.5	
-	R9NQ 5 ft 97%	97	0		× × × × × × × ×	greenish gray mottles encircled by reddish black 34.8-48.1' - fresh		
			0		x x			

2BB-15 Rev. 1



PROJECT NUMBER:	BORING NUMBER:		
338884	BPA-3	SHEET	4 OF 9

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686836.6 N, 2012199.0 E)

ELEVATION: 260.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

-				THOD : CME-550, NQ Double Barrel		END 0/00/00 00 40	ORIENTATION : Vertical
WATER	LEVELS : 29	9.2 ft b	ogs	START : 6/18/06 08 DISCONTINUITIES		END : 6/20/06 09:12 LITHOLOGY	LOGGER : LH COMMENTS
	ے (%)		I I		90	EIIIIOLOGI	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
45_ 215.6	44.2		0	_	- × × - × × - × × - × × - × × - × × - × ×	34.8-35.8' - greenish gray mottles with reddish black encircling 39.2-49.2' - trace greenish gray mottles, soft	R10: 15:07-15:17
- - -	R10NQ 5 ft 102%	96*	0		- × × - × × - × × - × × - × ×	-	At 46.0': R-Scale = R3
- -	49.2		10+	48.1' - Fracture, horizontal, smooth, planar 48.6' - Fracture, horizontal, smooth, planar 49.2' - Fracture zone, horizontal, rough, planar,	- × × - × × - × × - × × - × ×	48.1-51.9' - moderately weathered 48.9' - large greenish gray mottle, clay	- - At 48.8': R-Scale = R3 - R11: 08:24-08:38 on
50 210.6 - - - -	R11NQ 5 ft 95%	60*	10+ 10+ 10+	49.2 - Fracture Zone, nonzontal, rough, planar, undulating 49.6-49.8' - Fracture (5), horizontal, smooth, planar 50.9' - Fracture, horizontal, smooth, planar 50.9' - Fracture, horizontal, smooth, planar 51.0-51.9' - Fracture zone, horizontal, smooth, planar, fracture zone with 0.02-0.03' thick clay seams	- X X X X X X X X X X X X X X X X X X X	seams 48.9-49.2' - clay seam, very soft, friable material 49.2-53.0' - very soft 49.9-50.0' - large greenish gray mottle, 0.05' thick 51.9-53.6' - fresh	SC-2 collected 49.9-50.8'
- - 55_ 205.6	54.2		0 XXX 0 0	-	- X X X X X X X X X X X X X X X X X X X	53.0-54.2' - soft Sandstone 53.6-54.2' - dark reddish brown, mottled greenish gray and reddish black, soft, very fine sand to fine sand, subangular, well sorted, fresh, grades to sandstone and back to siltstone at bottom	R12: 08:43-08:59 At 55.1': R-Scale = R3-R4
- - - -	R12NQ 5 ft 100%	100	0 0	56.2' - Fracture, horizontal, rough, planar	- X X X X X X X X X X X X X X X X X X X	Siltstone 54.2-58.1' - dark reddish brown, mottled greenish gray and trace reddish black, very soft, fresh Sandstone At 58.1' - light reddish gray and dark	At 57.0': R-Scale = R3-R4
60_ 200.6	59.2		0	-	-	reddish gray, soft to hard, very fine sand to coarse sand, subangular to rounded, fresh, well sorted to poorly sorted, trace gravel sized silt clasts 59.2-62.7' - white, dark greenish gray, dark reddish brown, and very dark	At 58.7': R-Scale = R4 R13: 09:03-09:16 All beds in R13 except last 0.2' are on 30 degree angle.
- - -	R13NQ 5 ft 100%	98	1 2	61.0' - Fracture, 30 deg, rough, planar		gray, laminated to thin bedding	At 61.5': R-Scale = R3-R4

2BB-16 Rev. 1



PROJECT NUMBER:

338884

BPA-3

SHEET 5 OF 9

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686836.6 N, 2012199.0 E)

ELEVATION: 260.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS : 29	9.2 ft b	gs	START : 6/18/06 08	:30	END: 6/20/06 09:12	LOGGER : LH	
	6)			DISCONTINUITIES	Ğ	LITHOLOGY	COMMENTS	
₽Z €	N, AND ₹₹ (3		SIL	DESCRIPTION	20	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.	
-	64.2		0	62.7' - Contact between siltstone and sandstone, 30 deg, tightly healed 62.8' - Fracture, 30 deg, rough, planar 62.9' - Fracture, 30 deg, smooth, planar,	× × × × × × × ×	Siltstone At 62.7' - dark reddish brown, trace mottled greenish gray and reddish black, soft, fresh	At 63.0': R-Scale = R3-R4 -	
65_ 195.6			0	greenish gray mottle on upper side of fracture	× × × × × ×	62.7-64.2' - 30% very fine sand	R14: 09:20-09:35	
-	R14NQ 5 ft 100%		1	65.7' - Fracture, horizontal, rough, undulating	× × × × × ×		At 65.3': R-Scale = R3-R4 -	
-		100	1	66.3' - Fracture, horizontal, rough, undulating	× × × × × ×	-	-	
-			0		× × × × × ×	-	At 67.5': R-Scale = R3-R4	
-	69.2		0		× × × × × ×		- R15: 09:40-09:52	
70_ 190.6			0	- -	× × × × × ×	_	K15: 09:40-09:52 _	
-	R15NC 5 ft 96%		0		× × × ×	Sandstone 70.75-71.0' - dark reddish brown, soft,	At 70.4': R-Scale = R3-R4 -	
_		96	0		× × × × × ×	very fine sand to fine sand, subangular, well sorted, fresh Siltstone	- At 72.3': R-Scale = R3-R4	
-			0		× × × × × ×	At 71.0' - dark reddish brown, trace mottled greenish gray and reddish black, soft, fresh, 0-30% sand, grades	-	
-	74.2		0 ****		× × × × × ×	to sandstone at bottom 73.4-73.7' - mottled greenish gray (0.05-0.1' thick)	At 73.4': R-Scale = R3-R4 - R16: 09:57-10:13 _	
75 <u> </u>			0	_	× × × ×	 Sandstone	_	
-	R16NQ		0			75.2-77.2' - dark reddish brown and reddish gray, trace reddish black mottling, soft, laminated to medium		
-	5 ft 101%	94*	0		× × × ×	bedding, very fine sand to fine sand, subangular, poorly sorted, fresh Siltstone	At 76.5': R-Scale = R3-R4 -	
-			1	77.7' - Fracture, horizontal, smooth, planar, mottled reddish black in areas 78.4-78.7' - Fracture zone, horizontal and	× × × × × ×	laminated bedding, tresn, convoluted	- At 78.3': R-Scale = R3	
-	79.2		10+	vertical, rough, undulating 79.2-80.6' - Fracture zone, horizontal and 45 deg, rough, planar, slickensided at 79.4' (45	× × × × × × × ×	bedding 77.2-78.4' - highly mottled reddish black (30-40%) and white (10-20%)	R17: 10:25-10:41	
80 180.6 -			10+	deg) and 79.8' (horizontal)	× × × ×	Siltstone At 78.4' - dark gray, mottled dark - reddish brown and greenish gray, soft to very soft, laminated bedding, beds	-	
-	R17NQ 5 ft			10+	80.6-82.1' - Clay seam, fracture zone through clay seams (mostly clay with some silt beds), very soft, mostly friable material	× × × × × ×	mostly horizontal 78.4-84.2' - moderately weathered	At 81.1': PP: 1.0 tsf
-	100%		2	82.4' - Fracture, horizontal, rough, undulating	- × × - × × - × ×	<u> </u>	-	
			-		ľ			



PROJECT NUMBER:

338884

BPA-3

SHEET 6 OF 9

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686836.6 N, 2012199.0 E)

ELEVATION: 260.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

CORING	EQUIPMEN	II ANI	DIME	THOD : CME-550, NQ Double Barrel		URII	ENTATION : Vertical
WATER	LEVELS : 29	9.2 ft b	gs	START : 6/18/06 08:	30	END: 6/20/06 09:12 LOG	GGER : LH
	<u></u>			DISCONTINUITIES	ഗ	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS ROCK TYPE, COLOR, SIZE	E AND DEPTH OF CASING, D LOSS, CORING RATE AND OOTHNESS, CAVING ROD OPS, TEST RESULTS, ETC.
85_ 175.6	84.2		10+	83.2' - Fracture, horizontal, rough, undulating 83.5-83.6' - Fracture zone, horizontal and vertical, rough, undulating 84.0' - Fracture, 45 deg, rough, undulating 84.4' - Fracture, horizontal, rough, planar 85.0' - Fracture, horizontal, rough, undulating	× × × × × × × × × × × × × × × × × × ×	mottled dark reddish brown, becoming more dark reddish brown with depth 84.2-86.6' - fresh R18:	collected 83.2' 10:52-11:07 .7': R-Scale = R4
- - - -	R18NQ 5 ft 94%	86	0 0	85.9-86.1' - Fracture zone, horizontal, rough, undulating -	× × × × × × × × × ×	Sandstone 86.6-87.6' - dark reddish brown and greenish gray, soft to hard, medium bedding, very fine sand to medium sand, subangular, fresh, well sorted (top) to poorly sorted (bottom), coarsens with depth	- - .2': R-Scale = R3-R4 - -
90 170.6 -	89.2 R19NQ		0 0	- - - -	× × × × × × × × × × × ×	Siltstone At 87.6' - dark reddish brown, trace mottled greenish gray and reddish block soft fresh some laminated.	-11:13-11:24
- - -	5 ft 96%	96	0 0	- - - -	× × × × × × ×	92.3' - grades to sandstone Sandstone 92.3-93.4' - weak red, mottled dark reddish brown, soft, thin bedding, very fine sand to fine sand, subangular,	.8': R-Scale = R3 - -
95 165.6 - - -	94.2 R20NQ 5 ft 94%	94	0 0	- - - - -	× × × × × × × × × × × × × × × × × × ×	At 93.4' - dark reddish brown, some	11:29-11:459': R-Scale = R3-R4
- - -	99.2		0	- - - -	× × × × × × × × ×	98.5' - mottled greenish gray	.2': R-Scale = R4
100 160.6	R21NQ 5 ft	89	0 0 3	 - - 101.6' - Fracture, horizontal, rough, planar	× × × × × × × × × × × ×	At 99.	11:53-12:09
_	103%		0	101.8' - Fracture, horizontal, rough, planar	× :	X X X X	- -



PROJECT NUMBER:

338884

BPA-3 SHEET 7 OF 9

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686836.6 N, 2012199.0 E)

ELEVATION: 260.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				THOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS : 29 T	9.2 ft b	ogs	START : 6/18/06 08	:30 T	END : 6/20/06 09:12	LOGGER : LH
	<u>@</u>			DISCONTINUITIES	90	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
105 6 6 6 6 6 6 6 6 6	104.2 R22NQ 5 ft 94% 109.2 R23NQ 4.8 ft 100%	777	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	PLANARITY, INFILLING MATERIAL AND	S.W. S.	WEATHERING, HARDNESS, AND ROCK MASS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
120_ 140.6 - -	R25NQ		2	120.0' - Fracture, horizontal, rough, undulating 120.5' - Fracture, horizontal, rough, planar 120.8' - Fracture, horizontal, rough, undulating	× × × × × × × × × × × × × × × × × × ×	_ 119.2-124.2' - little to no sand — - - -	R25: 14:42-14:54
-	5 ft 100%	92	1	121.8-122.0' - Fracture zone, 45 deg, rough, undulating	× > × > × > × >	-	_ _At 122.6': R-Scale = R3-R4
	L		L			1	

2BB-19 Rev. 1



PROJECT NUMBER:	BORING NUMBER:					
338884	BPA-3	SHEET	8	OF	9	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686836.6 N, 2012199.0 E)

ELEVATION: 260.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

	J LQUII WILI	II AIN		FHOD : CME-550, NQ Double Barrel		ORIENTATION :	vertical
WATER	LEVELS : 29).2 ft b	gs	START : 6/18/06 0	3:30	-	
	- (%			DISCONTINUITIES	ပ္ခ	U LITHOLOGY COMME	NTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, WEATHERING, HARDNESS, CHARACTERISTICS ROCK TYPE, COLOR, SIZE AND DEPTH FLUID LOSS, CORI SMOOTHNESS, O DROPS, TEST RE	NG RATE AND AVING ROD
- 125 135.6	124.2		0	123.1-123.4' - Fracture zone, 45 deg, rough, undulating	- × - × - × - × - ×	R26: 15:02-15:25	- - - = R3-R4 —
-	R26NQ 5 ft 100%	100	0		- × - × - × - ×	At 126.3': R-Scale	- = R3-R4 -
-			0			At 126.8' - reddish brown and dark reddish brown, soft, laminated to medium bedding, very fine sand to fine sand, subangular, well sorted, fresh - 128.2-128.2' - silty seam	- - -
130 <u> </u>	129.2		0	-	- : : : : : : : : : : : : : : : : : : :	128.5-128.6' - silty seam 128.7' - silty seam 129.0' - silty seam 129.2-130.5' - subangular to rounded, poorly sorted, very fine, coarsens with 129.2-130.5' 129.2-130.5' 130.5-132.6' - poorly sorted, medium	= R5
-	R27NQ 5 ft 100%	100	0			At 131.5': R-Scale At 133.2-133.3' - fine to medium grained At 133.3': R-Scale	- -
- 135	134.2		2	134.7' - Fracture, horizontal, rough, undulating		lenses with some silt 133.6-133.7' - fine to medium grained lenses with some silt 133.7-134.1' - siltstone lens as	-
125.6 - - -	R28NQ		1	135.0' - Fracture, horizontal, rough, undulating	- × - × - × - ×	lenses with some silt Siltstone At 135.7': R-Scale	= R4 _
- -	5 ft 102%	68	9		- × - × - × - ×	At 134.6' - dark reddish brown, mottled reddish black and trace greenish gray, very soft to soft, 0-30% very fine sand 134.6-136.7' - fresh 136.7-138.1' - highly weathered	-Scale = _ - -
-	139.2		0		- × - × - × - ×	seams, very soft, friable material 138.1-140.8' - fresh	- - -
140 120.6 - - -	R29NQ 5 ft 96%	96	0 0	_	- × × - × - · · · - · · ·	At 140.4': R-Scale 140.8-144.2' - dark reddish brown, mottled reddish black and trace greenish gray, soft, laminated to thin bedding, very fine sand, poorly sorted,	= R3-R4 - - - -
			0		1::	fresh, 40% silt, 60% sand	

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ı	PROJECT NUMBER:	BORING NUMBER:					
ı	338884	BPA-3	SHEET	9	OF	9	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686836.6 N, 2012199.0 E)

ELEVATION: 260.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

LEVELS : 29	9.2 ft b	gs	START : 6/18/06 08: DISCONTINUITIES	30	END : 6/20/06 09:12 LITHOLOGY	LOGGER : LH
ζ, VND Y (%)			DISCONTINUITIES		LITHOLOGY	
→ N >				Ö	EITHOLOGI	COMMENTS
CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
144.2 R30NQ 5 ft 100%	90	0	146.3' - Contact between siltstone and sandstone 146.6-146.7' - Fractures (3), horizontal and	× > > × > > × > × > × > × > × > × > × >	Siltstone 144.2-145.6' - dark reddish brown, mottled reddish black and greenish gray, soft, laminated bedding, fresh, some beds mottled reddish black, 10-40% very fine sand, transition zone to sandstone Sandstone 145.6-146.3' - dark reddish brown and	At 143.4': R-Scale = R4 R30: 07:54-08:11 on 06/20/06 At 145.4': R-Scale = R3-R4
149.2		0	vertical, rough, undulating 147.3-147.6' - Fractures (4), horizontal and	× > > > > > > > > > > > > > > > > > > >	gray, mottled reddish black, soft to hard, laminated bedding, very fine sand, fresh, 0-40% silt, bedding is partially horizontal and partially convoluted Siltstone At 146.3' - dark reddish brown, mottled	- At 148.3': R-Scale = R3-R4 R31: 08:19-08:39
R31NQ 5 ft 100%	69	10+		× > > > > > > > > > > > > > > > > > > >	reddish black and greenish gray, soft, laminated bedding, up to 40% very fine sand 146.3-150.1' - fresh 150.1-153.1' - very dark greenish gray and dark gray, mottled reddish black, very soft in fracture zones 150.1-150.5' - clay seam, very soft and 0.02-0.05' thick; alternates with siltstone	At 150.0': R-Scale = R3-R4 At 150.1-150.9': R-Scale = - R0 - R1 - At 152.0': R-Scale = R3-R4
154.2 R32NQ		0 0	- - - -	× > > > > > > > > > > > > > > > > > > >	seams, very soft, friable material, fractured 150.1-153.6' - slightly weathered 153.1-153.6' - 0.01-0.05' thick clay seams, very soft, friable material 153.1-159.2' - dark reddish brown, mottled reddish black, greenish gray, and trace olive, very soft to soft 153.6-159.2' - fresh	At 153.1-153.6': R-Scale = R0 - R1 - At 153.8': R-Scale = R4 - R32: 08:51-09:12
5 ft 104%	100	0 0	-	× > > > > > > > > > > > > > > > > > > >	- - 157.6-159.2' - 20-40% sand - -	At 157.2': R-Scale = R3-R4 At 158.8': R-Scale = R3-R4 First water level = 29.2' bgs taken 6/20/06 at 09:50 R-Scale performed after drilling on stored samples
					Bottom of Boring at 159.2 ft bgs on 6/20/06 09:12	
	R30NQ 5 ft 100%	R30NQ 5 ft 90 100% 90 100% 69 100% 69 154.2	R30NQ 0 3 100% 90 3 100% 90 10+ 10+ 10+ 10+ 10+ 10+ 10+ 100 0 10 0 0 0	144.2 0 0 0	144.2	144.2 The state of the state

2BB-21 Rev. 1



ELEVATION: 259.6 ft MSL (NGVD 29)

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-4	SHEET 1 OF 6

SOIL BORING LOG

DRILLING CONTRACTOR: R. Norwood, S&ME

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (686735.0 N, 2012207.2 E)

DRILLIN	G EQUIF	PMENT A	AND MET	HOD : CME-550), Tricone Bit, 24 Split Spoon and 140 lb. Automatic Hammer ORIENTATION : Vertical
WATER	LEVELS	5 : 5.2 ft b	gs		START : 7/6/06 14:07 END : 7/7/06 15:37 LOGGER : JF/EM
DEPTH BI			RADE (ft)	STANDARD	SOIL DESCRIPTION O COMMENTS
	INTERVA			PENETRATION TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,
		RECOVE			MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY
			#TYPE	6"-6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY
259.6	0.0			()	Silt And Gravel (ML) \(\sqrt{0.0-0.3'} - dark reddish brown, moist, soft, moist from
		10.0	SS1SS	2-3-4-50/5	\recent rainfall, fine grained with gravel fill
		10.0	33133	2-3-4-50/5 (7)	Clay (CL)
	2.0				0.3-0.5' - dark reddish brown and light reddish brown, moist, soft
1 1					Silt (ML)
	2.5 2.6	1.0_/	SS2SS/	50/1	\\Silt (ML) \\ 2.4-4.1'
1 -				(50/1")	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
-					Soil sampling completed at 14:30 on
	- 0				- 7/6/06
5 254.6	5.0				Begin Rock Coring at 5.0 ft bgs
1 -					Begin Rock Coring at 5.0 ft bgs See the next sheet for the rock core log
1 1					1 1 1
1 1					1
1 7					1
]
]
					<u> </u>
10 <u> </u>					
249.6					
1 -					-
-					-
1 -					
1 -					
1 1					
					1 1
15					1
244.6]
]
]
]]]
]
					-
-					-
-					-
20					
20					



PROJECT NUMBER:

338884

BPA-4

SHEET 2 OF 6

ROCK CORE LOG

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686735.0 N, 2012207.2 E)

ELEVATION: 259.6 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	TER LEVELS : 5.2 ft bgs		IS	START : 7/6/06 14:0)7	END: 7/7/06 15:37	LOGGER : JF/EM	
	- (%			DISCONTINUITIES	g	LITHOLOGY	COMMENTS	
QZ (£)	AND ≪ (3		ZES T	DESCRIPTION	CLOG	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.	
254.6			4	5.1' - Fracture, <5 deg, rough, undulating	× ×	Siltstone - At 5.0' - dark reddish brown, very soft	Rock coring began at 14:45 on 7/6/06	
_			4	5.6' - Fracture, <5 deg, rough, undulating	× × × ×	to soft, fine grained	R1: 14:45-15:05 on -	
_			0	5.7-5.8' - Fracture, 30 deg, rough, undulating 5.9' - Fracture, <5 deg, rough, undulating	$\begin{array}{ccc} 1 \times 1 \\ \times 1 \end{array}$	5.0-10.8' - fresh - 6.0-10.0' - more competent	07/06/06	
-	R1NQ				× × × ×	· -	At 6.5': R-Scale = R2	
-	5 ft	87	0		$\times \times \times$	7.5-10.0' - trace blue-green mottling	-	
-	96%				× × × ×	-	-	
-			0		× × × × × × × × × × × × × × × × × × ×	_	1	
-				9.1-9.3' - Fracture, 50 deg, rough, undulating	× ×	-	1	
10	10.0		1 ×××		× ×	_	1	
249.6			0		× × × ×	10.0-11.0' - dark purple mottling	R2: 15:13-15:30	
_					× × × × × ×	- 10.8-15.0' - moderately weathered	At 10.9': R-Scale = R3	
-			1	11.45' - Fracture, <5 deg, rough, undulating	$\times \times \times$	_	SC-1 collected	
-	R2NQ			· · · · · · · · · · · · · · · · · · ·	× × × ×	-	11.45-12.45'	
-	5 ft 97%	86*	0		$\times \times$	12.5-14.1' - edge/surface of core is	1	
-	37 70			13.2-13.6' - Fractures (2), <5 deg, rough,	× × × ×	 rough 12.5-13.2' - trace clay clasts <= 0.8 	1	
_			2	undulating, boundary with soil-like zone	$\begin{array}{c} \times \times \\ \times \end{array}$		At 13.6': R-Scale = R2	
			1	(upper) 13.2-13.7' - Clay seam, heavily fractured	× × × ×	-]	
15	15.0		XXX	rock/weathered 14.1' - Fracture, <5 deg, rough, undulating —	$\stackrel{\times}{\times}\stackrel{\times}{\times}$	-		
244.6			0		× × × ×	15.0-19.5' - heavy blue-green and yellow mottling, fresh	R3: 15:35-15:55	
-					Į̂×́́}	-	-	
-			1		$\times \times$	-	1	
-	R3NQ			16.9' - Fracture, <5 deg, rough, undulating	$\begin{array}{c} \times \times$	-	-	
-	5 ft 100%	96	1	17.0' - Fracture, <5 deg, rough, undulating	× × × ×	-	1	
-			0		× × × ×	-	1	
			U		× ×	_	At 18.6': R-Scale = R1	
_			0	40.51. Oceanical hadron and allegations and	× × × ×	One data a	-	
20 <u> </u>	20.0			19.5' - Contact between siltstone and sandstone, sharp —	∤∷: ∤	Sandstone At 19.5' - reddish gray, trace	R4: 16:00-16:06	
			0		 :::	blue-green mottling, soft, thin to medium bedding, very fine sand to	-	
-				21.1' - Fracture, <5 deg, rough, undulating	┨∷ः	fine sand, fresh 20.5' - gray, soft to hard, fine sand to	-	
-			1		[∷:	medium sand	1	
-	R4NQ	100	0		1:::	 20.5-21.0' - black, soft to hard, fine sand 	1	
	5 ft 100%	100	U]:::[21.1-25.0' - gray, medium sand to coarse sand, black oxidized laminae]	
-			0		. ∷.	parallel to ground surface at 21.3' and]	
-					. ∷	- 23.5' -	-	
			0		 :::	_	-	
25	25.0				1. : :		-	

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PROJECT NUMBER:	BORING NUMBER:					
338884	RP∆-4	SHEET	3	OF	6	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686735.0 N, 2012207.2 E)

ELEVATION: 259.6 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS : 5.2	2 ft bg	IS	START : 7/6/06 14:0)7	END: 7/7/06 15:37	LOGGER : JF/EM
	(9)			DISCONTINUITIES	G	LITHOLOGY	COMMENTS
9z (£)	AND ≪ ND		ES	DESCRIPTION] O [ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
234.6					:::	25.0-27.2' - gray, medium sand to	R5: 16:10-16:21
_			0		1:::1	- coarse sand	-
					1:::	-	At 26.0': R-Scale = R1
			0		1:::1	-	1
	R5NQ	100	0		1:::	- _ 27.2-27.6' - grades to siltstone	1
	5 ft 100%	100	U	27.6' - Contact between siltstone and]∷:: × ×		At 27.8': R-Scale = R3
			1	sandstone, sharp	Î x x	Siltstone At 27.9' - very dusky red, blue-green	_
			'		× ×	mottling, soft, fine grained, trace very fine to fine sand	A4 20 01 D Cools - D2
			1		××	_ 27.9-31.6' - fresh	At 28.9': R-Scale = R3
30	30.0		·	_	× × × ×	28.9-30.0' - clay clasts (0.8 to 1.2)	
229.6			0		$\begin{bmatrix} \hat{x} & \hat{x} \\ \hat{x} & \hat{x} \end{bmatrix}$	_	R6: 16:25-16:42
_			_		× ×	-	_
_			3		××		_
_	DeNO			31.6' - Fracture, <5 deg, rough, undulating 31.7' - Fracture, <5 deg, rough, undulating	× × × ×	31.6-32.6' - highly weathered, dark purple to reddish black	-
_	R6NQ 5 ft	78	4	31.9' - Fracture. <5 deg. rough, undulating	Îx x	_ 32.2-32.8' - white-pink clay clasts, 0.4	_
_	100%			32.0' - Fracture, <5 deg, rough, undulating 32.1' - Fracture, <5 deg, rough, undulating	$\stackrel{\times}{\times}\stackrel{\times}{\times}$	32.6-78.4' - fresh 32.8-35.0' - trace mottling	-
-			1	32.2' - Fracture, <5 deg, rough, undulating 32.5' - Fracture, 10 deg, slickensided,	$\begin{array}{ccc} \times & \times \\ \times & \times \end{array}$	-	-
_				undulating	× × × ×	-	-
			1	33.7' - Fracture, 60 deg, slickensided, undulating	x x	-	-
35 <u> </u>	35.0			34.7-35.0' - Fracture, 80 deg. rough, —	۲× ×	35.0-55.0' - dark reddish brown, no	R7: 16:50-17:15
			1	undulating 35.0-35.2' - Fracture, 80 deg, rough,	$\times \times $	mottling, fine grained	-
_				undulating	$\begin{bmatrix} \times & \times \\ \times & \times \\ \times & \times \end{bmatrix}$	-	-
_			1	36.2-36.4' - Fracture, 30 deg, rough, undulating	Î X	-	-
-	R7NQ				$\times \times $	-	At 36.8': R-Scale = R2 -
_	5 ft 100%	84	1		××	-	1
_	10070			37.8' - Fracture, <5 deg, rough, undulating	× ×	-	-
_			1	38.3' - Fracture, <5 deg, rough, undulating	× × × ×	-	-
-				39.2' - Fracture, <5 deg, rough, undulating	× × × × × ×	-	1
40	40.0		1	55.2 Fractare, To dog, rough, undulating		-	
219.6				_	× × × ×	40.0-46.8' - trace very fine to fine sand	R8: 08:10-08:45 on
			0		Îx x	-	07/07/06 - SC-2 collected
]			1	41.2' - Fracture, <5 deg, rough, undulating	X X X X	-	40.0-41.25'
			1		\times \times	-	1
	R8NQ 5 ft	94	0]× ×	_	
	5 π 100%	54	U		$\stackrel{\circ}{\mathbb{R}} \stackrel{\circ}{\times} \stackrel{\circ}{\mathbb{R}}$	_	
			3	43.2-43.4' - Fracture, 60 deg, rough,	× × × ×	_	
			J	undulating 43.4' - Fracture, <5 deg, rough, undulating,	××	<u>-</u>	At 43.7': R-Scale = R5
			2	bottom truncation of above	× × × ×	-	
45	45.0			43.9' - Fracture, <5 deg, rough, undulating	ξŶ		
ldot					ш		

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PROJECT NUMBER:

338884

BPA-4

SHEET 4 OF 6

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686735.0 N, 2012207.2 E)

ELEVATION: 259.6 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

MATERILEVELS.5.2 No. STATUS STA	00111110	, <u> </u>			THOD . CIVIE-330, INQ DOUBLE BAITEI			ORIENTATION : Vertical
Package Pack	WATER	LEVELS: 5.	2 ft bo	S	START : 7/6/06 14:0	7	END: 7/7/06 15:37	LOGGER : JF/EM
214.6 RSNO					DISCONTINUITIES	(D	LITHOLOGY	COMMENTS
214.6 RSNO	07 €	.5% 		S	DESCRIPTION	ĬŠ	DOCK TYPE COLOR	
214.6 RSNO	NO H	N. F. K.	(%)	JRE OT	BESON HON	윽		
214.6 RSNO	EF SE	E STER	6) (F	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	B B B	WEATHERING, HARDNESS,	SMOOTHNESS CAVING ROD
214.6 RSNO		RNI	ō	RA(≥		
RSNO 5 ft 100% 96 1 1 46.8-47.1' - Fracture, 70 deg, rough, undulating 48.7'- 5 ft 100% 10 0 0 1 55.5 5.5 ft 100 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	шш ш ол	078	œ	正凸				
Reno	214.6				44.1' - Fracture, 60 deg, rough, undulating	××	44.8-45.0' - clay clasts, 80%	R9: 08:50-09:05
RSNO S 1	-			0	-		-	1
RENO 100% 96 1 1 46.8-47.1' - Fracture, 70 deg, rough, undulating 48.7' - Fracture, <5 deg, rough, undulating 49.1' - Fracture, <5 deg, rough, undulating 50 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	-					× ×	-	-
## 46.84.71 - Fracture, 70 deg, rough, undulating ## 46.84.71 - Fracture, 70 deg, rough, undulating ## 46.84.73 - Fracture, 75 deg, rough, undulating ## 48.75.07 - dark purple mottling ## 48.	-			1	-	××	-	-
Alt 57.6'; R-Scale = R2-R3 R12NO St 100 No R11NO No R11NO No R11NO No R11NO St No R11NO No No R11NO No R11NO No R11NO No R11NO No R11NO No No No No No No No	_				46 8-47 1' - Fracture 70 deg rough		- 46 8-47 3' - sand lense/ clay clasts: 30	_
48.7 - Fracture, <5 deg, rough, undulating 49.1 - Fracture, <5 deg, rough, undulating 48.7 - 50.0 - clay clasts less than or equal to 0.4 48.7 - 49.3 ' very soft zone R10.00 5 ft						\times \times		
48.7 - Fracture, <5 deg, rough, undulating 49.1 - Fracture, <5 deg, rough, undulating 49.1 - Fracture, <5 deg, rough, undulating 49.1 - Fracture, <5 deg, rough, undulating 50.0 810.0 810.0 810.0 810.0 810.0 810.0 810.0 810.0 810.0 810.0 810.0 811.0 810.0 811.0 811.0 812.4-52.9 - 40-50% very fine to fine sand sand sign and sign	_		96	1		IX X	47.3-48.7' - dark purple mottling	1
48.7* - Fracture, <5 deg, rough, undulating 49.1* - Fracture, <5 deg, rough, undulating 50.9-51.5* - 40-50% very fine to fine sand 50.9-51.5* - 40-50	-	100 /8				1× ×	-	At 47.9': R-Scale = R4
48.7° - Fracture, <5 deg, rough, undulating 49.1° - Fracture, <5 deg, rough, undulating 49.1° - Fracture, <5 deg, rough, undulating 50.0° R10NO 5 ft 100% 5	_			1		× ×	-	-
Solution	l _				48.7' - Fracture, <5 deg, rough, undulating	\times \times	48.7-50.0' - clay clasts less than or	_
299.6 R10NO Str. 104% 100 0 1 53.2' - Fracture, <5 deg, rough, undulating 55.0-60.0' - very dusky red, trace mottling 811: 09:35-09:55 811NO Str. 100 0 1 53.2' - Fracture, <5 deg, rough, undulating 55.0-60.0' - very dusky red, trace mottling 56.5-56.8' - trace very fine to fine sand 57.6-57.7' - trace very fine to fi						x x	equal to 0.4	
299.6 R10NO Str. 104% 100 0 1 53.2' - Fracture, <5 deg, rough, undulating 55.0-60.0' - very dusky red, trace mottling 811: 09:35-09:55 811NO Str. 100 0 1 53.2' - Fracture, <5 deg, rough, undulating 55.0-60.0' - very dusky red, trace mottling 56.5-56.8' - trace very fine to fine sand 57.6-57.7' - trace very fine to fi	- FO	50.0		1		1×	- 48.7-49.3' - very soft zone	1
St. 1000		50.0			_	\times \times		P10: 00:10-00:30
55 55.0 0 0 0 0 0 0 0 0 0				0		\times \times	-	10.09.10-09.50
R10NO 5 ft 100 0 1 53.2' - Fracture, < 5 deg, rough, undulating 55.0-60.0' - very dusky red, trace mottling 55.5-6.8' - trace very fine to fine sand 57.8-58.0' - very						\times \times	E0.0 E1.E1. 40.E00/	
R10NO S								
R10No 100 0	-			0	-	l× ×	_ Sanu	-
St. 100 0 104% 100 0 1 53.2' - Fracture, <5 deg, rough, undulating 52.4-52.9' - 40-50% very fine to fine At 52.5': R-Scale = R4	-	B10NO				× ×	-	-
104% 1 53.2' - Fracture, <5 deg, rough, undulating 55.0-60.0' - very dusky red, trace mottling 55.0-60.0' - very fine to fine sand with day dasts 57.6-57.7' - trace very fine to fine sand with day dasts 58.4-59.2' - 80% fine sand with .04 to 4 day dasts 41.54.2' - competent but rough outer 54.0-64.1' - very soft, day seam 64.1-64.2' - competent but rough outer 54.0-64.1' - very soft, day seam 64.1-64.2' - competent but rough outer 56.0-60.0' - very dusky red, trace mottling 55.0-60.0' - very dusky red, trace mottling 57.6-57.7' - trace very fine to fine sand with day dasts 58.4-59.2' - 80% fine sand with .04 to 4 day dasts 58.4-59.2' - 80% fine sand with .04 to 4 day dasts 58.4-59.2' - 80% fine sand with .04 to 4 day dasts 58.4-59.2' - 80% fine sand with .04 to 4 day dasts 58.4-59.2' - 80% fine sand with .04 to 4 day dasts 58.4-59.2' - 80% fine sand with .04 to 4 day dasts 58.4-59.2' - 80% fine sand with .04 to 4 day dasts 58.4-59.2' - 80% fine sand with .04 to 4 day dasts 58.4-59.2' - 80% fine sand with .04 to 4 day dasts 58.4-59.2' - 80% fine sand with .04 to 4 day dasts 58.4-59.2' - 80% fine sand with .04 to 4 day dasts 58.4-59.2' - 80% fine sand with .04 to 4 day dasts 58.4-59.2' - 80% fine sand with .04 to 4 day dasts 58.4-59.2' - 80% fine sand with .04 to 4 day dasts 58.4-59.2' - 80% fine sand with .04 to 4 day dasts 58.4-59.2' - 80% fine sand with .04 to 4 day dasts 58.4-59.2' - 80% fine sand with .04 to 4 day dasts 58.4-59.2' - 80% fine sand with .04 to 4 day dasts 58.4-59.2' - 80% fine sand with .04 to 4 day dasts 58.4-59.2' - 80% fine sand with .04 to 4 day dasts 58.4-59.2' - 80% fine sand with .04 to 4 day dasts 58.4-59.2' - 80% fine sand with .04 to 4 day dasts 58.4-59.2' - 80% fine sand with .04 to 4 day dasts 64.0-64.1' - very soft, day seam 64.1-64.2' - competent but rough outer 58.4-59.2' - 80% fine sand with .04 to 80.0' - 80.0' - 80.0' - 80.0' - 80.0' - 80.0' - 80.0' -	_			0	_		- 52 1-52 9' - 10-50% very fine to fine	A 50 51 B 0 1 B4
1 53.2' - Fracture, <5 deg, rough, undulating 55.0 55.0 204.6 0 8711NO 5 ft 100						× ×		At 52.5": R-Scale = R4
55 55.0	_				FOOL Fronting of dog rough undulation	\times \times	-	1
55. 55.0	-			1	55.2 - Fracture, <5 deg, rough, undulating	lŵ 🕯	-	1
55 55.0 0 0 0 0 0 0 0 0 0	-					l× ¾	-	1 -
55.0 XXX 0 XXX 0 0 0 0 0	l –			0		×	_	_
204.6 R11NQ	55	55.0				\times \times	_	
R11NO	204.6					\times \times		R11: 09:35-09:55
R11NQ	-			0		× ×	- mottling	1
R11NQ 5 ft 100%	-						-	-
R11NQ 5 ft 100% 100 0	_			0		\times \times		1 4
RTINU	l _					\times \times	56.5-56.8" - trace very fine to fine sand	_
100%				_				
57.8-58.0' - very fine to fine sand with clay clasts 58.4-59.2' - 80% fine sand with .04 to A clay clasts 58.4-59.2' - 80% fine sand with .04 to A clay clasts R12NQ 5 ft 90% 3 63.4-63.7' - Fracture, 70 deg, rough, undulating, 10 degree of the sand with and the clay clasts 8 4 64.0-64.1' - very soft, clay seam 64.1-64.2' - competent but rough outer At 63.8': R-Scale = R2	-		100	0	•	1×	- 57 6-57 7' - trace very fine to fine sand	At 57 6': R-Scale = R2-R3
Clay clasts S.4-59.2' - 80% fine sand with .04 to A clay clasts S.4-59.2' - 80% fine sand with .04 to A clay clasts S.4-59.2' - 80% fine sand with .04 to A clay clasts S.4-59.2' - 80% fine sand with .04 to A clay clasts S.4-59.2' - 80% fine sand with .04 to A clay clasts S.4-59.2' - 80% fine sand with .04 to A clay clasts S.4-59.2' - 80% fine sand with .04 to A clay clasts S.4-59.2' - 80% fine sand with .04 to A clay clasts S.4-59.2' - 80% fine sand with .04 to A clay clasts S.4-59.2' - 80% fine sand with .04 to A clay clasts S.4-59.2' - 80% fine sand with .04 to A clay clasts S.4-59.2' - 80% fine sand with .04 to A clay clasts S.4-59.2' - 80% fine sand with .04 to A clay clasts S.4-59.2' - 80% fine sand with .04 to A clay clasts S.4-59.2' - 80% fine sand with .04 to A clay clasts S.4-59.2' - 80% fine sand with .04 to A clay clasts S.4-59.2' - 80% fine sand with .04 to A clay clasts S.4-59.2' - 80% fine sand with .04 to A clay clasts S.4-59.2' - 80% fine sand with .04 to A clay clasts S.4-59.2' - 80% fine sand with .04 to A clay clasts S.4-59.2' - 80% fine sand with .04 to S.4-59.2' - 80% fine sand with .04 to A clay clasts S.4-59.2' - 80% fine sand with .04 to S.4-59.2' - 80	-	100%				18 8	57.8-58.0' - very fine to fine sand with	-
60 60.0	_			0		\times \times	- clay clasts	-
60 60.0	_							
60 60.0				[.4 clay clasts	1
199.6 R12: 10:01-10:20 R12: 10:01-10:20 R12: 10:01-10:20 R12: 10:01-10:20 R12: 10:01-10:20 R12: 10:01-10:20 At 63.8': R-Scale = R2 At 63.8': R-Scale = R2	60	60.0		0		l× ×	-	1
R12NQ		00.0			_	1× ×		R12: 10:01-10:20
R12NQ	-			0		××	_	
R12NQ	_					× ×	_]
R12NQ 5 ft 90% 70 0	I -			[××		1
R12NQ 5 ft 90% 70 0	I -			U		\times \times	=	1
The state of the s	-	R12N∩				l× ×	-	-
90% 3 63.4-63.7' - Fracture, 70 deg, rough, undulating, 63.4' - Fracture, <5 deg, smooth, undulating, top truncation from above - X X	-			0	-	\times \times	-	-
3 63.4-63.7' - Fracture, 70 deg, rough, undulating, top truncation from above 3 63.4-63.7' - Fracture, 70 deg, rough, undulating, top truncation from above 4 64.0-64.1' - very soft, clay seam top truncation from above 5 4 64.1-64.2' - competent but rough outer	I _				_	× ×	_]
- Undulating 63.4' - Fracture, <5 deg, smooth, undulating, top truncation from above				[\times \times		
undulating 2 63.4' - Fracture, <5 deg, smooth, undulating, top truncation from above At 63.8': R-Scale = R2 -	_			3		× ×	-	1
top truncation from above 65.0 65.0 65.0 65.0 65.0 65.0 65.0 65.0	-			2	undulating 63.4' - Fracture <5 dec. smooth undulating	t‱∦	- 64.0-64.1' - very soft_clay seam	At 63.8': R-Scale = R2
65 65.0	-				top truncation from above	Į× ⅓	64.1-64.2' - competent but rough outer	-
	65	65.0		\bowtie	63.5' - Fracture	×Χ		
						Ιİ		
						Ш		

2BB-25 Rev. 1



PROJECT NUMBER:

338884

BPA-4

SHEET 5 OF 6

ROCK CORE LOG

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686735.0 N, 2012207.2 E)

ELEVATION: 259.6 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	LEVELS : 5.	2 ft bo	ıs	START : 7/6/06 14:0)7	END: 7/7/06 15:37	LOGGER : JF/EM			
	(%)			DISCONTINUITIES	ပ္ခ	LITHOLOGY	COMMENTS			
₽Z €	N, AND ₹Y (%	_	ES T	DESCRIPTION] S	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,			
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.			
194.6			0		× × × × × ×	64.2-64.5' - very soft, soil-like fractured rock	Drillers Remark: Rock is slipping, will not recover full - run, soft at bottom			
_			1	66.6-67.3' - Fracture, 80 deg, rough,	× × × × × ×	-	R13: 10:30-11:05 At 66.2': R-Scale = R3			
_	R13NQ 5 ft 104%	76	3	undulating 67.8' - Fracture, <10 deg, slickensided,	× × × × × × × ×	-	-			
_			1	undulating 67.8-68' - Fracture, 50 deg, slickensided, undulating	× × × × × × × ×	- - -]			
70	70.0		0	_	 	69.4-69.7' - 60% clay clasts	<u>-</u>			
189. 6			0		× × × × × × × ×	- -	R14: 11:14-11:30 - At 70.7': R-Scale = R3 _			
-	DAMO		0		× × × × × ×	- -	_			
-	R14NQ 5 ft 100%	100	0		× × × × × × × ×	72.2-73.0' - trace very fine to fine sand	-			
-			0		× × × × × ×	- -	-			
75 <u> </u>	75.0		0	_	× × × × × × × ×	- 	- R15: 11:38-11:45			
-			0		× × × × × ×	- -	- At 76.0': R-Scale = R1			
-	R15NQ		0	76.5' - Fracture, 10 deg, rough, undulating 76.9' - Fracture, 20 deg, rough, undulating	× × × × × × × ×	76.5-77.4' - trace very fine to fine sand, laminated to very thin beds, 0.01-0.1' thick	-			
-	5 ft 102%	74*	2	77.3' - Fracture, <5 deg, rough, undulating 78.0' - Fracture, <5 deg, smooth, undulating	× × × × × ×	77.4-78.4' - very soft to soft, reddish black and yellow mottling	SC-3 collected – 77.3-77.95' –			
_			7	78.4-79.0' - Fracture, 10 deg and 50 deg, slickensided, 78.4' and 78.5' have 50 deg and 25 deg fractures; the rest are 10 deg	× × × × × ×	Siltstone At 78.4' - dark bluish gray, multicoloredolive, dark reddish]			
80_ 179.6	80.0		10+	79.0-79.8' - Fracture zone, crumbled, some slickensides	× × × × × × × ×	brown, blue gray mottling, very soft 78.4-80.6' - moderately weathered 79.8-85.2' - soft, beds at 0-30 degrees	R16: 13:30-13:54			
_			10+	undulating 80.5-80.6' - Fracture, 20 deg, smooth and slickensided, undulating		80.6-85.2' - fresh	-			
_	R16NQ 5 ft	86*	10+	80.9-81.1' - Fracture, 10 deg and 30 deg, rough and slickensided, undulating 81.8' - Fracture, <5 deg, smooth, undulating 82.0' - Fracture, 10 deg, rough, undulating	× × × × × × × ×	- - -	At 82.1': R-Scale = R1			
=	100%	55	0	oz.o - macidie, no deg, rough, undulating	× ×	- - 83.2' - dark reddish brown, gradually]			
_			0		× × × × × × × ×	becomes dark reddish brown	-			
85_	85.0				××					

2BB-26 Rev. 1



PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-4	SHEET 6 OF 6

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686735.0 N, 2012207.2 E)

ELEVATION: 259.6 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS : 5.	2 ft bo	ıs	START : 7/6/06 14:0	7		END: 7/7/06 15:37	LOGGER : JF/EM
	6)			DISCONTINUITIES	ō		LITHOLOGY	COMMENTS
₽Z Û	N, AND ?≺ (3		SIL	DESCRIPTION	O'C		ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	(%) Q	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	SYMBOLIC LOG		MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
ELEV SELC SURF	SORI	RQ	-RAC	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	3×ME		AND ROCK MASS CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
174.6	014				у, Х.Х	×		R17: 14:00-14:21
_			0	-	 :::	: -	Sandstone 85.2-87.2' - dark reddish gray, mottled	-
-				-	 :::	∶⊦	blue-green and yellow-tan, soft to	-
-			0	-	l:::		hard, medium bedding, fine sand, fresh	At 86.3': R-Scale = R2 -
-	R17NQ			-	: : : × ×	<u>:</u>	Ollectories	-
_	5 ft 104%	100	2	-	× ×	Æ	Siltstone 87.2-87.7' - dark bluish gray, heavily	-
_	10170			-	× ×	*	mottled olive, yellow, dark reddish brown, blue green, soft, fresh, beds at	-
-			0	-	× ×	x + \	0-30 degrees	†
_			_	-	× × × ×		Siltstone At 87.7' - dark reddish brown, mottled,	1
90	90.0		0	-	Îx x		very soft to soft, fresh, fine grained	1
169.6			XXX	_	× ×	X		R18: 14:46-15:06
			0	_	××	ΧĪ		1
			0		× × × ×	X	91.1-91.4' - trace dark purple mottling	
			U		$\hat{\mathbb{R}}_{\times}$	\mathbb{I}		
	R18NQ 5 ft	100	0		× ×	X_		
	100%	100		_	× ×	×_		
_			0	_	× × × ×	3		At 93.0': R-Scale = R3
_					Îx x			_
_			0	<u>-</u>	× ×	X _		_
95 <u> </u>	95.0			_	××	<u>*</u> _		D40: 45:47 45:07
104.0			0	-	× × × ×	}		R19: 15:17-15:37
_				-	× ×	<u>}</u>		-
_			0	-	× ×	X -		-
_	R19NQ			-	××	×-		-
_	5 ft	100	0	<u>-</u>	× × × ×	}		At 97.2': R-Scale = R1-R2 First water level = 5.2' bgs
-	100%			-	××	×-		taken 7/7/06 at 17:15;
_			0	-	× ×	×-		second water level = 3.3' _ bgs taken 7/8/06 at 14:45
_				-	× × × ×	<u>X</u> -		R-Scale performed after
100	100.0		0	-	× ×	*		drilling on stored samples -
159.6	100.0				 * *	┰	Bottom of Boring at 100.0 ft bgs on	-
_				-	1	r	7/7/06 15:37	-
-				-	1	r		
				-	1	ľ		1
					1			1
]			1
				_				1
					1]
					1]
105						L		

2BB-27 Rev. 1



PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-5	SHEET 1 OF 11

SOIL BORING LOG

 PROJECT : PEC COLA, New Hill, NC
 LOCATION : (NAD 27) (686869.4 N, 2012272.8 E)

 ELEVATION : 265.7 ft MSL (NGVD 29)
 DRILLING CONTRACTOR : A. Martin, S&ME

DRILLING EQUIPMENT AND METHOD: BK-51, 2-15/16 Tricone Bit, 24 Split Spoon, 140 lb. Hammer and Cathead ORIENTATION: Vertical WATER LEVELS: 1.5 ft bgs START: 4/19/06 08:40 END: 5/2/06 10:55 LOGGER: JS/JF SOIL DESCRIPTION COMMENTS DEPTH BELOW EXISTING GRADE (ft) STANDARD PENETRATION 500 INTERVAL (ft) TEST RESULTS SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY SYMBOLIC DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION RECOVERY (in) #TYPE 6"-6"-6" (N) 265.7 0.0 Lean Clay (CL) 0.0-0.8' - reddish brown, yellow and white mottling, moist, stiff, low to medium plasticity, 20% fine sand, fill 15.0 SS1SS 12-4-10 (14)Silty Sand (SM) 1.5 0.8-1.3' - pale brown, moist, medium dense, fine to medium grained, 15-20% non plastic fines, fill 2.5 2.5-3.2' - reddish brown, moist, hard, low plasticity, slow dilatancy, scattered white-gray pockets 8.0 SS2SS 13-50/5.5 (50/5.5")4.5 5 260.7 5.0 5.0-5.3' - reddish brown, moist, hard, low plasticity, slow dilatancy, scattered white-gray pockets, weathered SS3SS 4.0 50/4 bedrock pieces (50/4")7.0 Soil sampling completed at 09:30 on 4/19/06 7.5 0.0 SS4SS Begin Rock Coring at 7.6 ft bgs 50/0 See the next sheet for the rock core log (50/0")10 255 7 15 250.7 20



PROJECT NUMBER:

338884

BPA-5 SHEET 2 OF 11

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686869.4 N, 2012272.8 E)

ELEVATION: 265.7 ft MSL (NGVD 29) DRILLING CONTRACTOR: A. Martin, S&ME

 CORING EQUIPMENT AND METHOD : BK-51, HQ Double Barrel
 ORIENTATION : Vertical

 WATER LEVELS : 1.5 ft bgs
 START : 4/19/06 08:40
 END : 5/2/06 10:55
 LOGGER : JS/JF

WATER	LEVELS: 1.5 ft bgs START: 4/19/		START : 4/19/06 08	:40	END: 5/2/06 10:55	LOGGER : JS/JF	
	(%			DISCONTINUITIES	ဗ္ဗ	LITHOLOGY	COMMENTS
ON (#)	N, AND 3Y (9		ZES T	DESCRIPTION	O I C	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)		RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
_	7.6		0		× × × × × ×	Siltstone 7.6-8.5' - weak red to very dusky red, soft, fresh, fine grained	Rock coring began at 13:15 on 4/25/06
_	R1HQ 3.4 ft 90%	89	1	8.8-9.0' - Joint, 50 deg, rough, undulating, unsure of gap size (missing 0.4' of core)	× ×	Sandstone 8.5-8.7' - weak red to very dusky red, // fresh	R1: 13:15-13:40 on 4/25/06
10 255.7	90%		0	_		Siltstone 8.7-9.0' - weak red to very dusky red, soft, fresh, fine grained	
_	11.0					Sandstone]
_			0	11.2' - Contact between sandstone and conglomerate, sharp	0.0	9.0-9.3' - weak red to very dusky red, fresh Siltstone	R2: 13:50-14:10
_			0	11.6' - Contact between sandstone and conglomerate, sharp 12.1' - Contact between sandstone and	00	9.3-9.6' - weak red to very dusky red, soft, fresh, fine grained	
-	R2HQ 5 ft 100%	100	1	conglomerate, sharp 12.7' - Contact between sandstone and conglomerate, sharp	::: :::	Sandstone 9.6-11.2' - weak red to very dusky red, blue-green mottling, fresh	-
- - 15	100 %		1	13.2-13.8' - Fracture, vertical 14.2' - Contact between sandstone and conglomerate, sharp	0 . 0 × ×	Conglomerate 11.2-11.6' - weak red, fresh, pebbles at top, fining downward	
250.7	16.0		1	14.6' - Contact between siltstone and conglomerate, sharp 15.5-15.9' - Fracture, vertical	× × × ×	Sandstone 11.6-12.1' - reddish brown, blue-green mottling, coarse sand, fresh	
_	10.0		2	16.0-16.6' - Fracture zone, vertical, rough, undulating		Conglomerate 12.1-12.7' - weak red, fresh, pebbles at top, fining downward	R3: 14:20-15:00
_			0	16.8-17.1' - Fractures, fractured with 1.5-2.0' white inclusions	× × × × × ×	Sandstone At 12.7' - reddish brown, blue-green mottling, coarse sand, fresh	-
_	R3HQ 5 ft 100%	88	0	17.8-18.0' - Fracture, horizontal, tight fit 18.0-26.0' - Microfractures, capillary pattern, becoming horizontal in orientation	× × × × × ×	12.9' - conglomerate lens <0.1' 13.0' - conglomerate lens <0.1' 13.7' - conglomerate lens <0.1'	-
20			0		× × × × × × × ×	Conglomerate 14.2-14.6' - weak red, fresh, coarse grained, pebbles at top, fining	-
245.7	21.0		0		× × × × × ×	downward Siltstone 14.6-15.5' - reddish brown, soft, fresh,	-
_			1	21.6-22.2' - Fracture, 65 deg, rough,	× × × × × × × ×	fine grained Sandstone At 15.5' - weak red	R4: 15:05-15:30
_			1	undulating	× × × × × ×	15.5-16.0' - fresh 16.0-16.8' - dark reddish brown, hard, coarse sand	-
_	R4HQ 5 ft 100%	100	0		× × × × × ×	16.0-16.6' - highly weathered 16.6-16.8' - fresh	-
25			0		× × × × × ×	At 16.8' - dark reddish brown, soft, fresh, fine grained 16.8-17.1' - white gray inclusions]
240.7	26.0		0	-	× × × × × ×	21.0-39.8' - trace blue green mottling at relic fractures]
_			0		× × × × × ×	26.0-31.0' - very dusky red	R5: 08:00-08:20 on 4/26/06
_					× × × ×	-	-

2BB-29 Rev. 1



PROJECT NUMBER:

338884

BPA-5 SHEET 3 OF 11

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686869.4 N, 2012272.8 E)

ELEVATION: 265.7 ft MSL (NGVD 29) DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, HQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS : 1.	5 ft bg	ıs	START : 4/19/06 08	:40	END: 5/2/06 10:55	LOGGER : JS/JF
				DISCONTINUITIES		LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
- - 30 235.7	R5HQ 5 ft 100%	100	0 0	- -	× × × × × × × × × × × × × × × × × × ×	-	SC-1 collected 29.94 - 31.10' -
-	31.0		0		× × × × × × × ×	31.0-36.0' - dusky red	R6: 08:30-08:55
-	R6HQ		0	33.0' - Fracture, small hairline crack vertical	× × × × × × × ×	32.0' - small white inclusions	- - -
35	5 ft 99%	90	1 2	34.9-35.0' - Fracture, <5 deg, rough, undulating 35.1' - Fracture, 15 deg, rough, undulating	× × × × × × × × × × × × × × × × × × ×	- - - -	- - - -
- - -	R7HQ 5 ft 103%	100	0 0	35.3' - Fracture, <5 deg, rough, undulating	× × × × × × × × × × × × × × × × × × ×	36.0-39.8' - very dusky red - - -	R7: 09:00-09:25
40	41.0		0	- - -	× × × × × × × × × × × × × × × × × × ×	Sandstone At 39.8' - very dusky red, hard, very thin to thin bedding, fresh, grades into sandstone	- - - - R8: 09:35-09:55
- - -	R8HQ		0		0.0	40.6-41.5' - gray-pink-white-clear, hard, coarse sand, coarsens to conglomerate 41.0-41.5' - reddish brown to gray-blue, fining upward Conglomerate	- - - -
- - 45_ 220.7	5 ft 98%	98	0	- - -	00.000000	41.5-42.1' - gray, pink, white and clear, hard, thin bedding, fresh, coarse grained Sandstone 42.1-42.8' - reddish brown to blue-gray, hard, thin bedding, fresh	- - -
-	46.0		0 ~~~ 0		0000000	Conglomerate 42.8-48.0' - massive bedding, fresh, coarse grained	R9: 10:05-10:35
						_	_



PROJECT NUMBER:	BORING NUMBER:				
338884	BPA-5	SHEET	4	OF	11

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686869.4 N, 2012272.8 E)

ELEVATION: 265.7 ft MSL (NGVD 29) DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, HQ Double Barrel ORIENTATION : Vertical

Section Sect	OOM	2 2 4 5 11 11 12 11	,	D IVIL	THOD . BR-31, HQ Double Barrel			ORIENTATION : Vertical
Section Sect	WATER	LEVELS: 1.	5 ft bo	S		40		
RSHO 100 0 0 0 0 0 0 0 0		. (%			DISCONTINUITIES	ဖွ	LITHOLOGY	COMMENTS
RSHO 100 0 0 0 0 0 0 0 0	Qz €	 N		ES	DESCRIPTION	15	ROCK TYPE, COLOR,	CITE AND DEDTIL OF CACING
RSHO 100 0 0 0 0 0 0 0 0	₹E^S	RUI ÆR	(%)	FJC LOC	DEDTH TYPE OBJENTATION BOLICUNESS	1 ቯ [MINERALOGY, TEXTURE,	FLUID LOSS, CORING RATE AND
RSHO 100 0 0 0 0 0 0 0 0	FYOR	AG CO CO	Q	ACT R F(PLANARITY, INFILLING MATERIAL AND	MB(SMOOTHNESS, CAVING ROD
Sandstone Sitistone Siti	吊급띪S	응필版	R	똤띪	THICKNESS, SURFACE STAINING, AND TIGHTNESS	S	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
Site 100 0 0 0 0 0 0 0 0				0		0,0		
102%	_				-	<u> ::::</u> 1		1 -
215.7 51.0 51.0 51.0 51.0 51.0 51.0 51.0 51.0	-		100	0	-	1:::1		-
215.7 1.0 215.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.7 210.	-	10276				 ∷∷		-
215.7 51.0 0 51.0-66.0" - Numerous small/micro fractures, becoming mostly horizontal (80%) 1 52.7" - Fracture, 20 deg, rough, undulating 52.9" - Fracture, 20 deg, rough, undulating 53.4" - Fracture, 20 deg, rough, undulating 53.6" - Fracture, 10 deg, rough, undulating 53.6" - Fracture, 20 deg, rough, undulating 56.0-57.0" - heavy blue-green mottling R11: 11:15-11:55 86.0 0 0 0 0 0 0 0 0 0	-			0		∤∷: }	- 48.8-51.0' - very dusky red, trace blue	_
Silistone	50				_	. ∷	green mottling, soft, fine sand	
51.0 51.0 51.0 66.0" - Numerous small/micro fractures, becoming mostly horizontal (80%) 51.0 - 66.0" - Numerous small/micro fractures, becoming mostly horizontal (80%) 51.0 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10 - 45.10	215.7			0]:::[_	_
Silvation Silv		51.0				: : :		
R10HO 5t 100 2 53.4' - Fracture, 20 deg, rough, undulating 53.6' - Fracture, 10 deg, rough, undulating 53.6' - Fracture, 10 deg, rough, undulating 55.0 o 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0						××		R10: 10:45-11:05
Tellor fractures 100 2 52.7' - Fracture, 20 deg, rough, undulating 53.6' - Fracture, 20 deg, rough, undulating 53.6' - Fracture, 10 deg, rough, undulating 53.6' - Fracture, 20 deg, rough, undu	-			0	becoming mostly horizontal (80%)	$\times \times$	- At 51.0' - very dusky red, soft, fresh,	-
Signature Sign	-				-	1 × ×		-
R10HO	-			1		\times ×	-	-
5 ft 100% 100 2 53.4'- Fracture, 20 deg, rough, undulating 53.6'- Fracture, 10 deg, rough, undulating 53.6'- Fracture, 10 deg, rough, undulating 56.0 57.0'- heavy blue-green mottling 56.0-57.0'- heavy blue-green mottling 57.0-61.0'- trace blue-green mottling 5	-	DAOUG			52.7' - Fracture, 20 deg, rough, undulating	{\$. ŝ₽	52 9-54 0' - small (0.4 to 2) white-gray	-
53.6' - Fracture, 10 deg, rough, undulating 55.0 56.0 R11HO 5ft 98% 0 0 R12HO 5ft 98% 0 0 0 R12HO 5ft 98% 0 0 0 SC-2 collected 59.3 - 60.4' R12: 12:30-13:15 Sandstone 65.06.64 - very dusky red, hard, coarse sand, fresh, clastic infilling 813: 13:25-14:10 R13: 13:25-14:10 R13: 13:25-14:10 R13: 13:25-14:10	_			2	52.4' Fracture 20 dea rough undulating	I× ×		_
210.7 56.0 0 56.0 0 56.0 56.0 56.0 56.0 57.0-61.0' - trace blue-green mottling SC-2 collected 59.3 - 60.4' 812: 12:30-13:15 812: 10:30-13:15 Sandstone 65.0 66.0 0 Sandstone 65.0-66.4' - very dusky red, hard, coarse sand, fresh, clastic infilling R13: 13:25-14:10 R13: 13:25-14:10 R13: 13:25-14:10 R15: 15:25-14:10 R15: 15:2				_	53.6' - Fracture, 20 deg, rough, undulating]× ×	_	_
256.0				,		$\times \times$		
210.7 56.0 56.0 56.0 56.0-57.0' - heavy blue-green mottling 75.0-61.0' - trace blue-green mottling 87.0-61.0' - trace blu	55			0		1×	-	-
56.0					-	1 × ×		
56.0 57.0 - heavy blue-green mottling R11: 11: 15-11:55 F1.10	-			0		- × ×	-	-
811HQ	-	56.0			-	\times \times	- 56.0.57.0' hoovy blue groop mottling	D11: 11:15 11:55
57.0-61.0' - trace blue-green mottling SC-2 collected 59.3 - 60.4'	_			0		\times \times	- 50.0-57.0 - Heavy blue-green mouning	K11. 11.19-11.95
811HO 5 ft 98	_				_	\times \times	_	_
R11HO 5 ft 98% 98 0				٥		\times \times	57.0-61.0' - trace blue-green mottling	
R11HQ 5 ft 98% 0 0				U		\times \times	_	
98%	-				-	\times \times	=	-
SC-2 collected 59.3 - 60.4' SC-2 collected 59.3 - 60.4' R12: 12:30-13:15 R12HQ 5 ft 100 0	-		98	0			-	-
60	-	90%			-	ا× ×	_	SC-2 collected
65 200.7	-			0		\times \times	_	
61.0 Column Colu					_	\times \times		_
61.0 R12HQ 5 ft 100% 0 Sandstone 65.0-66.4' - very dusky red, hard, coarse sand, fresh, clastic infilling R13: 13:25-14:10 R12: 12:30-13:15 R12: 12:30-13:15 R13: 13:25-14:10	205./			ا ر		\times \times	_	1 _
R12HQ 0 0		61.0				\times \times		
R12HQ 5 ft 100% 0 0 - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × × × × × × × × × × × × × × × × × × ×						X X	_	R12: 12:30-13:15
R12HQ	-			υ	-	IX X	_	-
R12HQ 5 ft 100% 0 0	-				-	\times \times	_	-
R12HQ	-			0			-	-
Column	-	DAGUA			-	1× x	_	-
100% 0 Sandstone 66.0 Sandstone 66.0 Sandstone 66.0 Sandstone 65.0-66.4' - very dusky red, hard, coarse sand, fresh, clastic infilling X X X X X X X X X X X X X X X X X X X	-			0		\times \times	_	I -
65 200.7	l _				_	\times \times	_	_
65 200.7						$\times \times$		
Sandstone 66.0 Sandstone 65.0-66.4' - very dusky red, hard, coarse sand, fresh, clastic infilling X > Siltstone X > At 66.4' - very dusky red, soft, fresh, fine grained	65			U		\times \times	-	I -
66.0 Coarse sand, fresh, clastic infilling Coarse sand, fresh, clastic infilling R13: 13:25-14:10 At 66.4' - very dusky red, soft, fresh, fine grained					-	 ^:::		1 -
Control of the property of t	-			0	-	t∷il	- 65.0-66.4' - very dusky red, hard,	-
- O Siltstone - At 66.4' - very dusky red, soft, fresh, - × Ine grained	-	66.0				∤∷:	_ coarse sand, tresh, clastic infilling	P13: 13:25_14:10
- X X At 66.4' - very dusky red, soft, fresh, ine grained	-			0		× ×	- Siltstone	- 17.10. 10.20-14.10
x x fine grained	_				<u>.</u>	Į× ×¦	At 66.4' - very dusky red, soft, fresh,	I -
						×× ××	fine grained	
								_
						<u>L</u> ∣		

2BB-31 Rev. 1



PROJECT NUMBER:

338884

BPA-5

SHEET 5 OF 11

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686869.4 N, 2012272.8 E)

ELEVATION: 265.7 ft MSL (NGVD 29) DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, HQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS : 1.	5 ft bo	ıs	START : 4/19/06 08	:40	END: 5/2/06 10:55	LOGGER : JS/JF
	(9)			DISCONTINUITIES	Ğ	LITHOLOGY	COMMENTS
QZ €	AND ₹ADD		ES	DESCRIPTION	O LO	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
70	R13HQ 5 ft 102%	100	0 0 0	71.1-72.1' - Fracture, 85 deg	× > > > > > > > > > > > > > > > > > > >	- 69.5' - large, gray-white inclusion - 69.8-70.3' - small (0.4) sized gray-white inclusions - 71.0-91.0' - blue-green mottling in	- - - - - - - - - - - - -
- - - -	R14HQ 5 ft	100	0 0	71.1-72.1 - Fracture, 65 deg	× > × > × > × > × > × > × > × >	relic fractures	- - -
75_ 190.7	100%	100	0 0		× > > > > > > > > > > > > > > > > > > >	- - -	- - - -
-	R15HQ 5 ft	100	0 0		× > × > × > × > × > × > × > × >	76.7-77.1' - hard, sandstone lense, coarse 78.2' - hard, sandstone lense, coarse	R15: 16:05-16:30
80_ 185.7_	100%	100	0		× > > × > × > × > × > × > × > × > × > ×	- - - - -	- - -
- - - -	R16HQ 5 ft	100	0 0	83.0-83.6' - Fracture, vertical	× > > > > > > > > > > > > > > > > > > >	- - - - - - -	R16: 16:45-17:20 - - - - -
85 180.7	100% 86.0		1 0	85.0' - Fracture, <5 deg, rough, undulating	× > × > × > × > × > × > × > × >	- - - - 86.0-91.0' - dark reddish brown	R17: Incorrect time recorded on 4/27/06
_				86.8' - Fracture, <5 deg, planar, smooth to undulating, rough	× > - × > - × > - × >		-



PROJECT NUMBER:	BORING NUMBER:				
338884	BPA-5	SHEET	6	OF	11

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686869.4 N, 2012272.8 E)

ELEVATION: 265.7 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, HQ Double Barrel ORIENTATION : Vertical

				I HOD . BK-31, HQ Double Barrer			ORIENTATION: Vertical		
WATER	RLEVELS : 1.	5 ft bg	S	START : 4/19/06 08	:40 	END : 5/2/06 10:55	LOGGER : JS/JF		
				DISCONTINUITIES	၂ ၅	LITHOLOGY	COMMENTS		
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.		
90 175.7 -	R17HQ 5 ft 100%	100	0 0 0		× × × × × × × × × × × × × × × × × × ×		R18: 08:20-08:45 on 4/28/06 -		
95_ 170.7	R18HQ 5 ft 95%	95	0 0	- - - -	× × × × × × × × × × × × × × × × × × ×	Sandstone 93.7-95.7' - dark reddish brown, soft to hard, very fine sand to fine sand, fresh Siltstone	-		
- - - - - - 100 165.7	R19HQ 5 ft 98%	75	2	97.7-98.0' - Fracture, 60 deg, rough, undulating 98.3' - Fracture, 0.01' wide, does not extend throughout core 98.5' - Fracture, <5 deg, rough to smooth, undulating 98.8' - Fracture, <5 deg, rough to smooth, undulating 98.9' - Fracture, <5 deg, rough, undulating 99.9' - Fracture, <5 deg, rough, undulating 99.0' - Fracture, <5 deg, smooth and		\ \ 95.7-96.0' - dark reddish brown, trace blue-green mottling, soft, fresh \textstyle=\text{Sandstone} \ 96.0-96.8' - very dusky red, soft to hard, fine sand, fresh \text{Shale} \ 96.8-102.5' - multi-colored, fresh, blue-green/red-brown/tan-yellow, trace to little sand sized micas	R19: 09:00-09:30 SC-3 collected 96.0-97.1'		
- - - - - 105	R20HQ 5 ft 99%	89	2 2 1 0	undulating to rough and planar 99.2' - Fracture, <5 deg, rough, undulating, ~0.05' wide, fractured pieces with clay 99.4' - Fracture, <5 deg, rough, undulating 99.7' - Fracture, <5 deg, smooth and undulating to rough and planar 101.0-101.2' - Fractures (2), rough, undulating, 0.1' fractures 102.3-102.5' - Fracture, 30 deg, rough, undulating 102.6' - Fracture, 30 deg, rough, undulating 103.1' - Fracture, <5 deg, rough to smooth,	× × × × × × × × × × × × × × × × × × ×	Siltstone - 102.5-105.5' - dark reddish brown, soft, fresh, fine grained 102.5-105.5' - blue-green mottling in relic fractures	R20: 10:05-11:00		
160.7	106.0		0	undulating	× × × × × × × ×	Sandstone - 105.5-107.1' - very dusky red, hard, fresh	R21: 11:10-11:45 -		



PROJECT NUMBER:	BORING NUMBER:				
338884	BPA-5	SHEET	7	OF	11

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686869.4 N, 2012272.8 E)

ELEVATION: 265.7 ft MSL (NGVD 29) DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, HQ Double Barrel ORIENTATION : Vertical

	EVELS : 1.5	ft bg		START : 4/19/06 08 DISCONTINUITIES		END : 5/2/06 10:55 LITHOLOGY	LOGGER : JS/JF
H AND ATION W ACE (ft)	(%) (%)			DISCONTINUITIES		LITHOLOGY	COMMENTS
H AND ATION W ACE (ft)	- Z S > - S S > - S S S S S S S S S S S S S S S S S S	- 1			Ō	LITTIOLOGI	COMMENTS
±₽≥ĕ	57H	(%	JRES OT	DESCRIPTION	IIC LO	ROCK TYPE, COLOR, MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING,
DEPT ELEV, BELO SURF	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
			1	107.1-111.0' - Numerous horizontal (80%)	× × × × × ×	Siltstone	_
	R21HQ 5 ft 100%	100	0	vertical (20%) capillary fractures 108.0' - Fracture, <5 deg, rough to smooth, undulating		107.1-114.6' - dark reddish brown, soft, fresh, fine grained	-
110 155.7			0	<u>-</u>	× × × × × ×	- 	-
11	11.0		0		× × × × × ×	-	R22: 12:10-12:35
			0			-	-
	R22HQ 5 ft 100%	100	0		× × × × × × × ×	-	-
115			0		× × × ×	Sandstone	
150.7	16.0		0		0.0 × × × × × ×	114.6-115.0' - dark reddish brown, fresh Conglomerate 115.0-115.7' - hard, fresh,	- R23: 12:45-13:05
-			0		× × × × × ×	\text{\multicolored} Siltstone At 115.7' - dark reddish brown, trace	-
	R23HQ 5 ft	98	0	117.5' - Fracture		blue-green mottling, soft, fresh, fine grained	
-	98%		0		× × × × × ×	-	-
120 145.7	21.0		0		- × × × × × ×	_	-
			1	121.1' - Fracture, <5 deg, rough to smooth, undulating	× × × × × ×	121.0-124.5' - small (<0.4) white inclusions	R24: 13:30-14:05
	R24HQ		0		× × × × × × × ×	-	
		100	0		× × × × × ×	-	
125 140.7			0			Sandstone — At 124.5' - very dusky red, white mottling, soft to hard, fresh	-
12	26.0		1	126.1' - Fracture, <5 deg, rough, undulating	-	- - -	R25: 14:15-14:45 SC-4 collected 126.1-127.0'
							-

2BB-34 Rev. 1



PROJECT NUMBER:

338884

BPA-5 SHEET 8 OF 11

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686869.4 N, 2012272.8 E)

ELEVATION: 265.7 ft MSL (NGVD 29) DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, HQ Double Barrel ORIENTATION : Vertical

				THOD . BK-51, HQ Double Barrel			ORIENTATION: Vertical
WATER	LEVELS : 1.	5 ft bg	S	START : 4/19/06 08	:40	END : 5/2/06 10:55	LOGGER : JS/JF
				DISCONTINUITIES	ЭĞ	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (#)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STANNING, AND TIGHTNESS	SYMBOLIC LOG	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.
-	R25HQ 5 ft 100%		1	128.5' - Fracture, 25 deg, rough, undulating	× ×	126.9-127.4' - conglomerate lense, multi-colored blue-green, reddish-brown, and gray-black, hard, coarse grained 128.0-128.2' - conglomerate lense, multi-colored blue-green,	- - -
130 <u></u> 135.7			0	<u> </u>	× : × : × :	reddish-brown, and gray-black, hard, carse grained	
_	131.0		0		× : × : × : × :	129.0-151.0' - dark reddish brown, trace blue-green mottling at relic fractures, soft, fresh, fine grained	R26: 14:55-15:15
-			0		× × × × ×	-	-
-	R26HQ 4.3 ft 100%		0	133.5-135.3' - Microfractures, capillary pattern	× :	- - -	-
135			0	100.0-100.0 - Wild Offactures, Capillary Pattern	×		-
130.7	135.3		0		×		R27: 15:30-16:15 -
-			0		× : × : × :	×_ ×_	- -
-	R27HQ 5 ft 100%	100	0		× × × × × ×	-	-
-			0		× : × : × : × :	-	- -
140 <u></u> 125.7	140.3		0	- -	× : × : × :	- -	
_			0		× : × : × : × :	-	R28: 16:20-16:55 -
-	R28HQ		0		× :		-
-	5 ft 100%	100			× : × : × : × :	-	-
- 145			0		× × × × ×		-
145_ 120.7 -	I R29HQ	100	0		× × × × × × × × × × × × × × × × × × ×	-	R29: 08:00-08:15 on - 4/29/06
-	146.0 0.7 ft 100%/		0		× : × : × :		R30: 08:20-08:40
					××××		



PROJECT NUMBER:	BORING NUMBER:			
338884	BPA-5	SHEET	9 OF -	11

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686869.4 N, 2012272.8 E)

ELEVATION: 265.7 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, HQ Double Barrel ORIENTATION : Vertical

				THOD . BK-31, HQ Double Ballel			ORIENTATION: Vertical
WATER LEVELS: 1.5 ft bgs START: 4/19/06 08						END : 5/2/06 10:55	LOGGER : JS/JF
			DISCONTINUITIES		LITHOLOGY	COMMENTS	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
			0		× ×		
-	R30HQ 5 ft 99%	99	0	- - -	× × × × × × × ×	- - -	- - -
150 115.7			0		× × × × × ×	_	_
-	151.0		0	-	× × × ×	Sandstone	R31: 09:10-09:55
-			0	-	× × × × × ×	151.0-151.4' - dark reddish brown, soft to hard, fresh, very fine grained Siltstone	-
-	R31HQ		0	-	× × × × × ×	 151.4-157.9' - dark reddish brown, trace blue-green mottling, soft, fresh, fine grained 	-
-	5 ft 98%	98	0	154.0-156.0' - Numerous hairline fractures	× × × × × ×	-	-
155 <u></u> 110.7			0	_	× × × × × ×		-
	156.0		0	_]× ×	-	
-			0	-	× × × × × ×	_	R32: 10:35-11:05 SC-5 collected 156.0-157.5'
-			0	-	× × × ×	- Sandstone	-
-	R32HQ 5 ft 98%	98	0	-		157.9-160.5' - dark reddish brown, trace blue-green mottling, soft to hard, fresh	-
160 <u> </u>			0	- -		-	-
105.7			0	-	: : : × ×	Siltstone	-
-	161.0		0	-	× × × × × ×	At 160.5' - dark reddish brown, trace blue-green mottling, soft, fresh, fine grained	R33: 11:15-11:30 and 11:50-12:00 -
-			0	-	× × × × × ×	 162.6-162.9' - large mottles	-
-	R33HQ 5 ft 100%	100	0	-	× × × × × ×	-	-
165	11170		0	-	× × × × × ×	-	-
100.7	166.0		0	_	× × × × × ×	-	-
-			1	166.2' - Fracture, horizontal and 30 deg	× × × × × ×	- - -	R34: 12:15-12:45
_					× × × ×		



PROJECT NUMBER:	BORING NUMBER:		
338884	RP∆-5	CHEET	10 OF 11

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686869.4 N, 2012272.8 E)

ELEVATION: 265.7 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, HQ Double Barrel

ORIENTATION : Vertical

WATER	LEVELS: 1.	5 ft bo	IS	START : 4/19/06 08	<u>:40</u>	END: 5/2/06 10:55	LOGGER : JS/JF
				DISCONTINUITIES		LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
- - 170 95.7 - -	R34HQ 5 ft 96%		3 2 0 ××× 0	167.4' - Fractures, <5 deg, rough, undulating 167.6' - Fractures, 40 deg and 60 deg, slickensided, undulating 167.8' - Fractures, 40 deg and 60 deg, slickensided, undulating 168.0' - Fracture, 40 deg and 60 deg, slickensided, undulating 168.6-168.9' - Fractures, 40 deg and 60 deg, slickensided, undulating 169.7' - Fractures, 40 deg and 60 deg, slickensided, undulating 170.1' - Fractures, 40 deg, slickensided, undulating 170.1' - Fractures, 40 deg, slickensided, undulating	× > > × > >	_ 167.7-167.9' - large mottles - - - - - - - - - - - -	
175 90.7	R35HQ 5 ft 104%	100	0 0 0	174.0-176.0' - Trace capillary fractures	× >	Sandstone	R36: 13:30-14:00
- - - - 180 85.7 - -	R36HQ 5 ft 100%	100	0 0 0	_	× > > × > > × > > × > > × > > × > × > ×	L 176.4-176.6' - very dusky red, trace blue-green mottling, fresh Siltstone 176.6-178.6' - dark reddish brown, trace blue-green mottling, soft, fresh, fine grained Sandstone 178.6-178.7' - very dusky red, trace blue-green mottling, fresh Siltstone At 178.7' - very dusky red to blue-gray (banded), trace blue-green mottling, soft, fresh, fine grained	- - - - - - R37: 14:30-15:05
- - - - 185 80.7	R37HQ 5 ft 100%	90	0 2 0 0	184.5' - Fractures, 45 deg, slickensided, undulating – 185.0' - Fractures, rough fractured pieces, undulating	× × × × × × × × × × × × × × × × × × ×	- - - - - - - - 186.0-191.0' - dark reddish brown	R38: 15:15-15:45
					1		



PROJECT NUMBER:	BORING NUMBER:					
338884	BPA-5	SHEET	11	ΩE	11	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686869.4 N, 2012272.8 E)

ELEVATION: 265.7 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, HQ Double Barrel ORIENTATION : Vertical

STATE STAT	00111110	220	,	<u> </u>	THOD . BK-31, HQ Double Barrel			ORIENTATION : Vertical
Section Sect	WATER	LEVELS: 1.	5 ft bo	IS	START : 4/19/06 08	3:40	END : 5/2/06 10:55	LOGGER : JS/JF
R38HD Site		<u> </u>			DISCONTINUITIES	U	LITHOLOGY	COMMENTS
R38HD Site	اء €			S	DESCRIPTION	ا ا	ROCK TYPE COLOR	
R38HD Site	AND HE	Z A A	(%	A P		음	MINERALOGY, TEXTURE,	
R38HD Site	TA VA	GTER	5) <u> </u>	FS	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	BO		SMOOTHNESS, CAVING ROD
R38HD Site			ø	RA ER		Σ		
188.8° - Fractures, <5 deg 189.10 189.0° - Fractures, <5 deg 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10	υшшσ	0 1 12	IL.	<u>и</u> п			3. 2 4 4 (C) E1 (G) 1100	1
188.8° - Fractures, <5 deg 189.10 189.0° - Fractures, <5 deg 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10	_			'	187 8' - Fractures <5 deg rough undulating	_l^ × ×̂	_	_
188.8° - Fractures, <5 deg 189.10 189.0° - Fractures, <5 deg 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10						× ×		
188.8° - Fractures, <5 deg 189.10 189.0° - Fractures, <5 deg 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10 189.10	_		92	2		1× ×	-	-
191.0	-	10070			188.8' - Fractures, <5 deg	$\neg \times \times$	=	SC-6 collected
191.0 191.0 0 0 191.0 191.0 191.0 191.0 193.6 - multicolored redistibility ray, and black 191.0 193.6 - multicolored redistibility ray, and black 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 193.6 - 194.5 19	-			0		$-\times$	-	
191.0					_	$\begin{array}{cccccccccccccccccccccccccccccccccccc$		
191.0	75.7					× ×		
191-01-93-6'-multicolored reddish-brown, lan-yellow, bluish-gray, and black R39: 07-45-08:15 on 5/2/06	_	404.0		0		× ×	-	-
Radish R	-	191.0				- × ×	101 0-103 6! - multicolored	P30: 07:45 08:15 on 5/2/06
Sandstone 193.6-196.7 Sandstone 193.6-196.7 Sandstone 193.6-196.7 Sandstone 193.6-196.7 Sandstone 193.6-196.7 Sandstone 193.6-196.7 Sandstone 194.5 Siltstone 196.0-197.7 Sandstone 196.0-197.7 Sandstone 196.0-197.7 Sandstone 196.0-197.7 Sandstone 197.7-201.6 Sandstone 197.7-201.	_			0				1103. 07.40-00. 13 011 3/2/00
195				_		X X		
Sandstone 193.6-194.5 194 194 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5 195.5						IX X		1
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R40HO		196.0			195.5' - Fractures, <5 deg	:::		
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Sandstone 197.7-201.6' - dark bluish gray, fine sand, fresh, fine to medium grained 200 65.7 201.0 201.0 201.0 201.0 201.0-207.0' - Microfractures, capillary pattern 0 R41HO 6 ft 100% 0 R41HO 0 6 ft 100% 0 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R41HO 0 R5C-8 collected 202.8-204.15' First water level = 1.5' bgs taken 5/3/06 at 08:44; second water level = 2.6' bgs taken 5/4/06 at 08:20 R-Scale not performed on rock core samples	-					$\dashv \times \times$		-
R40HO 100 0 0 0 0 0 0 0 0	_			0			Soit, ilesii, ilile grailled	_
Site 100 0 0 0 0 0 0 0 0						:::	Sandstone	
200						7:::		
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201.0 201.0-207.0' - Microfractures, capillary pattern 201.6-207.0' - dark reddish brown to very dusky red, trace blue-green mottling, soft, fresh, fine grained R41: 10:05-10:55	200					1:::	400 0 004 01 11 1 11 11 11	
201.0 201.0-207.0' - Microfractures, capillary pattern X	65.7					7:::		
201.0-207.0' - Microfractures, capillary pattern XXX 0	-	004.0		0		∃∷ ∷	green, medium sand to coarse sand	-
Color Colo	-	201.0		XXX	201 0-207 0' - Microfractures, capillary pattern	-[∷:	_	P41: 10:05-10:55
Siltstone 201.6-207.0' - dark reddish brown to very dusky red, trace blue-green mottling, soft, fresh, fine grained Compared to the property of the propert	-				201.0-201.0 - Microllactures, capillary pattern	1:::		1. 10.05-10.55
R41HQ 0 0]× ×		
R41HQ 0 0	1 7					1×××		
R41HQ	_			0		$\neg \times \times$	mottling soft fresh fine grained	202.8-204.15'
R41HQ	-					∃ â×		-
R41HQ 6 ft 100% 0 0	-			0		X X	-	 -
205 60.7 0		K41HQ	100			× ×		First water level = 1.5' bgs
205 60.7 0		100%	100			× ×		
60.7	205	•		0		× ×	<u> </u>	
- 0 - X X - X X - X X X X X X X X X X X					-	\times \times	-	_
				0		× ×	-	-
- 207.0 Control of Performed on rock core samples Control of P						× ×		_
207.0 X X X Bottom of Boring at 207.0 ft bgs on						l××		
Bottom of Boring at 207.0 ft bgs on	-	007.0		0		1× ×	-	rock core samples
	-	207.0				1× ×	Bottom of Boring at 207 0 ft bas on	+
	_					_		_
						1		

2BB-38 Rev. 1



PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-6	SHEET 1 OF 7

SOIL BORING LOG

 PROJECT : PEC COLA, New Hill, NC
 LOCATION : (NAD 27) (687037.2 N, 2012258.8 E)

 ELEVATION : 264.3 ft MSL (NGVD 29)
 DRILLING CONTRACTOR : R. Norwood, S&ME

DRILLING EQUIPMENT AND METHOD: CME-550, Tricone Bit, 24 Split Spoon, and 140 lb. Automatic Hammer ORIENTATION: Vertical WATER LEVELS: 12.5 ft bgs START: 6/28/06 16:02 END: 6/30/06 10:00 LOGGER: JF DEPTH BELOW EXISTING GRADE (ft) SOIL DESCRIPTION COMMENTS STANDARD PENETRATION LOG INTERVAL (ft) TEST RESULTS SYMBOLIC DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION SOIL NAME, USCS GROUP SYMBOL, COLOR, RECOVERY (in) MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY 6"-6"-6"-6" #TYPE (N) 264.3 0.0 Clay (CL) 0.0-0.3' - reddish brown, moist, soft, low to medium plasticity SS1SS 3-4-20-50/3 13.0 Silt (ML) (24)0.3-1.1' - red, mottled bluish gray, dry to moist, soft, 2.0 very loose, nonplastic, powdery 3.0 SS2SS Silt (ML) 2.8 50/3 2.5-2.8' - red, mottled bluish gray, dry to moist, hard, Soil sampling completed at 16:15 on 6/28/06 (50/3")nonplastic, powdery 4.0 Begin Rock Coring at 4.0 ft bgs See the next sheet for the rock core log 5 259.3 10 254.3 15 249.3 20



PROJECT NUMBER:

338884

BPA-6

SHEET 2 OF 7

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687037.2 N, 2012258.8 E)

ELEVATION: 264.3 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

CORING	EQUIPMEN	II AN	DIVIE	THOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS : 12	2.5 ft b	ogs	START : 6/28/06 16	:02	END : 6/30/06 10:00	LOGGER : JF
	(%			DISCONTINUITIES	ပ္ခ	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
5 259.3	4.0 R1NQ 1 ft 5.0 100%	0	2	-	× × × × × ×	Siltstone At 4.0' - dark reddish brown, very soft, massive bedding, highly weathered, fine grained	Rock coring began at 08:05 on 6/29/06 - R1: 08:05-08:07 At 4.0-5.0': R-Scale = R0
			1	5.0.0.01 Faratura CO dan assart sundidation	× × × × × ×	-	R2: 08:14-08:21
-			0	5.9-6.0' - Fracture, 60 deg, rough, undulating, black staining on edge, tight fit	× × × × × × × ×	6.4-6.8' - evidence of 60 degree crack with black material on core	At 5.0-12.4': R-Scale = R2
-	R2NQ 5 ft 100%	0	0		× × × × × ×	edge/potentially throughout core _ _	-
-			0		× × × × × ×	-	SC-1 collected 5.0-5.9' -
10 254.3	10.0		0	- -	× × × × × ×	9.5-10.0' - trace of blue-green — mottling, fragile	R3: 08:28-08:35
			0		× × × × × ×	10.0-15.0' - no mottling, very fragile	-
-	R3NQ		0		× × × × × ×	-	-
-	5 ft 97%	0	0		× × × × × ×	-	At 12.35-15.0': R-Scale = - R1 _
-			0		× × × × - × ×	-	-
15 <u> </u>	15.0		0 ***	15.01 Fracture of dog rough undulating	× × × × × ×	 15.0-18.0' - clay coating on outside of	R4: 08:40-08:49
-			1	15.2' - Fracture, <5 deg, rough, undulating 16.1-16.3' - Fractures (2), 60 deg and <5 deg,	× × × × × ×	core from drilling	-
-	R4NQ		2	rough, undulating, former is stained black 17.0' - Fracture, <5 deg, rough, undulating	× × × × × ×	-	At 16.3-17.6': R-Scale = R0 R1 -
_	5 ft 100%	20*	4	17.4' - Fracture, <5 deg, rough, undulating 17.6' - Fracture, <5 deg, rough, undulating 17.8-18.0' - Fracture, 60 deg and <5 deg,	× × × × × ×	18.0-19.0' - becoming more coarse,	-
_			0	rough, undulating, former is stained black	× × × ×	- addition of sandstone pieces Sandstone	At 18.5': R-Scale = R3 SC-2 collected
20_ 244.3	20.0		2]:::]:::	At 19.0' - reddish brown, soft to hard, medium bedding, fine sand to medium sand, moderately weathered 20.0-20.5' - blocky angular grains,	19.0-20.0' R5: 09:10-09:17
-			3	undulating 20.8' - Fracture, <5 deg, rough, undulating 21.3' - Fracture, <5 deg, rough, undulating	::: × × × ×	pebble sized (30%) 20.5-20.7' - no blocky grains 20.7-20.9' - blocky angular grains,	At 20.8-22.2': R-Scale = R0- R1
-	R5NQ 5 ft	87*	0	21.6' - Fracture, <5 deg, rough, undulating 21.9' - Fracture, <5 deg, rough, undulating	× × × × × ×	pebble sized (30%) Siltstone At 20.9' - reddish brown, very soft,	-
-	100%		0		× × × × × ×	moderately weathered 21.7-22.8' - becoming more coarse, addition of sandstone pieces	
					××		

2BB-40 Rev. 1



PROJECT NUMBER:

338884

BPA-6

SHEET 3 OF 7

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687037.2 N, 2012258.8 E)

ELEVATION: 264.3 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				HOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS : 12	2.5 ft b	gs	START : 6/28/06 16	:02 T	END : 6/30/06 10:00	LOGGER : JF
	<u>@</u>			DISCONTINUITIES	90	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
- 25	25.0		0		× ;	-	-
239.3			0	_	-	24.9' - 0.1' thick 20 degree banding on relic bedding Sandstone	R6: 09:23-09:31
-			0		- - - : : :	25.0-29.3' - reddish gray, medium bedding, slightly weathered to moderately weathered, very soft	At 25.7': R-Scale = R3 At 26.5-29.0': R-Scale = R2
-	R6NQ 5 ft 100%	82*	0		- - - - - - -	25.0-27.0' - fine to medium grained 27.0-29.3' - medium to coarse grained	-
-			1	28.5-28.7' - Fracture, 60 deg, rough, undulating	- ::: - :::	-	At 28.2': R-Scale = R3
30 <u> </u>	30.0		2	29.0' - Fracture, <5 deg, rough, undulating 29.3-29.4' - Fracture, <5 deg, rough, undulating, shattered rock, stained – 29.4-29.6' - Fracture, crack in core with	- × ; - × ; - × ;	Siltstone At 29.3' - dark purple and glue-green, very soft, slightly weathered	- R7: 09:35-09:53
-			1	discoloration along surface of break 30.5-31.8' - Fracture, 85 deg, slickensided, undulating	- × × × × × × × × × × × × × × × × × × ×	29.6-31.8' - dark reddish brown 30.0-31.3' - blue green mottling, very soft, fine grained, fine sand at bottom 31.3-31.8' - 25-30% very fine sand to	At 30.4': R-Scale = R3
-	R7NQ 5 ft	72	0] <u>^</u> ;	fine sand Sandstone At 31.8' - dark reddish brown, very	- - -
-	100%		1	33.5-33.9' - Fracture, 60 deg, rough,	- ::: - :::	hard, laminated to massive bedding, fine sand to medium sand, coarse at bottom	At 32.5': R-Scale = R3 -
- - 35	35.0		0	undulating	- :::: - ::::	31.8-35.0' - slightly weathered 32.2-32.3' - clay seam - 32.3-35.0' - very dusky red, blue-green mottling	At 34.2': R-Scale = R4
229.3	00.0		2	 35.5-35.6' - Fracture, 45 deg, rough, undulating, black staining	=	35.0-40.0' - gray, soft to hard, fine - sand to coarse sand 35.0-47.0' - fresh	R8: 10:00-10:08
-	DONO		0	35.9-36.0° - Fracture, 45 deg, rough, undulating, black staining	- - - - -	35.3' - large piece on dark reddish brown sandstone (4) 36.0-36.4' - trace black mottling	At 36.4': R-Scale = R3 -
-	R8NQ 5 ft 100%	94	1	37.0-37.5' - Fracture, <5 deg, rough, undulating, trace yellow staining	- ::: - :::	37.2-37.3' - soft, trace dark reddish brown mottling	-
-			0		- ::: - :::	- -	-
40 <u> </u>	40.0		0	_		40.0-45.0' - soft to hard, fine sand to coarse sand, angular to subangular,	At 39.3': R-Scale = R3-R4 R9: 10:12-10:18
-			0	41.1' - Fracture, 60 deg, rough, undulating, light yellow staining	- - - - - : : :	quartz and mica, red-brown staining at surface top (0.2') relic 20 degrees bedding	-
-	R9NQ 5 ft 100%	96	0		- - - - -	-	At 42.1': R-Scale = R3
-	100%		1		- - - : : :	-	-

2BB-41 Rev. 1



PROJECT NUMBER:

338884

BPA-6

SHEET 4 OF 7

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687037.2 N, 2012258.8 E)

ELEVATION: 264.3 ft MSL (NGVD 29)

DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				THOD . CIVIE-930, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS: 12	2.5 ft b	gs	START : 6/28/06 16	:02	END : 6/30/06 10:00	LOGGER : JF
	<u></u>			DISCONTINUITIES	U	LITHOLOGY	COMMENTS
oz €	CORE RUN, LENGTH, AND RECOVERY (%)		FRACTURES PER FOOT	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	CIZE AND DEDTH OF CACING
돌은 _ 빙	돌구 문	(%)	N N	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	7 🚆	MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
DEPTH AND ELEVATION SELOW SURFACE (ft)	#Z-00	Q D (%)	ACT 7 F(PLANARITY, INFILLING MATERIAL AND	MBC	WEATHERING, HARDNESS, AND ROCK MASS	SMOOTHNESS, CAVING ROD
SEEE	8 4 8	RG	E.F.	THICKNESS, SURFACE STAINING, AND TIGHTNESS	S	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
				43.5' - Fracture, 60 deg, rough, undulating,	1:::		SC-3 collected
l			2	light yellow staining	-1:::	 -	40.0-41.1'
45 <u> </u>	45.0			44.1' - Fracture, 60 deg, rough, undulating, light yellow staining	4:::	45.0.47.01 and to bound your thin to	R10: 10:30-10:40
219.5			0	44.2' - Fracture, 60 deg, rough, undulating,	_ :::	45.0-47.0' - soft to hard, very thin to medium bedding, medium sand to	R 10: 10:30-10:40
				light yellow staining		coarse sand, angular to subangular,	
]∷∶	quartz and mica, red-brown staining at	At 46.1': R-Scale = R3
-			0		1:::	 surface top (0.2') 20 degree relic bedding, alternating dark and light 	-
-	R10NQ			47.0' - Fracture, 40 deg, rough, undulating,	×	bedding, alternating dark and light bands	-
_	5 ft	100	1	sharp contact	- ×	Siltstone	=
_	100%			·	××	47.0-48.9' - dark reddish brown,	_
			_		×	mottled blue-green, very soft, fresh,	
			0		×	fine grained, very soft, fine to medium sand (15%) more coarse at bottom	At 48.4': R-Scale = R3-R4
-					T:::	Sandstone	_
			0		1:::	At 48.9' - reddish brown, soft, medium	-
50 <u> </u>	50.0			_	4:::	to thick bedding, fine sand to medium	P11: 12:00 12:20
214.3			2	50.2' - Fracture, <5 deg, smooth, planar] ::::	sand, fresh, coarse grained (10%) 50.0-53.0' - dusky red, mottled	R11: 13:00-13:20
			_	50.4' - Fracture, 30 deg, smooth, planar, along	1:::	blue-green and gray, progressively	
_				bedding planes] ::::	more fine sand more coarse grains at	At 51.2': R-Scale = R3-R4
-			1	51.6-52.1' - Fracture, 70 deg, rough,	∃∷ ∷	bottom (medium - 20%), blue-green	At 31.2 : N-3cale = N3-N4
-	R11NQ			undulating, very thin	- ∷:	coloring at contact with siltstone	-
-	5 ft	80	3	52.0' - Fracture, 45 deg, rough, undulating,	- :::	 -	_
_	100%			tight fit	1:::		At 52.7': R-Scale = R3
			0	52.9' - Fracture, 30 deg, smooth, planar, along bedding planes	×	Siltstone	
			U	bodding plantoo	×	At 53.0' - dark reddish brown, 15% blue-green mottling, very soft, fine	
_					× :	grained	_
l			0		×	53.0-55.5' - fresh	-
55 <u> </u>	55.0			_	×	55.0-60.0' - more fragile	R12: 13:34-13:50
200.0			2		_ × :	×L	K12. 13.34-13.30
l _					×	55.5-57.0' - slightly weathered, large amount (35-40%) clay clasts up to 2,	
					×	relic bedding at 20 degrees	
I -			2		×	z	_
-	R12NQ	l			×	57.0-64.7' - fresh	-
_	5 ft	80	0		– × :	_	At 57.5': R-Scale = R3
_	100%				×	1	At 37:3: N-3cale = N3
_			1	58.0' - Fracture, 20 deg, rough, undulating, along possible bedding plane	× × ×		_
			'	along possible bedding plane	×		
-				59.0' - Fracture, 20 deg, rough, undulating,	- 1×:	5	1
-	00.0		1	along possible bedding plane	- ×	†	At 59.5': R-Scale = R3
60 <u> </u>	60.0			_	×	60.0-65.0' - trace blue-green mottling	R13: 13:50-14:25
			2	60.4' - Fracture, <5 deg, rough, undulating	_ ×	×- 33.0-33.0 - ilade blue-green mottillig	17.10. 10.00-14.20
l _				60.9' - Fracture, <5 deg, break, at clay seam	× × ×	1	
				00.9 - Fracture, <3 deg, break, at clay seam	×		
-	R13NQ	l	0		×××	5	1
-	4.4 ft			62.0-62.4' - Fracture, 65 deg, rough,	⊤ ×∶	-	At 62.0': R-Scale = R3
-	100%		1	undulating, trace dark purple staining	-×:	1	-
-					- × :	1	-
l _			0		×	1	SC-4 collected 62.8-63.4 -
					×××		52.0-05.4
					T		

2BB-42 Rev. 1



PROJECT NUMBER: BORING NUMBER: **BPA-6** 338884 SHEET 5 OF 7

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (687037.2 N, 2012258.8 E)

ELEVATION: 264.3 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING	CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical								
WATER	LEVELS: 12	2.5 ft b	gs	START : 6/28/06 16	:02	END : 6/30/06 10:00	LOGGER : JF		
	(%		-	DISCONTINUITIES	၂ ဗွ	LITHOLOGY	COMMENTS		
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.		
	64.4		0		× ×	- 0.7 - 0.00 1.11 11 1	B44 4400 4455		
65 199.3			0	64.7' - Fracture, <5 deg, rough, undulating, _ boundaries of clay seams 64.9' - Fracture, <5 deg, rough, undulating, boundaries of clay seams	× × × × × × × ×	64.7-68.0' - slightly weathered 65.0-68.0' - no mottling, grading to fine sand at bottom	R14: 14:28-14:55 ———————————————————————————————————		
_	R14NQ			65.1-65.2' - Fracture, <5 deg, rough, undulating, boundaries of clay seams	× × × ×	-			
- -	5 ft 100%	60	10+	67.4-68.5' - Fracture, 60 deg, smooth, planar, below is heavily fractured rock	× × × × × ×	-	At 66.75': R-Scale = R3-R4 Driller's Remark: Water ran out and rock was shattered		
_			0		 	Sandstone - At 68.0' - reddish brown, soft, medium bedding, fine sand, angular, slightly	-		
_	69.4 R15NQ	100	\bigotimes		::: ::::	weathered 69.4-70.0' - dusky red, fine sand to	At 68.9': R-Scale = R3-R4		
70 <u> </u>	70.0 0.6 ft \100%/	100	0	- 70.6' - Fracture, 20 deg, rough, undulating,	- - - - - - -	medium sand, angular 70.0-72.0' - gray, fine sand to medium sand, possibly 20 degrees relic	R16: 15:15-15:25		
-			1	tight fit 70.9' - Fracture, 20 deg, rough, undulating, tight fit	 	_ bedding -	At 71.3': R-Scale = R3 -		
-	R16NQ 5 ft	70	4	ught iit 71.6' - Fracture, 50 deg, rough, undulating 72.1-72.4' - Fracture, 50 deg, rough, undulating	- :::: - ::::	72.0-75.0' - medium sand to coarse sand	-		
- -	100%		2	72.2' - Fracture, 50 deg, rough, undulating 72.3' - Fracture, 50 deg, rough, undulating 72.4' - Fracture, 50 deg, rough, undulating 72.6' - Fracture, 40 deg, rough, undulating,	-	- - -	-		
75	75.0		0	perpendicular to previous four fractures 73.8' - Fracture, 50 deg, rough, undulating 74.1' - Fracture, 50 deg, rough, undulating,	-:::	_	_		
189.3			1	undulating, rough, 50 deg 75' - Contact between siltstone and sandstone, sharp contact	× × × × × × × ×	Siltstone 75.0-86.8' - dark reddish brown, trace blue-green mottling, very soft, fine grained, very fine to fine sand	R17: 15:35-15:45		
-			1	75.8' - Fracture, <5 deg, rough, undulating 76.9' - Fracture, <5 deg, rough, undulating	× × × × × ×	- throughout 75.0-84.0' - fresh	At 76.4': R-Scale = R3		
_	R17NQ 5 ft 100%	97	1	, 0, 0,	× × × × × ×	76.6-77.0' - very soft, fine grained, pink clay clasts	-		
-			2	78.0' - Fracture, <5 deg, rough, undulating 78.4-78.8' - Fracture, 70 deg, rough, planar, slight staining	× × × × × ×	77.95-78.4' - pink clay clasts 78.4-78.5' - clay seam, trace blue-green mottling	-		
80	80.0		1	78.9-79.1' - Fracture, 30 deg, smooth, undulating	- × × × × × ×		At 79.4': R-Scale = R3-R4		
184.3			0	80.6-81.0' - Fracture, slightly healed fracture	× × × × × ×	-	R18: 15:47-15:56 At 80.0-84.3': R-Scale = R2		
-			1	81.3' - Fracture	× × × ×	-	-		
_	R18NQ 5 ft 100%	80	0		× × × × × ×	-	-		
_			2	83.0-83.4' - Fracture, 60 deg, smooth, undulating, crossed 5 deg plane	× × × × × ×				
			ш		1				

2BB-43 Rev. 1



PROJECT NUMBER:

338884

BPA-6

SHEET 6 OF 7

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687037.2 N, 2012258.8 E)

ELEVATION: 264.3 ft MSL (NGVD 29)

DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS : 12	.5 ft b	gs	START : 6/28/06 16	3:02		END: 6/30/06 10:00	LOGGER : JF
	(%)			DISCONTINUITIES	(ع [LITHOLOGY	COMMENTS
QZ Û	R AND ≪ (%		SI_	DESCRIPTION] :	3	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	CTURES R FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS,			MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND
EPT ILEV ELO SURF	SORE	ο	FRAC PER F	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS			AND ROCK MASS CHARACTERISTICS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
<u> Пша</u> о	OJR	IĽ.	шп	83.9' - Fracture, 10 deg, smooth, undulating,			OIPTO-CERTOTICS	
_			4	tight fit	-××	×Г	84.0-86.8' - highly weathered	At 84.3-87.5': R-Scale = R0
85 <u> </u>	85.0			84.4' - Fracture, <5 deg, smooth, planar, tight _ fit	–l× ×	×⊢	85.0-86.8' - dark reddish gray, fine	R1 — — — — — — — — — — — — — — — — — — —
179.5			4	85.1' - Fracture, 75 deg, smooth, undulating,	-×××	X -	sand	K19. 10.00-10.25
_				crosscut along 75 deg 85.5' - Fracture, 75 deg, smooth, undulating,	- × ×	}		-
_			1	crosscut along 75 deg undulating, smooth	- ×	3		-
_	Banko			85.7' - Fracture, 75 deg, smooth, undulating, crosscut along 75 deg undulating, smooth	-Iĥ	πÎ	Sandy-Silt (ML)	1 -
_	R19NQ 5 ft	0	1	85.8' - Fracture, 75 deg, smooth, undulating,	-I⊥ X	Щ	86.8-87.5' - highly weathered, trace	
_	100%			crosscut along 75 deg undulating, smooth	××	X_	\clay Siltstone	At 87.5-94.6': R-Scale = R2
_			7	88.2-88.3' - Fracture, 45 deg, rough,	-×	×-	87.5-90.5' - dark reddish brown, very	SC-5 collected 85.8-86.8' -
_				undulating 88.3-88.5' - Fracture, 60 deg, smooth,	××	X_	soft, highly weathered, fine grained, trace sand	_
_			3	undulating, not same orientation	-X	X_	·]
90	90.0			89.4-90.0' - Fracture, 75 deg, rough, undulating	××	×	_	
174.3			2	90.0-90.5' - Fracture, 70 deg, smooth, planar,	××	X		R20: 07:55-08:20 on 6/30/06 –
_				slight yellow staining on face 90.1' - Fracture, vertical, smooth, planar,	Ш	$\ \mathbf{L}$	Silt (ML) 90.5-93.9' - dark reddish brown, soft,	At 90.5': PP: 0.5-1.5 tsf
_			10+	truncation of vertical		$\ \mathbf{L} \ $	fine grained, low plasticity, highly	91.1-92.9' Missing, driller
			10.	91.1-92.9' - heavily fractured section is watery. Most likely washed away.	Ш	L	weathered, soil-like	showed that the borehole was open to 95'
	R20NQ 5 ft	20		meet meet, meet en eg.		$\ \ $		At 91.9': R-Scale = R2
	64%	20	10+		Ш	$\ \ $		
			XXX					
			\ggg	00.01.5	Ш	Щ		_
			XX	93.9' - Fracture, <5 deg, rough, undulating, tight fit, break at clay seam	X	×	Clay Seam 93.9-94.0' - highly weathered	
95	95.0		\ggg	_	××	×	Siltstone	
169.3			0		×× ×	×	At 94.0' - dark reddish brown, trace blue-green mottling, fine grained, very	R21: 08:24-08:40
			١]××	×	soft, very fragile	
			1]×	×	94.0-97.4' - slightly weathered	At 96.0': R-Scale = R3
			' I	06.91 Erecture 40 deg and vertical amouth]××	×		
	R21NQ	40		96.8' - Fracture, 40 deg and vertical, smooth, planar, planar, smooth, white infilling on due	1× ×			- At 97.2-106.2': R-Scale =
	5 ft 83%	48	1	edge 97.4' - Contact between siltstones, <5 deg,]××	×	Siltstone At 97.4' - greenish gray, soft, fine	R0
				rough, undulating, dark gray]××	×	grained	At 97.4': PP: 0.5-3.0 tsf -
			10+]××	×	97.4-100.0' - highly weathered 97.9-100.0' - very dark gray - reddish]
					×××	×	brown, heavily mottled]
100	100.0				1×	ΧŢ]
164.3			- 1	_	\prod	\prod	Silt (ML)	R22: 08:48-09:25
			10+				At 100.0 - greenish gray, very soft, soil-like	1
							100.0-102.5' - highly weathered	1
			10+			f]
	R22NQ							
	5 ft 75%	0	10+	102.5-106.3' - Fracture zone, 50 deg and 60	\parallel	$\parallel \uparrow$	Silt (ML)] 1
				deg, slickensided, undulating, heavily fractured	1	$ \mathbf{f} $	102.5-106.3' - reddish brown/greenish gray, mottled, highly weathered	
-			10+ ×××		1		g.s., motion, mgmy wouldlood	
			^. *. *.		T	"†		

2BB-44 Rev. 1



PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-6	SHEET 7 OF 7

 PROJECT : PEC COLA, New Hill, NC
 LOCATION : (NAD 27) (687037.2 N, 2012258.8 E)

 ELEVATION : 264.3 ft MSL (NGVD 29)
 DRILLING CONTRACTOR : R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION: Vertical WATER LEVELS: 12.5 ft bgs START: 6/28/06 16:02 END: 6/30/06 10:00 LOGGER: JF DISCONTINUITIES LITHOLOGY COMMENTS CORE RUN, LENGTH, AND RECOVERY (%) 90 DEPTH AND ELEVATION BELOW SURFACE (#) FRACTURES PER FOOT DESCRIPTION ROCK TYPE, COLOR. SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD SYMBOLIC MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS RQD(%) DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS DROPS, TEST RESULTS, ETC. CHARACTERISTICS 105 105.0 159.3 R23: 09:29-09:39 10+ At 106.2-108.2': R-Scale = Siltstone 10+ 106.3-107.5' - dark reddish brown, mottled with yellow and blue-green R23NQ At 109.4': R-Scale = R4 throughout, very soft, slightly 5 ft 72* 10+ 107.3-107.5' - Fracture, 60 deg, slickensided, 100% weathered to moderately weathered, 107.4-107.7' - Fracture, <5 deg, crosscuts fine grained First water level = 12.46' above planar, rough bgs taken 6/30/06 at 12:30 0 Sandstone 107.5-110.0' - gray, mottled with yellow and blue-green and reddish R-Scale performed after 0 brown, fine grained, soft to hard drilling on stored samples 110 _ 110.0 107.5-107.7' - slightly weathered to moderately weathered 107.7-110.0' - fresh 154.3 Bottom of Boring at 110.0 ft bgs on 6/30/06 10:00 115 $149.\overline{3}$ 120 144.3



WATER LEVELS: 10.0 ft bgs

20

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-7	SHEET 1 OF 8

SOIL BORING LOG

END: 6/27/06 15:10

ORIENTATION: Vertical

LOGGER: JF

 PROJECT : PEC COLA, New Hill, NC
 LOCATION : (NAD 27) (686973.9 N, 2012288.8 E)

 ELEVATION : 265.0 ft MSL (NGVD 29)
 DRILLING CONTRACTOR : R. Norwood, S&ME

START: 6/26/06 08:30

DRILLING EQUIPMENT AND METHOD: CME-550, Tricone Bit, 24 Split Spoon and 140 lb. Automatic Hammer

SOIL DESCRIPTION COMMENTS DEPTH BELOW EXISTING GRADE (ft) STANDARD 90 PENETRATION INTERVAL (ft) TEST RESULTS SYMBOLIC SOIL NAME, USCS GROUP SYMBOL, COLOR DEPTH OF CASING, DRILLING RATE, RECOVERY (in) (TSF) MOISTURE CONTENT, RELATIVE DENSITY OR DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION CONSISTENCY, SOIL STRUCTURE, MINERALOGY #TYPE 6"-6"-6"-6" ద (N) 265.0 Silty Sand (SM) 0.0 0.0-0.4' - brown, wet, medium dense, 50% 0.5 gravel, SS1SS 14.0 3-3-4-13 Poorly Graded Sand (SP) (7) 0.4-0.8' - light brown, moist, loose, fine grained, some 2.0 Silt (ML) 0.8-1.2' - dark reddish brown, moist, medium dense 2.5 Silty Sand (SM) 2.5-2.9' - reddish brown, moist, medium dense, fine 5.0 SS2SS 50/5 grained (50/5")4.5 5 260.0 5.0 5.5 PT-1 collected 5.0-5.8' - reddish brown, dry to moist, dense, very fine Offset: 6.9' S33W of BPA-7 grained, nonplastic SS3SS 13-13-14-28 90 Lab Results USCS: CL (27)7.0 8.0 7.5-8.1' - reddish brown, dry to moist, dense, very fine grained, nonplastic 7.0 SS4SS 29-50/5 (50/5")9.5 Soil sampling completed at 09:31 on 10 6/26/06 10.0 1.0 ASS5SS Silt (ML) 255010.1 50/1 10.0-10.1' - reddish brown, dry to moist, dense, very (50/1" fine grained, nonplastic 10.4 Begin Rock Coring at 10.4 ft bgs See the next sheet for the rock core log 15 250.0



PROJECT NUMBER:

338884

BPA-7

SHEET 2 OF 8

ROCK CORE LOG

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686973.9 N, 2012288.8 E)

ELEVATION: 265.0 ft MSL (NGVD 29)

DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

				THOD . CIVIE-930, NQ DOUBLE BATTEL			ORIENTATION : Vertical
WATER	LEVELS: 10	0.0 ft b	gs	START : 6/26/06 08	:30	END : 6/27/06 15:10	LOGGER : JF
	<u></u>			DISCONTINUITIES	U	LITHOLOGY	COMMENTS
oz Ê	CORE RUN, LENGTH, AND RECOVERY (%)		S	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	
DEPTH AND ELEVATION BELOW SURFACE (ft)	A'UN H, A	(%	FRACTURES PER FOOT		┫일	MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
TA VA	RE FIGE	(%) 🛭	CT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY. INFILLING MATERIAL AND	4BC	WEATHERING, HARDNESS, AND ROCK MASS	SMOOTHNESS, CAVING ROD
SEE	RES	S O	FRA	THICKNESS, SURFACE STAINING, AND TIGHTNESS	lγ	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
	10.4	_			 	- Sandstone	_
			0			At 10.4' - dark reddish brown, soft,	Rock coring began at 10:00
]∷∷	fresh, fine grained, coarsens with	on 6/26/06 - R1: 10:00-10:10 on
_			0		1:::	- depth	06/26/06
-					- ∷∷	- 11.8-14.5' - 40-50% medium to coarse	At 10.7': R-Scale = R3 -
_	R1NQ	93	0		- ∷∷	sand in fine sand matrix, 0.8 clasts	_
_	4.7 ft 100%	93			<u> </u>	=	_
			0		:::		
			0]::::		1
_					1∷:	-	At 14.1': R-Scale = R3
			0		- [∷∷	_ 14.5-16.9' - fine grained	
15 <u> </u>	15.0			_	- ∷∷		R2: 10:15-10:25
250.0			0		4::::	<u>-</u>	10.13-10.23
_					<u> </u> :::	_	
			2	16.2' - Fracture, 60 deg, rough, undulating			At 16.1': R-Scale = R3-R4
			4		:::		
_	R2NQ			17.0' - Fracture, <5 deg, rough, undulating	××	Siltstone	1
-	5 ft	72*	10+	17.2-17.5' - Fracture zone	× ×	At 16.9' - dark reddish brown, very soft, fine grained, harder blue-green	1
_	94%			17.9-18.4' - Fractures (3), <5 deg, rough,	× ×	clay like clasts holding core together	-
_			0	undulating	- ×××	_ 16.9-17.0' - fresh	1
_				18.5-20.0 - Fracture zone, rough, numerous	JŶ Ŷ	17.0-18.5' - moderately weathered 18.5-39.0' - fresh	At 18.7': R-Scale = R2
				small microfractures along rough bedding	× × × ×	18.5-30.0' - very fine grained	SC-1 collected
20	20.0		0 >>>>		× ×	18.5-20.0' - heavy purple mottling	19.0-20.0'
245.0	20.0			_	× ×	20.0-22.5' - dark purple mottling	R3: 10:35-11:00
-			0		√× ×		1
_				21.0' - Fracture, <5 deg, smooth / rough, some	- X	-	At 20.9': R-Scale = R3-R4
_			2	dark purple staining on surface of break	××	_	-
_				21.8-22.5' - Fractures (2), 60 deg, smooth /	X X	_	
	R3NQ	74	10.	rough, undulating, dark purple staining on	\times \times		
	5 ft 104%	74	10+	surface	× ×	22.5-22.8' - soil-like characteristics	
_				22.5-22.8' - heavily fractured, clay seam	× ×	23.0-23.3' - trace blue-green mottling	1 1
-			10+	23.4-23.6' - heavily fractured, clay seam	× ×	- 23.4-25.6' - soil-like characteristics	1
-					××	23.4-23.6' - trace blue-green mottling	At 26.5-27.2': PP: 0.5 tsf
-			0		××	_	
25	25.0			_	× ×		I
240.0			0		Jŝ 3	25.0-30.0' - < 0.4 pink clay rip up	R4: 11:10-11:25
			'		T× 3	- clasts 25.0-26.4' - blue-green mottling	1
					- × × × ×	_	1
-			10+	20.4 Tradiate, od acg, sillootii, aliadiatiilg	× ×	-	1,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
-	R4NQ			26.5-27.2' - heavily fractured, clay seam		-	At 26.7-27.3': R-Scale = R0
-	5 ft	76	10+		× × × ×	-	-
_	100%			27.6' - Fracture, 10 deg, smooth, undulating 27.8' - Fracture, 70 deg, rough, undulating,	. ×	<u>-</u>]
_			0	dark purple staining	× × × ×	<u>-</u>	At 28.2': R-Scale = R3
			Ľ		××	_	
				29.0' - Fracture, <5 deg, rough, undulating		29.0-30.0' - trace hairlike blue-green	1,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
30	30.0		1	0001 5 4 45 1		- mottling	At 29.3': R-Scale = R3 -
235.0	50.0			29.8' - Fracture, <5 deg, rough, undulating	× ×		R5: 11:30-11:40
					╽		
					_		-

2BB-47 Rev. 1



PROJECT NUMBER:

338884

BPA-7 SHEET 3 OF 8

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686973.9 N, 2012288.8 E)

ELEVATION: 265.0 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				HOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS : 10).0 ft b	gs	START : 6/26/06 08	3:30	END : 6/27/06 15:10	LOGGER : JF
	<u>@</u> (%)		,, i	DISCONTINUITIES	90.	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
_			0		- × :		_
- - -	R5NQ	0.5	0		- × - × - × - ×	31.4-31.8' - 30% very fine to fine grained sand 31.9-32.0' - bluish-white clast/sand	 At 32.0': R-Scale = R3-R4
_	5 ft 100%	85	0	33.3-34.0' - Fractures (5), <5 deg, rough,	- ×	lens 32.3-34.0' - blue-green mottling, clay rip up clasts	-
-			5	undulating	- × - × × ×	34.0-35.0' - dark purple and trace	
35	35.0		0		√x i	– blue-green mottling	At 34.3': R-Scale = R3 -
230.0			1	35.5' - small microfractures, heavily fractured rock, 0.1' thick, clay seam	× × ×	35.5-39.0' - heavily mottled bluish-gray, yellow-green	R6: 12:30-13:05
-			0	rock, 0.1 tilick, day seam	- × :	Land Park Communication Land Park Communic	
-	R6NQ 5 ft 96%	92	0		- × × × × ×		At 37.0': R-Scale = R3
-			0		- × × ×	-	_
40	40.0		0 ×××	_	- × × ×	Sandstone 39.0-39.2' - bluish-gray, soft, fine sand to medium sand, angular, fresh	At 39.3': R-Scale = R3
225.0			0	40.6' - Contact between siltstone and sandstone, sharp contact	× ::	Siltstone 39.2-40.6' - very dusky red, very soft to soft, fresh, fine grained	R7: 14:20-14:35 - -
-	R7NQ 5 ft	100	0	sandsone, sharp contact		Sandstone 40.6-52.3' - gray, soft to hard, medium sand to coarse sand, angular to subangular, fresh	- At 41.9': R-Scale = R3-R4
-	100%		0			- 43.5-43.8' - fine to medium grained	- At 43.4': R-Scale = R3-R4 -
-			0		-	43.3-43.6 - Illie to medium grained -	<u>-</u>
45 <u> </u>	45.0		0	-	- - - -	45.2 and 45.5' - dark gray bands, <0.1' thick	R8: 15:05-15:20
-			0		-	-	At 45.8': R-Scale = R3
-	R8NQ 5 ft	100	0			- 47.5-47.9' - dark gray bands, <0.1'	- -
-	100%		0		-	- thick	At 47.9': R-Scale = R3-R4 -
- -	50.0		0		-	- -	
50_ 215.0	50.0			_	1:::	_	R9: 15:28-15:40

2BB-48 Rev. 1



PROJECT NUMBER:

338884

BPA-7

SHEET 4 OF 8

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686973.9 N, 2012288.8 E)

ELEVATION: 265.0 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

DISCONTINUITIES DISCONTINUITIES DEPTH TYPIC ORIGINATION ROUGHNESS, THICKNESS, SURFACE STANNIS, AND TIGHTNESS SOCIETY COORS, MINERALOSY, IEXTURE, MATERIALOS, TEXTURE, AND DEPTH TYPIC ORIGINATION, ROUGHNESS, THICKNESS, SURFACE STANNIS, AND TIGHTNESS THICKNESS, SURFACE STANNIS, AND TIGHTNESS DARROCTERSTICS DEPTH TYPIC ORIGINATION, roughly modulating or surface Society of the property of the propert	WATER	LEVELS: 10	0.0 ft b	gs	START : 6/26/06 08	:30	END: 6/27/06 15:10	LOGGER : JF
1 50.4" - Fracture, 65 deg, rough, undulating 1 51.7" - Fracture, 65 deg, rough, undulating 1 1 51.7" - Fracture, 65 deg, rough, undulating 1 1 1 1 1 1 1 1 1		(%)			DISCONTINUITIES	DG.	LITHOLOGY	COMMENTS
1 50.4" - Fracture, 65 deg, rough, undulating 1 51.7" - Fracture, 65 deg, rough, undulating 1 1 51.7" - Fracture, 65 deg, rough, undulating 1 1 1 1 1 1 1 1 1	ON (#)	Ä, AND 3Y (9	_	ZES T	DESCRIPTION	O LC		SIZE AND DEPTH OF CASING.
1 1 1 1 1 1 1 1 1 1	DEPTH AI ELEVATIC BELOW SURFACE	CORE RU LENGTH, RECOVE	RQD(%)	FRACTUR PER FOO	PLANARITY, INFILLING MATERIAL AND	SYMBOLI	WEATHERING, HARDNESS, AND ROCK MASS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
Sit Solution State Solution Soluti	_			1	50.4' - Fracture, 65 deg, rough, undulating	:::		_
Sit Solution State Solution Soluti	_					†∷∷	-	1
Rein Section	_			1	51.7' - Fracture 65 deg rough undulating	:::	=	1
Surface Surf	_		00		tight, 0.01' thick white quartz infilling on	××	Siltetono	At 52 2'· R-Scale = R3-R4
2			88	3		\times \times	At 52.3' - dark reddish brown, very soft]
Section Sect				1		× ×	to soft, fresh]
At 54.5': R-Scale = R3-R4				'	undulating, tight fit	\times \times	_ 53.8-53.9' - clav clasts	
55. 55.0 210.0 2 2 0 0 0 0 0 0 0	_			0		××××××××××××××××××××××××××××××××××××××	_	N 54 51 D 0 1 D0 D4
2 55.7 and 55.9 - Fractures, <5 deg, rough, undulating 57.56 - trace very fine to fine sand 55.756 - numerous pink-white clay dasts 56.3-60.0 - bluish gray and dark purple mottling At 56.7: R-Scale = R3.R4 205.0		55.0			_	\times \times	_	
55.7 and 55.9 - Fractures, <5 deg, rough, undulating 87.7 and 55.9 - Fractures, <5 deg, rough, undulating 88.7 and 55.9 - Fractures, <5 deg, rough, undulating 88.7 and 55.9 - Fractures, <5 deg, rough, undulating 88.7 and 55.9 - Fractures, <5 deg, rough, undulating 88.7 and 55.9 - Fractures, <5 deg, rough, undulating 88.7 and 55.9 - Fractures, <5 deg, rough, undulating 88.7 and 55.9 - Fractures, <5 deg, rough, undulating 88.7 and 55.9 - Fractures, <5 deg, rough, undulating 88.7 and 55.9 - Fractures, <5 deg, rough, undulating 88.7 and 55.9 - Fractures, and undulating 88.7 and 55.7 and 55.9 - Fractures, and undulating 88.7 and 55.7 and 55.9 - Fractures, and undulating 88.7 and 55.7 and 55.9 - Fractures, and undulating 88.7 and 56.7 - Numerous pink-white clay 89.7 and 56.7 - Numerous pink-white	210.0			2		× ×		R10: 15:42-16:00
At 56.7°: R-Scale = R3-R4 State	_					× ×		_
R11NO 5 ft 98% 92 0 0 0 1 1 205.0 1 1 60.7'. Fracture, <5 deg, rough, undulating, tight fit	_			0	undulating	↓× ×	clasts	-
Sf. 98% 92 0 98% 92 0 0 1 1 2 205.0 1 1 205.0 205.0 1 1 0 0 205.0 205.0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	_	P10NO				- × ×	purple mottling	At 56.7': R-Scale = R3-R4
89% 0 0 1 1	-	5 ft		0		_ × ×	_	-
Color Colo	_	98%				\bot ×	_	-
1	_			0		T× ×	-	-
60.0 - 0.0 1 1 205.0 1 1 60 60.0 1 1 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0 6	_					- × ×	_	-
205.0	-			1		- × ×	-	-
1 60.7' - Fracture, <5 deg, rough, undulating, tight fit		60.0		VVV	_	- × ×	60.0-70.0' - verv soft	
R11NQ	-			1	CO 71. Frankring 45 days married and define	\times \times	- 60.0-60.6' - trace blue-green mottling	
R11NQ 5 ft 100 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	_					$\mathbb{I} \times \times$	-	1
R11NO 5 ft 100 0	_			0		1× ×	-	1
100%	_					× ×	-	At 62.0': R-Scale = R3
65 65.0	_		100	0		× ×		1
At 64.0': R-Scale = R3-R4 At 64.0': R-Scale = R3-R4 At 66.7': R-Scale = R3-R4 At 69.1': R-Scale = R3-R4 At 69.1': R-Scale = R3-R4	_			_		× ×	- 62.8-63.1' - trace blue-green mottling	1
At 64.0': R-Scale = R3-R4 At 64.0': R-Scale = R3-R4 R12: 16:30-16:50 At 66.7': R-Scale = R3-R4 At 66.7': R-Scale = R3-R4 At 69.1': R-Scale = R3-R4				0		××		1
65 65.0 200.0	_			_		$\begin{array}{c} \times \times \\ \times \times \end{array}$		At 64.0': R-Scale = R3-R4
200.0		65.0		U		× ×	_	
Tight fit	200.0	·		1	65.2' - Fracture, <5 deg, rough, undulating,	\times \times	_	R12: 16:30-16:50
At 66.7': R-Scale = R3-R4 R12NQ						× ×	_	
At 66.7': R-Scale = R3-R4 At 66.7': R-Scale = R3-R4 At 66.7': R-Scale = R3-R4 SC-2 collected 65.2-66.4' At 69.1': R-Scale = R3-R4	_			n		× ×	_	
To a substitution of the s	_					× ×	_	At 66.7': R-Scale = R3-R4
100% SC-2 collected 65.2-66.4' At 69.1': R-Scale = R3-R4	_			0		× ×	_	
0	_					× ×	_	
-	_			0	,	× ×	_	
70	_					\bot ×	-	_
	-			0		^. X	-	At 69.1': R-Scale = R3-R4
70.0-75.0 - very dusky red, very soit 17.15. 16.55-17.20		70.0			_	× ×	70 0-75 6' - very dusky red, very seft	R13: 16:55-17:20
	100.0					1××	10.0-10.0 - very dusky red, very still	1113. 10.00-17.20



PROJECT NUMBER:

338884

BPA-7

SHEET 5 OF 8

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686973.9 N, 2012288.8 E)

ELEVATION: 265.0 ft MSL (NGVD 29)

DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				THOD : CIVIE-330, NQ Double barrel			ORIENTATION: Vertical
WATER	LEVELS : 10).0 ft b	ogs	START : 6/26/06 08:	:30	END : 6/27/06 15:10	LOGGER : JF
	<u>و</u>		,	DISCONTINUITIES	90	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
-	0		0	-	× > × > × >	- 70.8-70.9' - clay clasts	- At 70.7': R-Scale = R3-R4 _
-	R13NO		0	-	× > × > × >	71.5-71.9' - clay clasts -	-
-	5 ft 100%	100	1	72.3' - Fracture, 65 deg, rough, undulating, tight fit	× > × > × >	70.4.70.41 about the small blooms are	- -
-			0	-	× > × > × >	73.1-73.4' - clay clasts and blue-green mottling 74.0-75.6' - clay clasts and blue-green	-
75_ 190.0	75.0		0	- 75.0-85.0' - Small microfractures/capillary-like	× > × > × > × >	- mottling - 75.0-85.0' - 10-15% very fine to fine	 At 74.6': R-Scale = R3-R4 R14: 07:50-08:20 on
190.0			1	75.6' - Fracture, <5 deg, rough, undulating, tight fit	× > × > × >	75.6-87.3' - trace blue-green mottling, very soft	06/27/06 -
-	DAMO		0		× > × > × >	very soit - -	-
-	R14NQ 5 ft 100%	100	0	-	× > × > × >	-	At 77.0': R-Scale = R3
-			0	-	× > × > × >	-	_ At 78.7': R-Scale = R3
80	80.0		0	_ 	× > × > × >	_	
185.0 _			0	-	× > × > × >	-	R15: 08:25-08:55 - -
-			0	-	× > × > × >	- - -	At 81.4': R-Scale = R3-R4
-	R15NQ 5 ft 100%	100	0	-	× > × > × >	-	_
_			0	-	× × × × × ×	83.0-87.3' - faint dark purple mottling, 20 degree bedding and trace clay clasts	_
85	85.0		0	_	× > × > × >	-	At 84.1': R-Scale = R3-R4
180.0			0	-	× > × > × >	85.0-87.3' - trace very fine to fine sand -	R16: 09:00-09:20
-			0		× > × > × >		-
-	R16NQ 5 ft 100%	98	0	-	× > × > × > × >	87.3-90.0' - very dusky red, heavily mottled blue-green and dark purple,	-
-			2	88.8 and 88.0' Fractures (2) <5 dec. revel		very soft to soft, few clay clasts at surface	At 87.9': R-Scale = R3-R4 -
90	90.0		0	88.8 and 88.9' - Fractures (2), <5 deg, rough, undulating, staining on edges, slickensided	× > × > × > × > × >	-	- -
175.0				_	× > × >	_	R17: 09:25-09:45

2BB-50 Rev. 1



PROJECT NUMBER:	BORING NUMBER:			
338884	BPA-7	SHEET	6 OF	8

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686973.9 N, 2012288.8 E)

ELEVATION: 265.0 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				THOD . CIVIE-330, INQ DOUBLE BAITEI			ORIENTATION : Vertical
WATER	LEVELS: 10	0.0 ft b	gs	START : 6/26/06 08	:30	END : 6/27/06 15:10	LOGGER : JF
				DISCONTINUITIES	ניו	LITHOLOGY	COMMENTS
AND TON (#)	tUN, H, AND ERY (%	(%)	JRES OT	DESCRIPTION		ROCK TYPE, COLOR, MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
_			0		× × × ×	At 90.0' - trace blue-green mottling, very soft, trace very fine to fine sand	At 90.6': R-Scale = R3-R4
-	D47NO		0		× > × > × > × >	-	-
-	R17NQ 5 ft 100%	100	0		× > × > × > × >	-	
-			0		× > × > × > × >	-	93.6-94.6' -
95_	95.0		0	_		} 	-
170.0			0		× > × > × >	-	R18: 09:50-10:15 - At 95.7': R-Scale = R3-R4
-			0				-
_	R18NQ 5 ft 100%	100	0		× > × > × >	96.85-100.0' - 35-40% very fine to fine sand	
-			0		× > × > × > × >		At 98.3': R-Scale = R3-R4 -
100_	100.0		0	_	× > × > × >	99.4-100.0' - heavily blue-green mottled	-
165.0			1		× > × > × > × >	100.0-101.2' - blue-green mottling 100.0-100.5' - very fine sand lens	R19: 10:25-10:45
-	R19NQ		4	101.8-103.2' - Fractures (7), <5 deg, rough,	× > × > × >	Siltstone 101.2-105.0' - multicoloredgray-blue, brown, yellow-green, very soft, fresh,	At 101.4': R-Scale = R3-R4 -
-	5 ft 92%	60	NA	undulating, slickensided 102.0-102.3' - Heavily fractured, soil-like	× > × > × > × >	fine grained, bedding skewed, heavily mottled, thinly laminated	-
-			2		× > × > × >	}- }-	-
105	105.0		0 ⋙		× > × >		At 104.2': R-Scale = R3-R4 _
160.0			10+	105.0-105.5' - Fracture, slickensided	× > × > × > × >	Siltstone - At 105.0' - dark reddish brown, heavily mottled, very soft, fresh	R20: 10:50-11:10 -
-	D 22112		0		× > × > × > × >		-
-	R20NQ 5 ft 100%	90	1		×	- 107.9-110.0' - 30-35% very fine sand,	At 107.3': R-Scale = R3-R4 -
-			1	108.2-108.9' - Fracture, 75 deg, rough, undulating, tight fit	× > × > × > × >	more blue-green mottling	-
110 <u></u> 155.0	110.0		1	-	× > × > × > × >	_	At 109.6': R-Scale = R3-R4 R21: 11:12-11:28
					-		

2BB-51 Rev. 1



PROJECT NUMBER:	BORING NUMBER:					
338884	BPA-7	SHEET	7	OF	8	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686973.9 N, 2012288.8 E)

ELEVATION: 265.0 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				THOD . CIVIE-330, NQ Double Barrel				ORIENTATION : Vertical
WATER	LEVELS: 10	0.0 ft b	gs	START : 6/26/06 08	:30	_	END : 6/27/06 15:10	LOGGER : JF
	(9)			DISCONTINUITIES	ق	, L	LITHOLOGY	COMMENTS
oz€	-, N N O⊗		SII	DESCRIPTION	10	3 [ROCK TYPE, COLOR,	OUZE AND DEDTH OF GAGING
DEPTH AND ELEVATION BELOW SURFACE (ff.	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	O MIDOEIO	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.
_			2	110.5' - Fracture, <5 deg, rough, undulating	×	<u>X</u>	110.0-116.6' - very dusky red, trace	-
-			2	110.9' - Fracture, 30 deg, rough, undulating	××××	X X X	blue-green mottling, very soft, < 10% very fine to fine sand	_ At 111.2': R-Scale = R3-R4 _
-	R21NQ 5 ft 100%	60	1	111.8' - Fracture, <5 deg, rough, undulating 112.1-113.5' - Fracture, near vertical deg, rough, undulating	×××××	X X X X		-
- -			1		× × × ×	X X X X		- -
115	115.0		0	_	× × ×	X X X	_	At 114.0': R-Scale = R3-R4
150.0			0		×××××××××××××××××××××××××××××××××××××××			R22: 11:32-12:01 At 115.5': R-Scale = R3
-			0		× × × ×	<u>×</u> × ×	Siltstone 116.6-120.0' - gray, very soft to soft,	<u>-</u>
-	R22NQ 5 ft 100%	100	1	117.9' - Fracture, 60 deg, rough, undulating,	×××××××××××××××××××××××××××××××××××××××	X X X	fresh, fine grained, 20 degree bedding plane, 25-30% very fine to fine sand	At 117.4': R-Scale = R3-R4
-			1	tight fit 118.4' - Fracture, 30 deg, rough, undulating	× × ×	X X X		SC-4 collected 118.9-120.0' –
120_	120.0		0	_	× × × ×	× × ×	Condition	
145.0			0	404 OL Outstathatuses silvature and	- : : : : ×	-	Sandstone 120.0-121.0' - very dark gray, soft to hard, fine sand to medium sand,	R23: 12:05-12:35 At 120.5': R-Scale = R3-R4
-	R23NQ		0	121.0' - Contact between siltstone and sandstone, sharp contact	× × ×	× × ×	angular to subangular, fresh, 20 degree bedding planes, quartzitic, fining upward sequence, gradational change from siltstone above	_
-	5 ft 100%	100	1	122.5' - Fracture, 30 deg, slickensided, undulating, tight fit	× × × ×	× × ×	Siltstone 121.0-123.5' - very dark gray to dark reddish brown, very soft to soft, fresh,	At 122.1': R-Scale = R3-R4
-			1	123.0' - Fracture, 60 deg, slickensided, undulating, tight fit	X .	× :-	fine grained Sandstone 123.5-124.4' - dark gray to gray, soft	- -
125_ 140.0	125.0		0	· -	×	<u>+</u>	to hard, subangular, fresh, very fine to fine gradational sand 124.4-125.0' - multicolored	At 124.3': R-Scale = R3-R4 R24: 12:40-13:05
-			0		× × × ×	X X X	(white-pink) with siltstone lenses, highly variable transition zone—fine to coarse sand pockets and siltstone	
-	R24NQ		0		× × × ×	*	Siltstone At 125.0' - very dusky red to dark reddish brown, very soft to soft, fresh,	- -
-	5 ft 100%	100	0		×××××	X	fine grained 125.0-128.0' - trace white, fine grained sand	At 127.9': R-Scale = R3-R4
-			0		× × ×	X X X	128.0-128.1' - sand lens, fine to medium grained 128.1-130.0' - 25-30% white sand	At 128.4': R-Scale = R3-R4 -
130 <u>1</u> 135.0	130.0		0	_	× × ×	* *	grains, decreasing with depth 130.0' - becomes very soft	R25: 13:10-13:45

2BB-52 Rev. 1



PROJECT NUMBER:	BORING NUMBER:				
338884	BPA-7	SHEET	8 OF	8	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686973.9 N, 2012288.8 E)

ELEVATION: 265.0 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS : 10).0 ft b	gs	START : 6/26/06 08	:30	END: 6/27/06 15:10	LOGGER : JF
	(9)			DISCONTINUITIES	ŋ	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (#)	CORE RUN, LENGTH, AND RECOVERY (%)		FRACTURES PER FOOT	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
A TIO	L H.	R Q D (%)	TUR 00	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	7 5	MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND
FEVER	SUSSE	ØΒ	SAC ER F	PLANARITY, INFILLING MATERIAL AND	√WB	AND ROCK MASS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
2322	822	ď		THICKNESS, SURFACE STAINING, AND TIGHTNESS		CHARACTERISTICS	2.16. 6, 126. 1.262.6, 2.16.
-			0		- × ×	 130.0-130.7' - mottled blue-green, trace very fine sand 	SC-5 collected
-					- × ×	130.7-131.7' - heavily mottled	130.7-131.7'
-			1	131.7 and 132.7' - Fractures (2), <5 deg,	- × ×	blue-green, 25% very fine sand	1
-	R25NQ			slickensided, undulating, tight fit	- × ×	-	At 132.0': R-Scale = R3
-	5 ft	100	1	G. G.	- × × × ×	- 132.3-132.5' - white ripup clay clasts	-
-	100%				- × ×	132.5-135.0' - trace blue-green mottling	-
_			0		- × ×	-	-
-					- × ×	_	At 134.0': R-Scale = R3-R4
_			0		- × ×	134.5-135.0' - trace very fine sand	At 134.0 : N-3cale - N3-N4
135_	135.0			_	× ×		D00: 40:50 44:05
130.0			0		× ×	-	R26: 13:50-14:25
_					_ × ×	_	At 135.7': R-Scale = R3-R4
_			0		_ × ×	_	_
_					_ × ×	_	_
	R26NQ 5 ft	100	0		× ×		
	100%	100	U		××		
					$\mathbb{I}_{\times}^{\times}$		
			0]× ×	_	1
-					×	-	At 400 0h D O l
140	140.0		0		TŶ.	139.5-140.0' - 0.8 to 1.2 white/pink,	At 139.3': R-Scale = R3 -
125.0				_	T×××	— clay clasts 140.0-145.0' - trace blue-green	R27: 14:30-15:05
_			0		× ×	mottling along thin possible root	1
_						- structures	At 143.2': R-Scale = R3
_			0		× ×	=	1 1
-	R27NQ				- × ×	=	First water level = 10.0' bgs
-	5 ft 100%	100	0		T× ×	-	taken 6/27/06 at 16:00; - second water level = 9.0'
-	10070				Tŝ ŝ	_	bgs taken 6/28/06 at 15:10
-			0		dê 8	-	1
-					1× ×	-	R-Scale performed after
145	445.0		0		- × ×	– 144.6' - clay clasts	drilling on stored samples -
145 <u> </u>	145.0				+	Bottom of Boring at 145.0 ft bgs on	
-					1	- 6/27/06 15:10 °	-
-					1	-	-
-					1	-	-
-					1	-	
1 -					┨	-	-
1 -					┨	-	
1 -					-	-	-
-					-	_	-
-					-	-	-
150 <u> </u>				_	-	_	-
1,10.0							

2BB-53 Rev. 1



PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-8	SHEET 1 OF 9

SOIL BORING LOG

 PROJECT : PEC COLA, New Hill, NC
 LOCATION : (NAD 27) (686839.1 N, 2012351.4 E)

 ELEVATION : 267.4 ft MSL (NGVD 29)
 DRILLING CONTRACTOR : L. Morrison, S&ME

DRILLING EQUIPMENT AND METHOD: CME-550, 3-5/8 Tricone Bit, 24 Split Spoon and 140 lb. Automatic Hammer ORIENTATION: Vertical WATER LEVELS: 12.0 ft bgs START: 6/27/06 16:13 END: 6/29/06 10:30 LOGGER: LH/EM DEPTH BELOW EXISTING GRADE (ft) SOIL DESCRIPTION COMMENTS STANDARD PENETRATION LOG INTERVAL (ft) TEST RESULTS SYMBOLIC DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION SOIL NAME, USCS GROUP SYMBOL, COLOR, RECOVERY (in) MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY 6"-6"-6" #TYPE (N) 267.4 0.0 Topsoil 0.0-0.2 Clay (CL) SS1SS 1-50/5 13.2 0.2-1.1' - reddish brown, mottled reddish black and light (50/5")\greenish gray, dry, hard, laminated beds 20 Soil sampling completed at 16:26 on 6/27/06 3.0 SS2SS Clay (CL) 2.5-2.8' - reddish brown, mottled reddish black and light greenish gray, dry, hard, laminated beds 2.8 50/3 (50/3")Begin Rock Coring at 2.8 ft bgs See the next sheet for the rock core log 5 262.4 10 257.4 15 252.4 20



PROJECT NUMBER:

338884

BPA-8

SHEET 2 OF 9

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686839.1 N, 2012351.4 E)

ELEVATION: 267.4 ft MSL (NGVD 29)

DRILLING CONTRACTOR: L. Morrison, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS : 12	.0 ft b	gs	START : 6/27/06 16	:13	END: 6/29/06 10:30	LOGGER : LH/EM
	(9)			DISCONTINUITIES	ပ္	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
	2.8 R1NQ 1.4 ft 131% 4.2	100	0 2	4.1' - Fractures (2), horizontal, rough, planar - 5.8' - Fracture, horizontal, smooth, planar	× × × × × × × × × × × × × × × × × × ×	Siltstone 2.8-6.2' - dark reddish brown, mottled reddish black and greenish gray, very soft, slightly weathered, laminated beds, 10-30% very fine sand 3.3' - clay seam, very soft, friable material, 0.05' thick	Rock coring began at 07:59 on 6/28/06 R1: 07:59-08:02 on 06/28/06 At 3.9': R-Scale = R3-R4 R2: 08:10-08:18 At 4.8': R-Scale = R3-R4
- - - -	R2NQ 5 ft 94%	94	1	6.2' - Fracture, horizontal, smooth, planar7.7' - Fracture, horizontal, rough, planar8.3' - Fracture, horizontal, smooth, planar	× × × × × × × × × × × × × × × × × × ×	Sandstone 6.2-7.2' - dark reddish brown, mottled reddish black and greenish gray, very soft, slightly weathered, 30-40% fine sand 6.7-6.8' - clay seam, very soft Siltstone At 7.2' - dark reddish brown, mottled reddish black and greenish gray, very	- At 7.1-8.3': R-Scale = R2 - - -
10 257.4 - -	R3NQ 5 ft	64	10+	9.5' - Fracture, horizontal, smooth, planar	× × × × × × × × × × × × ×	soft, laminated beds, 10-30% very fine sand 7.2-14.2' - slightly weathered	R3: 08:27-08:35 At 9.9': R-Scale = R3-R4 At 11.4': R-Scale = R3-R4
- - - -	106%		10+	12.0' - Fracture, horizontal, rough, undulating 12.8' - Fracture, horizontal, rough, undulating 13.8' - Fracture, horizontal, rough, undulating 13.9' - Fracture, horizontal, rough, undulating	× × × × × × × × × × × × × ×	12.1-12.8' - 30% very fine to medium sand 13.2-13.8' - clay seam, very soft 14.2-24.2' - fresh	- At 13.2-13.8' PP: 1.5 tsf
15 252.4 - - - -	R4NQ 5 ft 92%	90	1 0 0	14.0' - Fracture, horizontal, rough, undulating 14.3' - Fracture, horizontal, rough, planar 15.5' - Fracture, horizontal, rough, undulating	× × × × × × × × × × × × × × × × × × ×	- 15.5-19.2' - 10-20% very fine sand, - soft 	At 14.2-15.9': R-Scale = R2 At 15.5': R-Scale = R2
- - 20 247.4 - -	19.2 R5NQ 5 ft 104%	100	0 0 1	21.0' - Fracture, horizontal, smooth, planar 21.7' - Fracture, horizontal, smooth, planar	× × × × × × × × × × × × × × × × × × ×	- 19.2-24.2' - soft, laminated beds apparent in some areas, 20-40% very fine sand throughout core	At 18.9': R-Scale = R5 R5: 08:54-09:05 At 20.5': R-Scale = R3-R4
_	104 76				× × × × × ×	-	_

2BB-55 Rev. 1



PROJECT NUMBER:

338884

BPA-8

SHEET 3 OF 9

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686839.1 N, 2012351.4 E)

ELEVATION: 267.4 ft MSL (NGVD 29)

DRILLING CONTRACTOR: L. Morrison, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				HOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS : 12	2.0 ft b	gs	START : 6/27/06 16	:13	END : 6/29/06 10:30	LOGGER : LH/EM
	Ç(%			DISCONTINUITIES	၅	LITHOLOGY	COMMENTS
PN €	CORE RUN, LENGTH, AND RECOVERY (%)		FRACTURES PER FOOT	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	T.H.	R Q D (%)	Į,	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	3 S	MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND
E E E	ORE	Ø	ZAC ER F	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	Y ME	AND ROCK MASS CHARACTERISTICS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
	074	22		THIORNESS, SURFACE STAIRING, AND HOTTINESS		CHARACTERISTICS	
-			0	-	××	}	At 23.0': R-Scale = R3
-			0	-	××	}-	-
-	24.2			-	× ×	-	_
-			$\stackrel{\circ}{\propto}$			Sandstone	R6: 09:11-09:19
25			0	-	 ::::	At 24.2' - light gray and very dark gray, trace black mottling, very soft to soft,	_
242.4				_]:::	medium to thick bedding, very fine	At 25.1': R-Scale = R3-R4
			0		l: : :	sand to coarse sand, angular to	
	R6NQ]:::	 subrounded, poorly sorted, fresh, lighter and darker bands of sediment 	
_	5 ft	100	0	-	1:::	in a few areas	_
I -	100%		\sqcup	-	1:::	- At 25.8' - shale, gray, <0.02' thick	_
-			0	-	 :::	†	-
-			Ŭ	-	1:::	ŀ	-
-			0	-	 :::	F	At 28.4': R-Scale = R3-R4
_	29.2		'	-	 :::	-	_
_					<u> :::</u>	29.2-29.6' - trace fine to medium	R7: 09:25-09:33
30]		1	29.5' - Fracture, horizontal, rough, undulating 29.6' - Contact between siltstone and —	× ×	gravel	
237.4				sandstone, horizontal, smooth, planar, tightly	× × × ×	Siltstone At 29.6' - dark reddish brown, mottled	SC-1 collected
_			0	healed	X X	greenish gray, soft, thin to medium	30.3-31.3' – At 30.0': R-Scale = R3-R4
_	DZNO			-	××	bedding, fresh	_
_	R7NQ 5 ft	88	1	-	× ×	30.5-31.5' - 30-40% very fine to coarse sand	_
-	100%			22.4! Fracture harizental rough undulating	× ×	31.9-32.2' - 30-40% very fine to	-
-			0	32.1' - Fracture, horizontal, rough, undulating	× ×	coarse sand 32.3-32.7' - 0.03' thick white and	At 32.5': R-Scale = R3
-			Ŭ	-	× ×	greenish gray clasts	-
_			40.		× ×	_ 32.7-33.4' - 30-40% very fine to	-
_	34.2		10+	33.9-34.0' - Fracture zone, rough, planar /	× ×	coarse sand	_
_				undulating	× ×	_ 34.2-39.2' - very soft	R8: 09:40-09:49
35			1	04015 4 1 1 4 1 1 1 1 1 1 1 1	× ×		At 34.6': R-Scale = R3-R4
232.4				34.9' - Fracture, horizontal, rough, undulating	× × × ×	34.9-36.4' - 30-40% very fine to coarse sand	
]		1	35.7' - Fracture, 60 deg, rough, undulating	× ×	_ SSGIOO GGIIG	-
_	Dovio		$\vdash \vdash \vdash$		× ×	f	_
I -	R8NQ 5 ft	74	0	-	××	f	-
-	100%			-	- X X X	 	-
-			0	-	lê x	 	At 37.6': R-Scale = R3-R4
-				-		}-	71.01.0. N-30ale - N3-N4
_			40.	38.3-39.2' - Fracture zone, rough, undulating	× × × × × × × × × ×	}-	_
_	39.2		10+	-	Įŝ š	<u> </u>	_
_	55.2			_	× × × ×	_ 39.2-55.3' - becomes mottled reddish	R9: 09:58-10:08
40			0		× ×	black	
227.4			$\vdash \vdash \vdash$	_	××	<u>F</u>	
_]		0	-	××	Ţ	At 40.5': R-Scale = R3-R4
_			\sqcup	41.1' - Fracture, horizontal and 45 deg, rough,	× × × × × × × × × ×	40.9-41.1' - trace white clasts	_
-	R9NQ 5 ft	100	1	undulating	۲× ×	41.1-41.3' - laminated bedding	-
-	100%			-	₹××	}-	-
-				-	{× ×	42.4-42.6' - trace white clasts	-
					ľ		
					L		

2BB-56 Rev. 1



PROJECT NUMBER:

338884

BPA-8

SHEET 4 OF 9

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686839.1 N, 2012351.4 E)

ELEVATION: 267.4 ft MSL (NGVD 29)

DRILLING CONTRACTOR: L. Morrison, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				THOD . CIME-330, NQ Double Barrel				ORIENTATION : Vertical
WATER	LEVELS: 12	2.0 ft b	gs	START : 6/27/06 16	:13		END: 6/29/06 10:30	LOGGER : LH/EM
)			DISCONTINUITIES	(1)	Г	LITHOLOGY	COMMENTS
_ =	CORE RUN, LENGTH, AND RECOVERY (%)		m l	DESCRIPTION	SYMBOLIC LOG	H		
DEPTH AND ELEVATION BELOW SURFACE (ft)	Z,₹∑	~	FRACTURES PER FOOT	DESCRIPTION	□		ROCK TYPE, COLOR, MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING,
¥E ≥ S	IN EN	Q D (%)	₽ŏ	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	١ď		WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND
ビヷご류	NS S	Ø	NA REF	PLANARITY, INFILLING MATERIAL AND	Ιž		AND ROCK MASS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
	822	œ	EE.	THICKNESS, SURFACE STAINING, AND TIGHTNESS	S		CHARACTERISTICS	5.10. 0, 120. 1.202. 0, 2.0.
_			0		× ×	<u>X</u> -		_
					×	\mathbb{L}	43.1-43.2' - trace white clasts	At 43.1': R-Scale = R3-R4
			0		×	Ä		
-	44.2				×	*	44.1-44.2' - trace white clasts	 -
-			0		- × :	*	44.2-44.7' - laminated bedding	R10: 10:14-10:23
45			"	_	×	Ł	44.2-44.7' - very soft	
222.4					×	X	44.2-45.6' - white clasts	
_			0		×	ď		At 45.5': R-Scale = R3-R4
-					- × :	≵		-
_	R10NQ				×	**	46.4-46.5' - 20-30% very fine sand	_
l _	5 ft 97%	97	0		×	<u>L</u>	•	_
I	31/0				X.	<u> </u>	46.9-47.0' - laminated bedding 47.1-47.2' - 20-30% very fine sand	
I -			1 1		×	*	47.4-47.6' - 20-30% very fine sand	At 47.4': R-Scale = R3-R4
-				49.41 Erecture herizontal recel plane	×	<u></u>	47.7' - white clasts	At 48.0-49.2': R-Scale = R2
-				48.1' - Fracture, horizontal, rough, planar	× :	1	48.0-50.4' - laminated bedding	71 40.0-43.2 . N-30ale - RZ
	40.0		0		×	Â	48.0-50.3' - very soft	
I -	49.2		XXX		× i	XT	48.6' - white clasts 49.2-49.6' - white clasts	R11: 10:30-10:40
			1		×	*	49.2-49.6 - White clasts 49.2-50.4' - laminated bedding	RTT: 10:30-10:40
50 <u> </u>			'	_	- × :	X	49.9-50.1' - clay seam, very soft,	
217.4				50.3' - Fracture, 45 deg, rough, undulating	×	<u>X</u>	friable material	_
			4	50.4' - Fracture, horizontal, rough, planar	×	K	50.2-50.2' - 20-40% very fine to fine	
-				50.7' - Fracture, horizontal, rough, planar	×	≵	sand	At 51.0': R-Scale = R3-R4
-	R11NQ 5 ft	92	0		×	∦ -		-
_	102%	92	"		×	<u>*</u>	51.8-52.5' - 20-40% very fine sand	_
					×	Ŕ	,	
			0		×	X		
-					×	*		At 53.0': R-Scale = R3
-			0		×	<u>}</u>		-
_	54.2		0		_ × :	1		_
	04.2		\sim		×	Ä	54.2-54.2' - 20-40% very fine to fine	R12: 10:46-10:57
55			0		×	XF	sand	
212.4				-	- X	+	_	
l				55.3' - Contact between siltstone and	- ***	Ŧ	Sandstone	At 55.3': R-Scale = R3-R4 -
I -			0	sandstone, horizontal, planar]::::	:[55.3-56.5' - dark greenish gray and	_
	R12NQ					1	white, mottled dark red, soft, very fine	At 56.2': R-Scale = R3-R4
-	5 ft	96	0		Х.	*	sand to coarse sand, subangular to subrounded, poorly sorted, fresh	
-	96%				- ∷∷	:⊦`	Siltstone	SC-2 collected
-			[1:::	: -	56.5-56.7' - fresh, grades to siltstone	57.1-58.1' -
I _			0]:::	:[lense and back to sandstone	_
					:::	1	Sandstone]
I -			0		1: ::	:	56.7-64.3' - dark greenish gray and	-
-	59.2		XXX		- [∷:	: -	white, mottled dark red, soft, very fine sand to coarse sand, subangular to	At 58.9': R-Scale = R5
-					. :::	: -	subrounded, poorly sorted, fresh,	R13: 11:07-11:18
60			0	_]:::	Ŀ	coarse (lighter) and fine (darker)	At 59.7': R-Scale = R3-R4
207.4						:[grained bands	
I -			0		1:::	:		
-					- ∷:	:		-
	R13NQ				.	:[-		_
	5 ft	100	0]:::	:		At 61.6': R-Scale = R3-R4
I -	103%]∷∶	:[]
					1:::	1		
					1	ı		
						_		

2BB-57 Rev. 1



PROJECT NUMBER:

338884

BPA-8 SHEET 5 OF 9

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686839.1 N, 2012351.4 E)

ELEVATION: 267.4 ft MSL (NGVD 29)

DRILLING CONTRACTOR: L. Morrison, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

00111110	S EQUIT WEI	II AIN	D IVIC I	HOD : CME-550, NQ Double Barrel			ORIENTATION: Vertical
WATER	LEVELS : 12	2.0 ft b	gs	START : 6/27/06 16:	13	END : 6/29/06 10:30	LOGGER : LH/EM
	(%			DISCONTINUITIES	၂ ဗွ	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (#)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
_			0			-	_
- - 65_ 202.4	64.2		0	64.3' - Contact between siltstone and -sandstone, 45 deg, smooth, planar, tightly healed	× × × × ×	- 64.2-64.3' - mottled dark reddish brown Siltstone	At 63.6': R-Scale = R3-R4 R14: 11:24-11:37
- -	R14NQ 5 ft	79	4	64.6' - Fracture, horizontal, smooth, planar 65.0' - Fracture, horizontal, smooth, planar 65.1' - Fracture, horizontal, smooth, undulating 65.9' - Fracture, horizontal, smooth, undulating 66.2-66.4' - Fracture, 45 deg, slickensided,	× × × × × × × ×	At 64.3' - dark reddish brown, mottled greenish gray and reddish black, soft 64.3-83.8' - fresh 65.5-65.9' - 0.1' thick greenish gray mottles	At 65.5': R-Scale = R3
-	100%	100%	1	undulating 66.5' - Fracture, horizontal, smooth, planar 66.7' - Fracture, horizontal, smooth, undulating 67.6' - Fracture, horizontal, rough, undulating	× × × × × × × × × ×	 66.7-67.2' - soft, laminated bedding 66.9-67.2' - clay seam, very soft, friable material 67.2-68.1' - white clasts 	At 66.8-67.2': R-Scale = R0
70	69.2		0	- - -	× × × × × × × ×	68.9-69.3' - greenish gray mottles throughout width of core 69.8-69.9' - 0.05' thick greenish gray	R15: 11:46-11:55 At 69.9': R-Scale = R3-R4
-	R15N0 5 ft	97	0	70.3-70.6' - Fracture zone, horizontal, rough, planar, clay seams, 0.01' thick	× × × × × × × ×	mottle 70.2-70.3' - 0.03' thick greenish gray mottle 70.3-70.6' - soft, laminated bedding	- - -
- -	103%		0	-	× × × × × × × ×	72.2-72.5' - 0.02' thick greenish gray mottle, along fracture, tightly healed	At 72.1': R-Scale = R3-R4 At 73.2' PP: 1.5 tsf
- 75_ 192.4	74.2		0 **** 0	- - -	× × × × × × × × × × × × × × × × × × ×	74.1-74.2' - 0.15' thick greenish gray mottle 74.2-83.1' - soft, 0-20% very fine sand	R16: 13:18-13:30 At 74.8': R-Scale = R3-R4
-	R16NQ 5 ft 88%	88	0 0	- - - - -	× × × × × × × × × × × × × × × × × × ×	- - - -	At 76.9': R-Scale = R3-R4
- - 80_ 187.4	79.2		0	- - -	× × × × × × × × × ×	- - -	At 78.2': R-Scale = R3-R4 R17: 13:37-13:48 SC-3 collected
-	R17NQ 5 ft 102%		0	- - - -	× × × × × × × × × × × × × × × × × × ×	81.5-83.1' - 0-30% fine to coarse sand, and gravel sized white clasts 81.5-87.4' - gravel sized white clasts	79.7-80.7' At 82.0': R-Scale = R3-R4

2BB-58 Rev. 1



PROJECT NUMBER:

338884

BPA-8

SHEET 6 OF 9

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686839.1 N, 2012351.4 E)

ELEVATION: 267.4 ft MSL (NGVD 29)

DRILLING CONTRACTOR: L. Morrison, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

0011111	2 2 4 5 11 11 11 11	,	- IVIL	THOD . CIVIE-330, INQ DOUBLE BATTEL			ORIENTATION : Vertical
WATER	LEVELS: 12	2.0 ft b	gs	START : 6/27/06 16	5:13	END: 6/29/06 10:30	LOGGER : LH/EM
				DISCONTINUITIES	ניז	LITHOLOGY	COMMENTS
QN (#)	JN, AND RY (%		ZES JT	DESCRIPTION		ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
- - - 85_ 182.4	84.2		3 10+	83.9-84.2' - Fracture zone, horizontal, rough, planar, clay seams, very soft, 0.01' thick 84.2-84.8' - Fracture zone, rough, undulating	- × × × × × × × × × × × × × × × × × × ×	83.1-84.2' - very soft to soft, laminated bedding, trace gravel sized white clasts 83.8-84.8' - moderately weathered 84.2-89.2' - very soft to soft - 84.8-111.6' - fresh	At 83.5': R-Scale = R3-R4 At 83.8-84.3': R-Scale = R0 R18: 13:59-14:10
-	R18NQ	94*	0		- × × - × × - × ×	X- X- X-	At 85.4': R-Scale = R3
- - -	5 ft 104%	94^	0 0		- × × × × × × × × × × × × × × × × × × ×	X X X X X X X-	
90 177.4	09.2		0	_	× × × × × ×	89.2-94.2' - mottled greenish gray and trace reddish black, soft	R19: 14:25-14:38
-	R19NC		0		- × × × × - × × × ×	_ -	At 90.2': R-Scale = R3-R4 _
-	5 ft 94%	94	94 0 0	- × × × × × × × × × × × × × × × × × × ×	X- X- X-	At 92.0': R-Scale = R3-R4	
- - 95_ 172.4	94.2		0 **** 1	94.6' - Fracture, horizontal, rough, planar	- × × × × × × × × × × × × × × × × × × ×	94.2-99.2' - up to 50% very fine sand	R20: 14:44-14:58
-	R20NQ 5 ft 99%	79	0	94.6' - Fracture, horizontal, rough, planar	- × × × × × × × × × × × × × × × × × × ×	97.0-97.2' - white clasts	At 97.0': R-Scale = R3-R4
-	199.2	97.3-97.7' - Fractures (3), horizontal and 30 -	- × × × × × × × × × × × × × × × × × × ×	X	-		
100 167.4			10+	99.0' - Fracture, horizontal, rough, undulating 99.2-99.7' - Fracture zone, horizontal and vertical, rough, undulating	- × × - × × - × ×	99.8-100.0' - 0.03' thick greenish gray mottle	R21: 15:12-15:26 At 100.1': R-Scale = R3-R4
- - -	R21NQ 5 ft 101%	91	0		- × × - × × - × × - × × - × ×	101.1-101.3' - 0.02' thick greenish gray mottle	At 101.4': R-Scale = R3-R4

2BB-59 Rev. 1



PROJECT NUMBER:

338884

BPA-8 SHEET 7 OF 9

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686839.1 N, 2012351.4 E)

ELEVATION: 267.4 ft MSL (NGVD 29)

DRILLING CONTRACTOR: L. Morrison, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				THOD . CIVIE-330, NQ DOUBLE BATTEL				ORIENTATION : Vertical
WATER	LEVELS: 12	2.0 ft b	gs	START : 6/27/06 16	:13		END: 6/29/06 10:30	LOGGER : LH/EM
	_			DISCONTINUITIES	ני		LITHOLOGY	COMMENTS
oz €	CORE RUN, LENGTH, AND RECOVERY (%)		S	DESCRIPTION	SYMBOLIC LOG	r	DOOK TARE OOLOD	
NO H	N A K		RE	BEGGIAII FIGH	- ⊔		ROCK TYPE, COLOR, MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	I HE	Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	ğ		WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
E 등 등	N S S S S S S S S S S S S S S S S S S S	Ø	ZX IRI	PLANARITY, INFILLING MATERIAL AND	ΙΞ		AND ROCK MASS	DROPS, TEST RESULTS, ETC.
	822	ď	E E	THICKNESS, SURFACE STAINING, AND TIGHTNESS	တ်		CHARACTERISTICS	Bron e, 1201 (2002) e, 210.
_			0		×	X_		_
					×	Â	103.1-103.2' - 0.06' thick greenish	
_			0		×	XT.	gray mottle	At 103.4': R-Scale = R3
-	104.2				×	<u>x</u>	103.6-104.0' - 0.01-0.03' thick	-
_					-Î×	1	greenish gray mottles	R22: 15:35-15:47
105			0		×	X	104.5-104.8' - 0.15' thick greenish	
162.4				_	×	×Γ	gray mottle	
-			0		××	X -		-
l _			U		××	<u>X</u> _		
	R22NQ	l			×	Â		At 106.0': R-Scale = R3-R4
_	5 ft	100	0		×	χŢ		1
-	103%				×	*		-
-					×	*		-
			0		×	X		
_					×	ΧĒ		1
-			0		××	X -		
l -	109.2		١		××	<u>X</u> _		At 108.6': R-Scale = R3-R4
	100.2		\overline{XX}		×	Ŕ		R23: 15:58-16:11
110			0		×	X		
157.4				_	×	<u>*</u>	_	At 109.8': R-Scale = R3-R4 —
-				110.4' - Fracture, horizontal, rough, planar	×	1	110.4-110.5' - 0.03' thick greenish	SC-4 collected
			1	110.4 - Hacture, Horizontal, Tough, planai	×	X	gray mottle	110.4-111.6'
_					×	×	gray metao	1
-	R23NQ 5 ft	68	3	444 0 444 71 5 1 (0) 1	× ×	≵	0114	-
_	100%	00	٥	111.6-111.7' - Fractures (2), horizontal, rough,	\times	1	Siltstone	
	100,0			planar 111.8' - Fracture, horizontal, rough, planar	×	X	At 111.6' - very dark greenish gray, olive, mottled greenish gray and dark	At 112.1': R-Scale = R3
_			3	111.2' - Fracture, horizontal, smooth, planar	×	ď	reddish brown, very soft to soft,	1
-				112.4' - Fracture, horizontal, smooth, planar	×	≵	slightly weathered	-
_				113.0' - Fracture, horizontal, smooth, planar	××	X L	5 ,	
			7	113.2-113.8' - Fracture zone, horizontal,	×	×		
I -	114.2			smooth, slickensided, clay seams (50%), very	×	Ä		R24: 16:20-16:47
l			10+	soft clay	×	X -		R24. 10.20-10.47
115			101	113.9' - Fracture, 30 deg, smooth, planar 114.1' - Fracture, 10 deg, smooth, planar	×	λ	_	
152.4				114.5-114.9' - Fracture zone, horizontal,	×	X		
_			3	rough, planar / undulating, clay seams (50%)	×	ď		At 115.4': R-Scale = R3
-				115.3' - Fracture, horizontal, rough, planar	I_{X}	+		-
-	R24NQ		,	116.1' - Fracture, horizontal, smooth, planar	×	**		-
	5 ft	67	4	116.2' - Fracture, horizontal, rough, undulating	l x	K		
I -	95%			116.5' - Fracture, horizontal, rough, undulating 116.6' - Fracture, horizontal, rough, undulating	× × ×	\mathbf{I}		At 117.2': R-Scale = R3-R4
-			0	116.6' - Fracture, horizontal, rough, undulating	∀ ×	*		ALTI1.2. R-Scale = R3-R4 _
-				116.7' - Fracture, horizontal, rough, undulating	××	<u>X</u>		-
				,	××	X		
_			0		× ×	ď]
-	119.2		XXX		×	X		
_			[×	**	Siltstone	R25: 07:59-08:15 on _
120			0		×	X	At 119.2' - dark reddish brown, mottled	06/29/06
147.4				_	Ĭ.	T	pale olive and olive yellow, soft, subangular, well sorted, slightly	At 119.6': R-Scale = R3-R4 —
-			2		1::	:[-	weathered, very fine to fine grained	
l -					×	×	\119.3-119.4' - laminated bedding	1
	R25NQ	'			×	X		
_	5 ft	91	2		×	X_		At 121.5': R-Scale = R4
-	99%			121.9' - Fracture, horizontal, rough, undulating,	××	X	1	-
I -				0.02' clay infilling	××	X		-
					۲	+	II II	
						_		

2BB-60 Rev. 1



PROJECT NUMBER:	BORING NUMBER:			
338884	BPA-8	SHEET	8 OF	9

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686839.1 N, 2012351.4 E)

ELEVATION: 267.4 ft MSL (NGVD 29)

DRILLING CONTRACTOR: L. Morrison, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

CORING	CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical									
WATER	LEVELS: 12	.0 ft b	gs	START : 6/27/06 16	3:13		END: 6/29/06 10:30	LOGGER : LH/EM		
	<u></u>			DISCONTINUITIES	g		LITHOLOGY	COMMENTS		
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG		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.		
- - 125 142.4	124.2		0 0 1	122.1' - Fracture, horizontal, rough, undulating, 0.02' clay infilling 122.2' - Fractures (2), horizontal, rough, undulating, 0.02' clay infilling 124.7' - Fracture, horizontal, rough, undulating _	- × - × - × - × - × - ×	**************************************	Sandstone 120.0-120.2' - dark greenish gray, mottled pale olive, olive yellow, and dark reddish brown, soft, very fine sand to fine sand, subangular, well sorted, slightly weathered Siltstone 120.2-120.3' - dark reddish brown, mottled pale olive and olive yellow,	At 123.6': R-Scale = R3-R4 R26: 08:24-08:40		
- - - -	R26NQ 5 ft 90%	90	1 0	126.2' - Fracture, horizontal, rough, undulating	- × × - × - × - × - × - ×	x	Sandstone 120.3-120.9' - dark greenish gray, mottled pale olive, olive yellow, and dark reddish brown, soft, very fine sand to fine sand, subangular, well sorted, fresh	At 125.8': R-Scale = R3-R4		
130 137.4	129.2		0	-	- × - × - × - × - ×	x 	Siltstone At 120.9' - dark reddish brown, mottled olive yellow, greenish gray, and reddish black, very soft to soft, fresh 121.9-121.9' - laminated bedding - 121.9-122.2' - very soft, laminated bedding 122.2-124.2' - soft	R27: 08:53-09:10		
- - - -	R27NQ 5 ft 103%	92	0 3	132.6' - Fracture, horizontal, rough, undulating 132.9' - Fracture, horizontal, rough, planar 133.2' - Fracture, horizontal, rough, undulating,	- × × - × - × - × - × - ×	**************************************	122.4-122.6' - 0.02-0.05' thick greenish gray mottle 126.2-126.4' - laminated bedding 129.2-134.2' - reddish black and little greenish gray mottling, soft to hard	At 130.7': R-Scale = R3		
- 135 132.4 - -	134.2		1 0	clay seam, 0.05' thick, hard, friable material 134.4' - Fracture, horizontal, rough, undulating -	- X X X X X X X X X X X X X X X X X X X	x	-	R28: 09:19-09:32 At 134.7': R-Scale = R3-R4		
- - - -	R28NQ 5 ft 104%	100	0		- × - × - × - × - ×	x x x x x x x x x x x x x x x x x x x	136.8-139.1' - 0.01-0.04' thick greenish gray mottles, and begins to grade to sandstone, trace coarse sand grains Sandstone	At 137.4': R-Scale = R3-R4 -		
140 127.4	139.2		0 ××× 0 0	-	-		At 138.4' - dark reddish brown, very dark gray, light gray, soft to hard, very fine sand to fine sand, poorly sorted, fresh 138.4-139.2' - dark reddish brown, reddish black mottling, coarse sand,	R29: 09:54-10:07 At 139.6': R-Scale = R3-R4		
- - -	R29NQ 5 ft 100%	100	0	141.3' - Fracture, horizontal, rough, undulating	- - - - ×	40-50% coarse sand 139.2-141.7' - very dark gray, coarse grains scattered until 139.7' ~10% 139.7' - 10% coarse sand	SC-5 collected 141.3-142.5' -		
				·						

2BB-61 Rev. 1



ı	PROJECT NUMBER:	BORING NUMBER:					
ı	338884	BPA-8	SHEET	9	OF	9	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686839.1 N, 2012351.4 E)

ELEVATION: 267.4 ft MSL (NGVD 29) DRILLING CONTRACTOR: L. Morrison, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

	<i>-</i> <u> </u>	. ,	D IVIL	THOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS: 12	2.0 ft b	gs	START : 6/27/06 16:	13	END: 6/29/06 10:30	LOGGER : LH/EM
	<u> </u>			DISCONTINUITIES	ŏ	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)		FRACTURES PER FOOT	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
A A T A B	L H.	R Q D (%)	F.00	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	j	MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND
HE LEVE	ORE	ο	ZAC ER F	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	ΥMB	AND ROCK MASS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
	225	œ	##			CHARACTERISTICS	,, -
-			1	142.5-144.2' - Microfractures, partial clay infilling	×××	141.7-142.3' - light gray, thin to medium bedding, medium sand to	-
-			1	143.0' - Fracture, 20 deg, smooth, undulating	× ; × ;	coarse sand	At 143.3': R-Scale = R3
-	144.2		'	144.0' - Fracture, 10 deg, smooth, undulating	× :	- Siltstone	-
-			2	144.5' - Fracture, horizontal, rough, undulating	X X	142.3-144.2' - dark greenish gray, mottled dark reddish brown and	R30: 10:15-10:30
145 <u> </u>			2	144.5' - Fracture, horizontal, rough, undulating —	××××	reddish black, soft, fresh, very fine	
122.4	R30NQ			-	××	grained, 20% grading into dark reddish brown, 0.01-0.05' thick white	At 145.2': R-Scale = R3-R4
l _	3.3 ft	91	0	_	××	clasts	At 147.0': R-Scale = R3-R4
<u> </u>	100%			_	×	Siltstone	First water level = 12.0' bgs taken 6/29/06 at 10:55;
l _			0		××	144.2-147.5' - dark reddish brown, mottled greenish gray and reddish	second water level = 5.62'
	147.5				××	black, soft, fresh	bgs taken 6/30/06 at 12:30 R-Scale performed after
						Bottom of Boring at 147.5 ft bgs on	drilling on stored samples
-					1	- 6/29/06 10:30	
-				-	1	Ī I	_
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150				-	1	<u> </u>	-
117.4				_			_
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PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-9	SHEET 1 OF 6

SOIL BORING LOG

 PROJECT : PEC COLA, New Hill, NC
 LOCATION : (NAD 27) (686777.5 N, 2012379.1 E)

 ELEVATION : 266.8 ft MSL (NGVD 29)
 DRILLING CONTRACTOR : L. Morrison, S&ME

DRILLIN	DRILLING EQUIPMENT AND METHOD: CME-550, 3-5/8 Tricone Bit, 24 Split Spoon and 140 lb. Automatic Hammer ORIENTATION: Vertical								
WATER	LEVELS	: 5.3 ft b	ogs		START : 6/29/06 13:14 END : 6/3	0/06	1		
DEPTH B	ELOW EX		RADE (ft)	STANDARD	SOIL DESCRIPTION	وِ 📗	COMMENTS		
	INTERVA	AL (ft)		PENETRATION TEST RESULTS	COIL NAME LICCS CROUD SYMBOL COLOR	SYMBOLIC LOG	DEDTIL OF CASING DRILLING DATE		
		RECOVI	ERY (in)		SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR	ğ	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND		
			#TYPE	6"-6"-6" (N)	CONSISTENCY, SOIL STRUCTURE, MINERALOGY	₹	INSTRUMENTATION		
266.8	0.0		-	(14)	_\ Topsoil /_	777			
-	0.0				\\0.0-0.1'	+	-		
-		3.6	SS1SS		Clay (CL) 0.1-0.3' - reddish brown, dry to moist, medium stiff	┨	-		
-				(13)	o. 1-0.5 - reddish brown, dry to moist, mediam sun	┨	-		
-	2.0					┨	-		
-	2.5				Clay (CL)	1//	Soil sampling completed at 13:25 on 6/29/06		
-	3.3	9.0	SS2SS		— 2.5-3.0' - reddish brown, moist, hard, low plasticity, little ∠	1//	/I		
-				(50/3")	to some coarse sand to coarse gravel Clay (CL)	7	-		
-					\3.0-3.2' - reddish brown, moist, hard, low plasticity	┨	-		
					Begin Rock Coring at 3.3 ft bgs See the next sheet for the rock core log	┨	-		
5 <u> </u>					See the flext sheet for the rock core log	┨	_		
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PROJECT NUMBER:

338884

BORING NUMBER:

BPA-9

SHEET 2 OF 6

ROCK CORE LOG

ORIENTATION : Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686777.5 N, 2012379.1 E)

ELEVATION: 266.8 ft MSL (NGVD 29)

DRILLING CONTRACTOR: L. Morrison, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

0011111	J LQOII WILL	11 /11	D IVIL	THOD: CME-550, NQ Double Barrel			ORIENTATION: Vertical
WATER	LEVELS : 5.	3 ft bo	ıs	START : 6/29/06 13	14	END : 6/30/06 10:51	LOGGER : EM/LH
	(%)			DISCONTINUITIES	ดิ	LITHOLOGY	COMMENTS
₽Z Ê	CORE RUN, LENGTH, AND RECOVERY (%)		ES	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	L H.	(%) Q	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	OF I	MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND
F	NG N	Ø	SAC ER F	PLANARITY, INFILLING MATERIAL AND	MB	AND ROCK MASS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
2082		ď	##	THICKNESS, SURFACE STAINING, AND TIGHTNESS		CHARACTERISTICS	, , ,
-	3.3 R1NQ 1 ft	0	4	3.6' - Fracture, horizontal, rough, planar	××	Siltstone At 3.3' - dark reddish brown, mottled	Rock coring began at 13:50 – on 6/29/06
-	4.3 100%	•	7	3.7' - Fracture, 45 deg, rough, undulating	××	reddish black and greenish gray, soft	R1: 13:50-13:54 on
			0	4.1' - Fracture, horizontal, rough, planar 4.3' - Fracture, horizontal, rough, planar	× >	3.3-12.2' - highly weathered	06/29/06 At 3.9': R-Scale = R3-R4
5 261.8			0	4.0 Traditio, Horizontal, Tought, plantal —	× > × > × >	3.5-3.6' - laminated beds	R2: 14:02-14:07
-				5.4' - Fracture, horizontal, rough, undulating	^	}-	At 4.8': R-Scale = R3-R4
-			2	5.7' - Fracture, horizontal, rough, undulating	^. ;	_ 5.7-9.3' - very soft, laminated beds	Drillara Domarka Dad
_	R2NQ			6 F 7 Ol Frontiers zone rough undulating	^	_	Drillers Remark: Rod dropped at 6.45' about 0.5'
_	5 ft	0	10+	6.5-7.0' - Fracture zone, rough, undulating	$I \times \rightarrow$		
l _	80%			7.2' - Fracture, horizontal, smooth, undulating	× > × > × >		At 5.4-7.6': R-Scale = R0
			10+	7.4' - Fracture, horizontal, smooth, undulating 7.6' - Fracture, horizontal, smooth, planar	\times >		
			XXX	7.8' - Fracture, horizontal, smooth, undulating	× > × > × >		
_			\bowtie	8.1' - Fracture, horizontal, smooth, planar	× >		1
-	9.3		\bowtie		× > × > × >		11
10			10+		1ê :	9.3-10.2' - 10-30% very fine sand	R3: 14:18-14:25
256.8			10.		^		At 9.8': R-scale = R3 — At 10.15-12.2': R-Scale =
-			40.	10.2-10.6' - Fracture zone, at the top of 0.4' clay/silt seam, laminated beds alternating, very	(×)	10.2-12.2' - very soft 10.6-12.2' - laminated beds	R0 R0 R0
-			10+	soft, friable material	(×)	10.6-12.2 - laminated beds	-
-	R3NQ			10.6-12.2' - Fracture zone, very soft, friable	^	}_	-
-	5 ft 94%	42	10+	material	\times \rightarrow	_	-
_	3470				× >	_ 12.2-17.6' - fresh	_
_			2			_	
l _				13.1' - Fracture, 45 deg, rough, planar		40.4.40.01	
			10+	13.3' - Fracture, 30 deg, rough, planar 13.8-14.0' - Fracture zone, rough, undulating	x >	13.4-13.8' - gravel sized white clasts	At 13.5': R-Scale = R3-R4
	14.3		\bowtie	13.0-14.0 - Fracture Zone, Tought, undulating			D4: 14:54 15:02
15			2	-		<u> </u>	R4: 14:54-15:02 -
251.8				– 15.1' - Fracture, horizontal, rough, undulating		-	
-			1	15.3' - Fracture, 30 deg, rough, undulating	x	}	At 15.5': R-Scale = R5
-			'	15.8' - Fracture, 30 deg, rough, undulating	x	}	SC-1 collected
-	R4NQ	C F		16.5' - Fracture, 60 deg, rough, undulating	x	}	16.95-17.55'
1 -	5 ft 106%	65	1		× >	+	
-				47.0.40.01. Freetime = ==== !	- (47.6.40.31	
-			10+	17.6-19.3' - Fracture zone, horizontal, rough, undulating, with clay seams and very soft	x	17.6-19.3' - very soft 17.6-18.6' - laminated bedding	At 17.65-19.3': R-Scale = R0-R1
-				siltstone, clay is very soft, friable material (0.03'		_ 17.6-19.5' - highly weathered	-
-	100		10+		× ×	18.5-19.1' - fine gravel sized white]
_	19.3		$\times\!\!\times\!\!\times$	19.0-24.0' - Microfractures throughout core filled with white and greenish gray infilling	x >	_ 19.0-19.1' - 0.01-0.05' thick white	R5: 15:14-15:22
20]		10+	19.3-19.5' - Fracture zone, rough, undulating,	× >	clasts in bands	At 19.6': R-Scale = R3-R4
246.8				heavily broken (crumbled)		19.5-26.0' - fresh 19.5-19.7' - 0.01-0.05' thick white	
1			0		Î× >	clasts	At 20.5': R-Scale = R3-R4
-]				x	f	1
-	R5NQ 5 ft	96	0		(x)	f	1
-	100%	50		-	(x)	f	1
-					(× ×	}	1
-			0	-	× >	}	At 22.75': R-Scale = R3
					Π		
Ī	1				1	1	ı

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PROJECT NUMBER:

338884

BPA-9

SHEET 3 OF 6

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686777.5 N, 2012379.1 E)

ELEVATION: 266.8 ft MSL (NGVD 29)

DRILLING CONTRACTOR: L. Morrison, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				THOD : CME-550, NQ Double Barrel		ORIENTATION: Vertical
WATER	LEVELS : 5.3	3 ft bo	S	START : 6/29/06 13	:14 T	
_				DISCONTINUITIES	90	LITHOLOGY COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS ROCK TYPE, COLOR, SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
-	24.3		0	24.4' - Fracture, horizontal, smooth, undulating	× × × × × × × ×	23.7-24.3' - 10-30% fine sand
25 <u> </u>			1	24.4 - Maddie, nonzoniai, smooth, dirediating —	× × × × × × × × × × × × × × × × × × ×	At 24.8': R-Scale = R3
- -	R6NQ 5 ft 100%	99	0	26.1' - Fracture, horizontal, smooth, undulating 26.9' - Contact between sandstones,	× × · · · · · · · · × × × ×	fine sand to medium sand, fresh
- -			1	sandstone contact 28.1' - Fracture, horizontal, smooth, undulating, little black staining	× × × × × ×	26.3-26.6' - dark reddish brown, mottled reddish black and greenish gray, soft, fresh
30_	29.3		1	29.4' - Fracture, horizontal, rough, undulating	×	26.6-26.9' - light greenish gray, soft, fine sand to medium sand, fresh, gradational contact R7: 15:48-15:56 R7: 15
236.8	R7NQ		0			26.9-28.9' - dark reddish brown, mottled reddish black and greenish gray, soft, fresh Sandstone At 30.4': R-Scale = R3-R4
-	5 ft 100%	99	1	31.5' - Contact between siltstone and sandstone 31.6' - Fracture, 50 deg, rough, undulating 32.8' - Fracture, horizontal, smooth, undulating	× × × × × × × ×	Legislation
-	34.3		0	32.8' - Fracture, 45 deg, smooth, undulating		31.5-33.0' - fresh, lens Sandstone 33.0-33.3' - light gray, soft to hard, fine
35 231.8			3	35.1-35.3' - Fractures (4), horizontal, smooth, undulating	× × ×	subangular, fresh Siltstone At 34.8': R-Scale = R5 33.3-33.4' - fresh, lens
-	R8NQ 5 ft 92%	78	1	35.3' - Contact between siltstone and sandstone, sharp 35.6' - Fracture, 10 deg, smooth, undulating 37.0' - Fracture, horizontal, smooth, undulating	× × × × × × × × × × × × × × × × × × ×	33.4-33.6' - light gray, soft to hard, fine sand to coarse sand, angular to subangular, fresh Siltstone At 36.4': R-Scale = R3
-			0	37.3' - Fracture, horizontal, smooth, undulating	× × × × × × × × × × × × × × × × × × ×	SAL Sandstone
40	39.3		2	39.1' - Fracture, 85 deg, rough, undulating 39.8' - Fracture, horizontal, undulating	× × × ×	34.6-34.7' - fresh, lens Sandstone
226.8 - - - - -	R9NQ 5 ft 98%	90	0 0	40.3' - Fracture zone, 85 deg, rough, undulating, heavily fractured, crumbled 40.7' - Fracture, 50 deg, smooth, undulating	× × × × × × × × × × × × × × × × × × ×	34.7-35.3' - light gray, soft to hard, fine sand to coarse sand, angular to subangular, fresh Siltstone At 35.3' - dark reddish brown, mottled reddish black and greenish gray, soft 35.3-51.3' - fresh 35.7' - 0.2' thick mottles

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PROJECT NUMBER:	BORING NUMBER:		
338884	RPA-9	QUEET	4 OF 6

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686777.5 N, 2012379.1 E)

ELEVATION: 266.8 ft MSL (NGVD 29)

DRILLING CONTRACTOR: L. Morrison, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				THOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS : 5.	3 ft bo	S	START : 6/29/06 13	:14	END : 6/30/06 10:51	LOGGER : EM/LH
_		DISCONTINUITIES		DISCONTINUITIES	8	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
-	44.3		0		- × - × - ×	2 - 36.4-38.0' - 0.01-0.05' thick white clasts	-
45 <u> </u>			0	_	- * * * *	_	R10: 07:59-08:08 on 06/30/06 At 44.6': R-Scale = R3-R4
-	DAONO		1	45.6' - Fracture, horizontal, rough, planar	- × - × - × ×	* *-	-
_	R10NQ 5 ft 108%	100	0		X X X X X X		At 46.7': R-Scale = R3-R4
-			0		- × - × - ×	48.4-49.3' - gravel sized white clasts	At 48.5': R-Scale = R3-R4
-	49.3		0 ₩		- × - × - ×	48.6-48.8' - laminated beds	R11: 08:26-08:37
50 216.8 _			1	_	- × × × × ×	49.9-50.6' - gravel sized white clasts 50.6-50.8' - <0.05' thick greenish gray	At 50.3': R-Scale = R3-R4
-	- - R11N0 5 ft	75	10+	51.2' - Fracture, horizontal, rough, undulating 51.7-52.4' - Fracture zone, rough, undulating	- × × × × ×	mottle 51.2-51.3' - very soft 51.3-52.4' - highly weathered	
-	100%		10+		× × × × ×	51.3-51.4' - clay seam, very soft, friable material (siltstone laminated alternating within it) 51.7-52.4' - very soft 52.4' - gravel sized white clasts	At 53.0': R-Scale = R4
-	54.3		1		- × - × - ×	52.4-62.8' - fresh 52.5' - gravel sized white clasts 53.0' - gravel sized white clasts 53.5-54.3' - gravel sized white clasts	R12: 08:45-08:55
55 211.8 -			0	55.1' - Fracture, horizontal, rough, undulating	- * * * * * *	53.9-54.3' - very soft 54.3-55.1' - very soft 54.3-54.8' - gravel sized white clasts	At 54.8': R-Scale = R4 —
-	R12NQ 5 ft 101%	100	0		- × - × - × - ×	55.0-55.1' - laminated beds (barely apparent)	At 56.8': R-Scale = R3-R4
-	101%		0		× × × × ×	59 1 50 21 20 409/ year-fine cond	
-	59.3		0		- × × × × ×	58.1-59.3' - 30-40% very fine sand	At 58.6': R-Scale = R3-R4
60_ 206.8			0	-	- 	-	R13: 09:03-09:12 Driller's remark: Lost ~25
_	R13NQ		0				gallons of water At 60.9': R-Scale = R3-R4
-	5 ft 96%	96	0		× × × × × • •		SC-2 collected 62.4-63.4'

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PROJECT NUMBER: BORING NUMBER: BPA-9 338884 SHEET 5 OF 6

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (686777.5 N, 2012379.1 E)

ELEVATION: 266.8 ft MSL (NGVD 29) DRILLING CONTRACTOR: L. Morrison, S&ME

	10IN . 200.0			·	00.1	TITACTOR: E. MOITISON, SAIVIE	
CORING	<u> S EQUIPMEN</u>	IT AN	D ME	THOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS: 5.	3 ft bo	ıs	START : 6/29/06 13	14	END : 6/30/06 10:51	LOGGER : EM/LH
				DISCONTINUITIES	ტ	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
65 201.8	64.3		1 ××× 0	63.4' - Fracture, 60 deg, rough, undulating		Sandstone At 62.8' - light reddish brown, weak red, and dark reddish gray, soft to hard, laminated to medium bedding, very fine sand to coarse sand, subrounded to subangular, fresh, well sorted to poorly sorted 62.8-62.8' - coarse grained bed	At 63.8': R-Scale = R3-R4 - R14: 09:17-09:30 At 65.7': R-Scale = R3-R4
- - - -	R14NQ 5 ft 102%	98	0 1	66.1' - Contact between siltstone and sandstone, horizontal, rough, undulating 67.7' - Fracture, horizontal, rough, planar	× × × × × × × × × × × × × × × × × × ×	63.0-63.1' - coarse grained bed 63.3-64.3' - coarse grained bed 65.6-66.1' - coarse grained bed Siltstone At 66.1' - dark reddish brown, mottled greenish gray and reddish black, soft, fresh 68.0' - 0.03' thick greenish gray mottle 68.6-68.7' - gravel sized white clasts	- - - - At 68.2': R-Scale = R3-R4
70	69.3 R15NQ 5 ft 96%	88	10+	69.2' - Fracture, 30 deg, rough, undulating 69.3-69.7' - Fracture zone, rough, undulating, reddish black stains	× × × × × × × × × × × × × × × × × × ×	68.8-68.9' - norizontal band, 0.07-0.08' thick greenish gray mottle 69.1-69.2' - gravel sized white clasts 69.2-69.3' - very soft and laminated beds 69.3-70.2' - reddish black 70.2-70.5' - large greenish gray mottles, 0.03-0.15' thick, 0.15-0.3' long	R15: 09:39-09:53 - At 70.2': R-Scale = R3-R4 -
75_ 191.8	74.3		0	- - - -	× × × × × × × × × × × × × × × × × × ×	- - - -	At 73.1': R-Scale = R3-R4
- - - -	R16NQ 5 ft 98%	98	0 0	- - - - -	× × × × × × × × × × × × × × × ×	75.7-76.0' - very soft to soft, 0.02-0.05' thick greenish gray mottles 76.9-77.0' - very soft to soft, 0.02-0.05' thick greenish gray mottles	At 76.1': R-Scale = R3 - At 77.5': R-Scale = R3-R4
80_ 186.8	79.3		0 0	- - - -	× × × × × × × × × × × × × × × × × × ×	- 79.3-83.5' - trace medium to coarse sand, becomes coarser with depth	R17: 10:20-10:31 - At 80.1': R-Scale = R4 -
- - - -	R17NQ 5 ft 103%	100	0	- - - -	× × × × × × × × × × × × × × × × × × ×	- - - -	- - - - At 82.9': R-Scale = R3-R4
I							



PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-9	SHEET 6 OF 6

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (686777.5 N, 2012379.1 E)

ELEVATION: 266.8 ft MSL (NGVD 29) DRILLING CONTRACTOR: L. Morrison, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				THOD : CIVIE-330, NQ DOUBLE BAITEL				ORIENTATION: Vertical
WATER	LEVELS : 5.	3 ft bc	ļS	START : 6/29/06 13	:14	END : 6/30/06 10:51		LOGGER : EM/LH
	(9)			DISCONTINUITIES	Ö	LITHOLOGY		COMMENTS
07 €	CORE RUN, LENGTH, AND RECOVERY (%)		S	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR		
DEPTH AND ELEVATION BELOW SURFACE (ft)	Z Y Z	(%	FRACTURES PER FOOT		임	MINERALOGY, TEXTUR	RE,	SIZE AND DEPTH OF CASING,
Ŧĕ Şĕ	# FE	(%) Q	LTG F3C	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	BO	WEATHERING, HARDNE		FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
9998	SSSS	Ø	RA	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	ĮΣ	AND ROCK MASS CHARACTERISTICS		DROPS, TEST RESULTS, ETC.
	0716	ď	ши	,,	0)	0.0.0.0.121.00.1100		
_			0		†î:	Sandstone		1 1
-	84.3		"		∤∷	- At 83.5' - light reddish brown		At 84.0': R-Scale = R3-R4
_	0		XXX		4::	red, and dark reddish gray, s		R18: 10:45-10:51
85			0		::	hard, laminated to medium b very fine sand to coarse sand		
181.8]::	subrounded to subangular, fr		SC-3 collected
-	R18NQ				†∷	sorted to poorly sorted	Cori, Well	84.3-85.4'
-	3.5 ft		0		┨∷	 83.8-83.9' - coarse grained b 	ed	At 86.4': R-Scale = R4 At 86.8-87.8': R-Scale = R1
_	100%				. ∷	84.1-84.1' - siltstone lens		
			0	86.8' - Contact between siltstone and	×	84.2' - coarse grained bed - \86.1-86.8' - gravel sized silt o	olooto /	First water level = 5.3' bgs
I -				sandstone, horizontal and 30 deg, rough,	×	Siltstone	Jidolo	taken 6/30/06 at 11:11 -
-	87.8		4	undulating	₹Ŷ.	86.8-87.8' - dark reddish bro	wn.	R-Scale performed after
-				86.9' - Fracture, horizontal and 30 deg, rough,	Ŧ	mottled reddish black and gr		\drilling on stored samples /
_				undulating, not a contact 87.3' - Fracture, horizontal, smooth, planar	1	gray, very soft, moderately w	eathered, /	
				87.4' - Fracture, horizontal, smooth, planar		gravel sized white clasts		
I -				87.7' - Fracture, horizontal and 30 deg, rough,	1	Bottom of Boring at 87.8 ft bo 6/30/06 10:51	js on	1
90				undulating, beds at top and bottom are	1	_ 0/30/00 10.31		1
176.8				horizontal and convoluted in between	┨			_
					-	_		-
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PROJECT NUMBER:	BORING NUMBER:				
338884	BPA-10	SHEET	1	OF	5

SOIL BORING LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686920.4 N, 2012383.0 E)

ELEVATION: 265.9 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

DRILLING EQUIPMENT AND METHOD: CME 550, Tricone Bit, 24 Split Spoon, and 140 lb. Automatic Hammer ORIENTATION: Vertical

DRILLIN	IG EQUI	PMENT	AND MET	THOD : CME 550	Tricone Bit, 24 Split Spoon, and 140 lb. Automatic Hammer				ORIENTATION : Vertical
WATER	LEVELS	3 : 3.5 ft l	ogs		START : 6/27/06 17:00 END : 6	/28/0	06 1	4:45	5 LOGGER : JF
DEPTH B	BELOW EX	(ISTING C	SRADE (ft)	STANDARD	SOIL DESCRIPTION	T	٦		COMMENTS
	INTERV	AL (ft)		STANDARD PENETRATION TEST RESULTS			SYMBOLIC LOG		
		RECOV	ERY (in)	TEGT REGGETS	SOIL NAME, USCS GROUP SYMBOL, COLOR,			Œ	DEPTH OF CASING, DRILLING RATE,
			#TYPE	6"-6"-6"-6"	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY		MBC	(TSF)	DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
				(N)		- 1	S	Ь	
265.9	0.0				Silt (ML) 0.0-1.2' - dark reddish brown, moist to wet, medium				
		140	00400	0.0.0.5	dense, very fine to fine grained	1	Ш		
		14.0	SS1SS	2-3-3-5 (6)	-	7	Ш	1.0	
-	2.0			(-)		1	١		
						1	١		
-	2.5				Silt (ML)	1	П		-
-					2.5-3.1' - reddish brown, moist, medium dense, very fine to fine grained	/╬	Н		-
-		7.0	SS2SS	14-22-50/3 (72/9")	line to time grained	1	١	2.0	-
-	4.5			(1213)		1	١		-
5	4.5					1	١		-
260.9	5.0	3.0	SS3SS		¬ Silt (ML)	#	П	4.5+	No soil recovery between 7.5 and 9.5
-	5.3			50/4 (50/4")	5.0-5.3' - dark reddish brown, trace mottling, moist to cool i might, medium dense, fine grained	/┨	١		-
-				(50/4)	cool i might, medium dense, line grained	′ ┨	١		-
-						+	١		-
-						+	١		Soil sampling completed at 17:55 on
-	7.5	0.0	NSS4SS/		\ No Recovery	\overline{A}	١		6/27/06
-			, (= = - = -)	50/0.5	\At 7.5'	/	١		-
-				(50/0.5")	Begin Rock Coring at 7.6 ft bgs See the next sheet for the rock core log	+	١		-
-					ess are now eneed for are rook one log	+	١		-
-						4	١		-
10 255.9						4	١		
255.9						4	١		-
_						4	١		-
-						4	١		-
_						4	١		-
_						4	١		_
_						1	١		_
_						1	١		_
						_	١		_
						1	١		_
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PROJECT NUMBER:

338884

BPA-10

SHEET 2 OF 5

ROCK CORE LOG

ORIENTATION : Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686920.4 N, 2012383.0 E)

ELEVATION: 265.9 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME 550, NQ Double Barrel

WATER	ATER LEVELS : 3.5 ft bgs		ıs	START : 6/27/06 17:00		END: 6/28/06 14:45	LOGGER : JF	
	. 0			DISCONTINUITIES	ő	LITHOLOGY	COMMENTS	
QZ (¥)	CORE RUN, LENGTH, AND RECOVERY (%)		KES T	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,	
DEPTH AND ELEVATION BELOW SURFACE (ft)	E RUI	(%) Q	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS,		MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD	
	S S S S S S S S S S S S S S S S S S S	RQ	-RAC	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	3YME	AND ROCK MASS CHARACTERISTICS	DROPS, TEST RESULTS, ETC.	
<u> </u>	7.6	ш.	0	· · · · · · · · · · · · · · · · · · ·	1:::	Sandstone	Rock coring began at 07:45	
_			Ů	O. O	∃∷ :	7.6-8.4' - dark reddish brown, soft, fine	on 6/28/06	
-	R1NQ 2.5 ft	44*	2	8.2' - Fracture, <5 deg, rough, undulating, tight fit	- × >	sand to medium sand, moderately weathered, 75% sand, 25% silt matrix	R1: 07:45-08:00 on _ 06/28/06	
-	95%	44		8.4' - Fracture, <5 deg, rough, undulating, tight	-\(\hat{x}\)	├ \8.0' - siltstone lens ~10 degree	At 8.5-9.0': R-Scale = R0	
-			2	fit 9.2' - Fracture, <5 deg, rough, undulating, tight	- × >	_ \bedding Siltstone	At 9.0-10.0': R-Scale = R1 _	
10 <u> </u>	10.0		\sim	fit = -	- × > × >	At 8.4' - dark reddish brown, very soft,	At 10.0-10.2': R-Scale = R0 —	
-			10+	9.7' - Fracture, <5 deg, rough, undulating, tight fit	7× >	fine grained, soil-like characteristics 8.4-12.5' - moderately weathered	R2: 08:05-08:35 At 10.2-10.8': R-Scale = R1	
-					- × ×	9.0-11.1' - some very fine to fine sand	At 10.3-10.8': PP: 1.0 tsf -	
-			10+	11.3-11.5' - Fracture zone, 70 deg, rough,	- × ×	(25%) 10.3-10.5' - clay seam	At 10.8-10.9': PP: 1.5tsf At 10.9-11.0': PP: 1.0 tsf	
-	R2NQ			undulating, tight fit 11.5' - Fracture, <5 deg, rough, undulating,	-\x\ \x	10.5-10.5 - clay seam	At 10.95-11.1': PP: 0.5 tsf -	
-	5 ft	71*	3	tight fit	$-\frac{1}{2}$	11.1' - clay seam 11.1-12.0' - becoming more	SC-1 collected 10.5-10.8'	
-	97%				- × >	competent	At 11.1-12.4': R-Scale = R2 _	
-			0		- × >	12.0' - clay seam	At 12.0': PP: 1.0 tsf At 12.5': PP: 0.5 tsf	
_					- × >	12.5' - clay seam 12.5-15.6' - fresh	At 13.7': R-Scale = R3-R4	
_			0		- × >	4 ←	_	
15 <u> </u>	15.0		XXX	_	× >	1_	DO: 00:40 00:55	
250.9			1		_ × >	_	R3: 08:40-08:55 -	
_				15.6' - Fracture, <5 deg, rough, undulating, some darker staining	4:::	Sandstone 15.6-16.4' - dark reddish brown, trace	At 15.9': R-Scale = R3-R4 -	
_			0	Some darker stairing	- × >	mottling, soft, fine sand, angular, fresh	_	
_					_ × >	Siltstone	_	
_	R3NQ 5 ft	100	1		_ × >	At 16.4' - dark reddish brown, trace blue-green mottling, very soft, fresh,	_	
_	100%			17.8' - Fracture, <5 deg, rough, undulating	_ × >	pink clay clasts, mottling band at	_	
_			0	, 3, 3,]× ;	bottom	_	
_					-\x 3	_	_	
_			0		- (x)			
20	20.0			_	× >	_		
245.9			0		_ × >	20.0-23.6' - with fine sand	R4: 09:00-09:12	
_						[At 20.72': R-Scale = R3-R4 _	
l _			0]× >	1		
			U]× >			
	R4NQ	100	0		× >			
_	5 ft 100%	100	U		× >	At 22.5' - sandstone lens, fine to	1	
_					× > × >	medium grained, 0.05' thick blue-green mottling at top and bottom,	1	
_			0	23.5' - Contact between siltstone and		bedding at 25 degrees	At 00 0k D 0 - sls - D0 D4	
-				sandstone	1:::	Sandstone At 23.6' - reddish gray, fine to medium	At 23.8': R-Scale = R3-R4 -	
25	25.0		0		1:::	grained, soft to hard, angular, fresh		
240.9				_	1∷ ∶	24.2-24.7' - fine grained, soft, subangular	R5: 09:14-09:25	
-			0		1:::	24.7-25.0' - angular to subangular	_	
-					1:::	At 25.0' - gray, fine to medium grained, soft to hard, subangular		
-			0		1:::	25.5' - trace siltstone lens	-	
-	R5NQ				† ∷∷	- 26.7' - trace siltstone lens	-	
					+		-	

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PROJECT NUMBER:

338884

BPA-10

SHEET 3 OF 5

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686920.4 N, 2012383.0 E)

ELEVATION: 265.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME 550, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS: 3.	5 ft bg	IS	START : 6/27/06 17	:00	END: 6/28/06 14:45	LOGGER : JF
	(%			DISCONTINUITIES	ō	LITHOLOGY	COMMENTS
QZ €	Ä, AND 3Y (3		ES T	DESCRIPTION	CLO	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
- - - 30_	5 ft 100% 30.0	100	1 0	28.8' - Fracture, 60 deg, rough, undulating, tight fit		27.3' - trace siltstone lens	At 27.6': R-Scale = R3-R4 SC-2 collected 28.8-30.0' -
235.9			0		-	30.0-30.7' - fine to medium grained 30.7-31.6' - medium to coarse grained	R6: 09:30-09:40 - - -
-	_ R6NQ - 5 ft _ 100%	100	0			31.6-33.4' - fine to medium grained	-
35_ 230.9	35.0		0	_		33.4-34.2' - medium to coarse grained At 34.2' - light reddish gray, fine grained, soft, with numerous 3/8" elliptical silt/clay clasts	- At 34.3': R-Scale = R3-R4 - R7: 09:45-10:00
-			0	35.4' - Fracture, <5 deg, rough, undulating	 × × × × × × × × × ×	Siltstone At 35.4' - dark reddish brown, blue-green mottling, very soft, fresh 35.9-40.0' - purple mottling, 3/8" pink	- - - At 36.5': R-Scale = R3-R4
- - - - -	R7NQ 5 ft 97%	97	0 0		× × × × × × × × × × × × × × × × × × ×	_ clay clasts	- - - -
40	40.0		0 0	_		 - -	R8: 10:05-10:25 - - -
- - -	R8NQ 5 ft 100%	100	0		-		At 42.0': R-Scale = R3-R4
45	45.0		0	<u>-</u>	× × × × × × × × × × × × × × × × × × ×	- -	R9: 10:30-10:50
- - -	R9NQ		0		× × × × × × × × × × × × × × × × × × ×	-	At 46.3': R-Scale = R3-R4 -

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PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-10	SHEET 4 OF 5

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686920.4 N, 2012383.0 E)

ELEVATION: 265.9 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME 550, NQ Double Barrel ORIENTATION : Vertical

				HOD : CME 550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS : 3.	5 ft bo	IS	START : 6/27/06 17	:00	END : 6/28/06 14:45	LOGGER : JF
	_6%		,, I	DISCONTINUITIES	90	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
	5 ft 103%	100	0		× ×		
_ 	103 %		1		× × × × × ×	- - - Sandstone	<u>-</u>
50 215.9	50.0		0		× × × × × ×	\[\lambda 48.9-49.3' - light reddish gray, very \[\lambda fine to fine grained, fresh \] \[\text{Siltstone} \]	- - - -
-			5	50.1' - Fracture, <5 deg, rough, undulating 50.2' - Fracture, <5 deg, rough, undulating 50.4' - Fracture, <5 deg, rough, undulating	× × × × × ×	- At 49.3' - dark reddish brown, heavy blue green with purple mottling, very - soft, fresh	R10: 10:55-11:20 -
-	R10NQ		0	50.5' - Fracture, <5 deg, rough, undulating 50.6' - Fracture, <5 deg, rough, undulating	× × × × × ×	-	-
-	5 ft 100%	89	1	52.2' - Fracture, <5 deg, rough, undulating	× × × × × ×	52.5-54.1' - 15% very fine to fine sand	- At 52.9': R-Scale = R3-R4
-			0		× × × × × ×	- - 54.1-55.0' - 40% very fine to fine sand	-
55 <u> </u>	55.0		0	<u>-</u>	× × × × × × × ×	At 55.0' - heavy yellowish and dark purple mottling, very soft, fine grained, trace very fine to fine sand	R11: 11:25-11:35
_ _ _			0		× × × × × ×	-	-
_	R11NQ 5 ft 100%	100	0		<u>× ×</u>	Sandstone At 57.4' - dark reddish gray, fine grained, soft to hard, thin to bedding,	At 57.3': R-Scale = R4
-			0		- : : :	- fresh - 59.2-60.0' - fine to medium grained,	-
60_ 205.9	60.0		0	- -		gradually more coarse at the bottom At 60.0' - gray, medium to coarse	R12: 12:30-13:00
- -			0	-		– grained, angular to subangular – –	At 60.7': R-Scale = R4 SC-3 collected 60.0-61.2'
-	R12NQ 5 ft 100%		0		 	-	-
-	100%		0			-	-
65	65.0		0			-	-
200.9			0			-	R13: 13:05-13:25
-	R13NQ		0		× × × × × ×	Siltstone At 66.4' - dusky red, blue-green mottling, very soft, fresh, fine grained	-
_					_ × ×		_

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PROJECT NUMBER:	BORING NUMBER:				
338884	BPA-10	SHEET	5	OF	5

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686920.4 N, 2012383.0 E)

ELEVATION: 265.9 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME 550, NQ Double Barrel ORIENTATION : Vertical

				THOD : CME 550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS : 3.	5 ft bo	ļS .	START : 6/27/06 17 DISCONTINUITIES	:00	END : 6/28/06 14:45 LITHOLOGY	LOGGER : JF COMMENTS
_ ₌	Ģ %		(n	DESCRIPTION	90		CONNIVILIALO
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
	5 ft 100%	100	0		× ×	67.0-68.0' - heavy blue-green	
_	100%			-	1× ×	mottling, clay clasts	-
			0]×	68.7-68.9' - small (1/4) pink-white clay	
_			0		I [×] × X	clasts	At 69.3': R-Scale = R3-R4 _
70	70.0		Ľ	_	I× ×	69.5-70.0' - dark rip up clasts	
195.9 -			0		l× ×	70.0-70.5' - 2 small clay clasts to 0.3	R14: 13:30-13:45
-					×	70.5-71.6' - slickened edge where observed has large quantity (50%) of	-
-			2	71.4' - Fracture, 15 deg, rough, undulating,	×	clay clasts (.4 to .8)	-
-	R14NQ			some evidence of slickened edges at higher	l× ×	72.0-75.0' - dark purple mottling	-
-	5 ft	100	0	angle 71.6' - Fracture, 45 deg, slickensided,	× × × × × ×	-	-
-	100%			undulating, some dark staining		-	-
-			0		\times \times	-	-
-				-	×	-	-
75	75.0		0			-	- At 74.7': R-Scale = R3-R4
190.9	75.0			_	1× *	75.0-84.4' - dark reddish brown,	R15: 13:55-14:05
_			0		××	blue-green and dark purple mottling	-
-				-	× × × × × ×	-	-
-			0		1× ×	-	-
	R15NQ	94	0]× ×	-	
	5 ft 94%	94	U]×	_	
_			0	_	Iŝ ŝI	_	_
_			Ľ	_	I× ×	-	At 78.6': R-Scale = R3-R4
_			0		×	-	_
80	80.0			-	× × × ×	<u> </u>	
185.9			0		× ×	-	R16: 14:10-14:29
-				-	× ×	_	-
-			0		×	-	-
-	R16NQ				Î X X	-	-
-	5 ft		0		×	-	-
-	104%			-	<u>*</u>	-	At 83.7': R-Scale = R3-R4
-			0			-	R17: 14:32-14:38
-				-	1× ×	-	First water level = 3.5' bgs
85	85.0		0		l× ×	84.4-85.0' - trace very fine to fine sand with white speckles	taken 6/28/06 at 19:00; second water level = 4.5'
180.9	55.0		XXX	_	× × × ×	85.0-85.6' - dusky red, continued	bgs taken 6/29/06 at 17:32
-	R17NQ		0		$\begin{bmatrix} \times & \times \\ \times & \times \end{bmatrix}$	white speckles 85.6-86.4' - trace very fine to fine sand	_
-	2 ft 100%	100	0	-	× × × ×	and fine sand sized clay clasts	R-Scale performed after
- T	87.0		U		××	86.4-87.0' - 25% of clay clasts up to	drilling on stored samples -
L -					[]	Bottom of Boring at 87.0 ft bgs on	
						6/28/06 14:45	

2BB-73 Rev. 1



PROJECT NUMBER: BORING NUMBER: 338884 BPA-11 SHEET 1 OF 9

SOIL BORING LOG

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (687016.5 N, 2012396.5 E)

ELEVATION: 264.3 ft MSL (NGVD 29) DRILLING CONTRACTOR: D. Hedges, S&ME

DRILLIN	G EQUIF	PMENT /	AND MET	HOD : CME-550	, 3-5/8 Tricone Bit, 24 Split Spoon and 140 lb. Automatic Hamm	er	ORIENTATION : Vertical
WATER	LEVELS	3 : 4.6 ft b	ogs		START : 6/5/06 14:15 END : 6/8	/06 0	9:17 LOGGER : LH/MJ
DEPTH B	ELOW EX	KISTING C	SRADE (ft)	STANDARD	SOIL DESCRIPTION	υ	COMMENTS
	INTERV	AL (ft)		PENETRATION TEST RESULTS		12	
		RECOV	ERY (in)		SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR	ğ	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND
			#TYPE	6"-6"-6"	CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	INSTRUMENTATION
264.3	0.0			(N)	Sand (SP-SM)	1.1	
-	0.0				\setminus 0.0-0.4' - very pale brown, dry, loose, very fine to coarse \int	1	-
-		19.2	SS1SS		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	$\parallel \parallel \parallel$	-
-				(10)	0.4-1.6' - red, dry, loose	Ш	-
-	2.0					┨	-
_	2.5				Clayey Gravel (GC)	1/7/	-
-					$-\sqrt{2.5-2.6}$ ' - dark reddish brown, moist to just, very dense $/\sqrt{2.5-2.6}$	Y ///	-
-		5.0	SS2SS	50/5	Clay (CL) 2.6-3.1' - dark reddish brown, moist, hard	1	-
-	4.5			(50/5")	Lio 31. dain roddion promi, moisi, mard	┨	-
5	4.5					1	-
259.3	5.0				_ Clay (CL)	///	\vdash
-					\\ 5.0-5.3' - dark reddish brown, dry to moist, hard, \\ laminated beds	1	-
-		4.0	SS3SS	50/4 (50/4")	laminated beds	1	-
_	7.0			(30/4-)		1	Soil sampling completed at 15:05 on 6/5/06
-	7.0					1	Soil was friable throughout
-	7.5	2.0	SS4SS		¬ Clay (CL)	1///	
_	7.7			50/2 (50/2")	7.5-7.7' - dark reddish brown, mottled light greenish gray, dry to moist, hard, laminated beds	1	1
-				(==:=)	7.7-8.1' - clay seam, very soft	1	_
-					Begin Rock Coring at 7.7 ft bgs See the next sheet for the rock core log	1	_
10					ess are now shost for are rook sole log	1	1
254.3					_	1	
						1]
						╛	
					_		
							_
						1	_
15					_		
249.3							_
_						_	_
_						1	_
_						1	_
						1	_
_					,	1	_
						1	_
-						-	-
-						4	-
20						1	
$\overline{}$		L	L				



PROJECT NUMBER:

338884

BORING NUMBER:

BPA-11

SHEET 2 OF 9

ROCK CORE LOG

ORIENTATION : Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687016.5 N, 2012396.5 E)

ELEVATION: 264.3 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	WATER LEVELS : 4.6 ft bgs		ıs	START : 6/5/06 14:15		END : 6/8/06 09:17	LOGGER : LH/MJ	
	(%)			DISCONTINUITIES	96	LITHOLOGY	COMMENTS	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.	
- - -	7.7 R1NQ 2 ft 105%	0	3	8.1' - Fracture, horizontal, smooth, undulating, microfractures with greenish gray in fracture 8.4' - Fracture, horizontal, smooth, undulating 8.5' - Fracture, horizontal, smooth, planar 8.9-9.2' - Fracture, horizontal and 45 deg,	× × × × × × × × × × × × × × × × × × ×	Siltstone At 7.7' - dark reddish brown, mottled greenish gray, very soft, laminated bedding 7.7-17.0' - highly weathered 8.9-9.0' - fine sand to coarse sand,	Rock coring began at 15:37 on 6/5/06 R1: 15:37-15:49 on 06/05/06 At 7.7-16.3': R-Scale = R0	
10 254.3 - - - -	R2NQ 4.4 ft 98%	0	2 2 10+	rough and smooth, undulating 9.6' - Fracture, horizontal, rough, undulating 9.7-11.1' - Fracture, horizontal, smooth, undulating, microfractures throughout 11.1-11.9' - greenish gray in fractures	× × × × × × × × × × × × × × × × × × ×	sandstone lense, some clay, very soft 9.5' - trace medium sand - 9.7-11.1' - very soft to soft - -	R2: 16:08-16:16 Driller's remark: Rod dropped 0.4-0.5' at 13.5'	
- - -	14.1		10+	14.1-14.8' - Fracture, horizontal, smooth,	× × × × × × × × × × × × × × × × × × ×	12.4-13.6' - clay seam with very soft sandstone fragment, medium 14.0' - clay seam	-	
15 249.3 - - -	R3NQ 4.9 ft 88%	59*	10+	undulating 15.3-16.0' - Microfractures throughout with greenish gray infrastructure 16.0-17.9' - Fracture, horizontal, smooth, undulating 16.3' - Fracture, horizontal, rough, undulating	× × × × × × × × × × × × × × × × × × ×	14.6-14.7' - clay seam, medium 14.8-15.3' - clay seam, soft	R3: 16:20-16:29	
- - - - 20	19.0 R4NQ 1.2 ft	50*	10+	16.7' - Fracture, horizontal, rough, undulating 19.0-20.2' - Fracture, horizontal, smooth, undulating	- X X X X X X X X X X X X X X X X X X X	17.0-22.0' - moderately weathered 17.9-18.4' - clay seam, hard 19.0-21.2' - dark reddish brown, soft	At 17.3': R-Scale = R2-R3	
244.3 - -	20.2 100%		6	21.0' - Fracture, horizontal and 45 deg,	× × × × × × × ×		06/06/06 R5: 09:30-09:35 At 20.6-22.0': R-Scale = R0- R1	
- -	R5NQ 4.8 ft 100%	54*	10+ 10+	smooth, undulating 21.9-25.0' - Fracture zone, horizontal, smooth, undulating, laminated	× × × × × × × × × × × × × × × × × × ×	banded seams, very thin bedding 21.9-28.1' - dusky red, soft 22.0-28.5' - slightly weathered	-	
-			10+		× × × × × × × × × ×		-	
25_ 239.3	25.0		7	25.0-28.1' - Fractures, horizontal, smooth, undulating 25.1' - Fracture, horizontal, smooth, undulating	× × × × × × × ×		R6: 10:50-10:57	
- -	R6NQ 4.6 ft	76	3	25.2' - Fracture, horizontal, smooth, undulating 25.4' - Fracture, horizontal, smooth, undulating 25.4' - Fracture, horizontal, smooth, undulating 25.9' - Fracture, horizontal, smooth, undulating 25.9' - Fracture, horizontal, smooth, undulating	× × × × × × × × × × × × × × × × × × ×			
				20.0 1 radialo, nonzonial, omodili, undulating	××			

2BB-75 Rev. 1



PROJECT NUMBER:

338884

BPA-11

SHEET 3 OF 9

ROCK CORE LOG

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687016.5 N, 2012396.5 E)

ELEVATION: 264.3 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

00			D 111.C	THOD . CIVIE-330, NQ DOUBLE BAITEI			ORIENTATION : Vertical
WATER	LEVELS: 4.0	6 ft bo	ļs	START : 6/5/06 14:	15	END: 6/8/06 09:17	LOGGER : LH/MJ
	ୃତ			DISCONTINUITIES	ပ္	LITHOLOGY	COMMENTS
Qz €	Q 2 2 2 2 2 2		ES-	DESCRIPTION	일	ROCK TYPE, COLOR,	CIZE AND DEDTH OF CACING
EPTH AND EVATION ELOW JRFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
EVA LOV RF	R P P P P P P P P P P P P P P P P P P P	Q	ACI R F(PLANARITY, INFILLING MATERIAL AND	MB(WEATHERING, HARDNESS, AND ROCK MASS	SMOOTHNESS, CAVING ROD
SEE	용필분	S.	K.H.	THICKNESS, SURFACE STAINING, AND TIGHTNESS	S√	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
	100%			26.4' - Fracture, horizontal, smooth, undulating	× × × ×	_	_
			10+	26.4' - Fracture, horizontal, smooth, undulating	× ×	28.1-28.5' - clay seams	
			101	26.5' - Fracture, horizontal, smooth, undulating 26.8' - Fracture, horizontal, smooth, undulating		Sandstone	At 28.6': R-Scale = R3-R4
1 7	00.0		1	27.1' - Fracture, horizontal, smooth, undulating	0.0	28.5-29.0' - weak red, soft, fine sand to coarse sand, slightly weathered,	1 1
30	29.6		<u> </u>	27.2' - Fracture, horizontal, smooth, undulating 27.3' - Fracture, horizontal, smooth, undulating	0	coarsens with depth	R7: No time recorded
234.3			3	27.3 - Fracture, nonzontal, smooth, undulating	,0 %	Conglomerate	I —
-				28.0' - Fracture, horizontal, smooth, undulating	Q	_ 29.0-30.8' - weak red, soft, coarse	At 30.2-30.7': R-Scale = R0-
			3	28.1' - Fracture, horizontal, smooth, undulating	× × ×	sand to fine gravel, slightly weathered Siltstone	. R1
) 	28.1' - Fracture, horizontal, smooth, undulating 28.5-29.6' - Fracture, rough, undulating	$\times \times$	At 30.8' - dark reddish brown,	
	R7NQ			29.0' - Fracture, 45 deg, rough, undulating	× × × ×	greenish gray mottling, soft, laminated]
1 7	5 ft	40	10+	30.0' - Fracture, rough, undulating	\times \times	bedding	At 32.1-33.4': R-Scale = R0-
-	96%			30.1' - Fracture, rough, undulating 30.4-31.0' - Fragmented, little pieces, contact	× ×	_ 30.8-34.6' - bioturbations filled in with darker gray silt/clay	R1 -
-			3	point	××	30.8-34.9' - slightly weathered	l -
-				33.0-33.4' - Fracture zone	x x	_ 32.2-32.5' - clay intrusion	-
-			3		^	_	-
	34.6		XXX		$\times \times$	_	
35				34.6-34.8' - Fracture zone, smooth, undulating	× ×	34.6-43.0' - black clast throughout	R8: 11:27-11:35
229.3			7	35.0' - Fracture, smooth, undulating	××	34.9-46.6' - fresh	
-					× ×	_	1
-			1	35.9' - Fracture, horizontal, smooth, undulating	××	_	1
-					┨ ^Ҳ ╶Ӽ	_	At 36.5': R-Scale = R3
-	R8NQ 5 ft	92	1			_	
	100%	92	'	37.2' - Fracture, horizontal, smooth, undulating	Jê ŝ	_	SC-1 collected 37.5-38.5'
				37.4' - Fracture, horizontal, smooth, undulating	\times \times		37.5-30.5
			0		× ×		1
					× ×	_	1
-			1		$\times \times$	_	1 1
	39.6				× ×	_	At 39.2': R-Scale = R3-R4
40 <u> </u>			1	_	××		R9: No time recorded
224.3			'		× × × ×	_	_
				40.5-40.8' - Fracture zone, smooth, undulating 40.8' - Fracture, vertical]\$ }}		
]			2	41.1' - Fracture, vertical 41.1' - Fracture, horizontal, rough, undulating	× × × ×]
1 7	R9NQ				× ×	_]
	5 ft	82	1		$\times \times$	_	1
-	100%				$\stackrel{\times}{\times}\stackrel{\times}{\times}$	<u>_</u>	-
-			0		××	43.0-44.0' - very soft, very thin	-
-			الًـــا	43.3' - Fracture, horizontal, smooth,	××	- bedding, banded layers of clay, <0.2'	-
				undulating, clay seam	× ×	thick	
1 7	44.6		2	43.8' - Fracture, horizontal, smooth, undulating	ê 8		At 44.1': R-Scale = R3
45	77.0			44.4' - Fracture, horizontal, smooth, undulating	× × × × × ×		R10: 13:45-13:56
219.3			2	44.8' - Fracture, horizontal, rough, planar — 45.2' - Fracture, horizontal, rough, planar	$\mathbf{I} \times \mathbf{X}$		-
-				45.2 - Fracture, nonzontal, rough, planar	× ×	<u>_</u>	-
-			3	46.0' - Fracture, horizontal, rough, planar	××	_	Drillor's Romark: Had to
			الل	46.0' - Fracture, norizontal, rough, planar 46.1' - Fracture, horizontal, rough, planar	$\times \times$	_	Driller's Remark: Had to stop/slow down, several
	R10NQ	70	1.5	46.6-47.3' - Fracture zone, horizontal, clay	× × × ×	46.6-47.3' - highly weathered	times to let the coring water
	5 ft 93%	70	10+	seams present (<0.04' thick)	Îx x	- 47.3-48.6' - fresh	clean out the bit
	0070] û Î	- 41.3-40.0 - IIESII	

2BB-76 Rev. 1



PROJECT NUMBER: BORING NUMBER: **BPA-11** 338884 SHEET 4 OF 9

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (687016.5 N, 2012396.5 E)

ELEVATION: 264.3 ft MSL (NGVD 29) DRILLING CONTRACTOR: D. Hedges, S&ME

CORING	CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical									
WATER	LEVELS: 4.	6 ft bo	gs	START : 6/5/06 14:1	5	END : 6/8/06 09:17	LOGGER : LH/MJ			
1	(%			DISCONTINUITIES	P00	LITHOLOGY	COMMENTS			
DEPTH AND ELEVATION BELOW SURFACE (#)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LC	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.			
50 214.3 	49.6 R11NQ 4.7 ft 100%	о ^ж	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		x > > x > > x > > x > > x > > x > x > x					
- - - -	R12NQ 5.2 ft 100%			- - - - -		53.8-59.4' - fresh 54.3-54.8' - becomes finer with depth 54.8-56.0' - dusky red, reddish gray, and white, banded, but no clear bedding 56.0-56.6' - pale red, dark greenish gray, and white, very soft to soft, very fine sand to coarse sand 56.6-57.6' - dark greenish gray and white, soft, fine sand to coarse sand,	SC-2 collected 56.7-57.7' -			
60	59.4		0	-	 	banded darker and lighter, becoming finer with depth 57.6-59.4' - pale red, dark greenish	R13: 15:32-15:38			
204.3			0	-		gray, and white, very soft to soft, trace fine to medium grained gravel, little clay and silt material in matrix, not very	At 60.3': R-Scale = R2 -			
-	R13NQ 5.2 ft		0			soft 59.4-66.1' - very dark gray, white and pink, very fine sand to coarse sand,	- -			
-	100%		0	-		angular to rounded, poorly sorted, little silt and clay, becomes coarser with depth	- -			
-			0			59.4-66.1' - slightly weathered to moderately weathered	-			
65_ 199.3	64.6		0	<u>-</u>		-	R14: 15:48-15:58 At 65.0': R-Scale = R3-R4			
-			3		: : : : : : × >	Siltstone	- -			
- - -	R14NQ 5 ft 100%	44*	4	66.1-66.5' - Fracture, horizontal, rough, undulating, clay seams alternate with siltstone 66.4' - Fracture, horizontal, smooth, undulating 66.8' - Fracture, horizontal, rough, planar	× > × > × > × >	At 66.1' - dark reddish brown, greenish gray mottling, very soft, laminated bedding 66.1-66.45' - clay seam, very soft	-			
						. , ,				



PROJECT NUMBER:

338884

BPA-11 SHEET 5 OF 9

ROCK CORE LOG

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687016.5 N, 2012396.5 E)

ELEVATION: 264.3 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER LEVELS : 4.6 ft bgs			IS	START : 6/5/06 14:15		END : 6/8/06 09:17 LOGGER : LH/MJ
	(9)			DISCONTINUITIES	g	υ LITHOLOGY COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	ROCK TYPE, COLOR, SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
-			10+	66.8' - Fracture, horizontal, rough, planar 67.4' - Fracture, horizontal, rough, planar 67.4' - Fracture, horizontal, rough, planar 67.6' - Fracture, horizontal, rough, undulating	X : X : X : X :	moderately weathered F1 67.4-68.3' - clay seam, very soft T1 T2 T3 T
70	69.6		0+	67.7-67.8' - Fracture, horizontal, rough, undulating 68.0' - Fracture, horizontal, rough, undulating 68.4-68.5' - Fracture, horizontal and 45 deg,	× : × : × : × :	 69.6-74.1' - very soft to soft 69.6-79.4' - fresh R15: 08:35-08:44 and 08:47-09:01 on 06/07/06
-	R15NQ		0	rough, undulating 68.6' - Fracture, horizontal, rough, undulating 69.1' - Fracture, horizontal, smooth, planar, greenish gray infilling (mottling in bedrock)	X X X X X X X X X X X X X X X X X X X	
-	4.5 ft 100%		0	69.2' - Fracture, horizontal, rough, undulating, greenish gray mottling in fracture 69.6-74.1' - Trace microfractures throughout greenish gray infilling tightly healed	× × × × ×	X motile, very soit X =
-	74.1		0	-	× : × : × : × :	 very soft 73.6-73.7' - 0.02' thick greenish gray mottle, very soft
75 189.3			0	- - -	× : × : × : × :	74.1-77.5' - 2 mottles per foot, <0.07' thick thick
-	R16NQ 5.3 ft		0	-	X X X X X X X X X X X X X X X X X X X	< X
- -	100%		0		× : × : × : × :	
-	79.4		0		×	< x- < x- < x- < x
80 <u> </u>			0			Sandstone 79.4-81.8' - dark reddish brown, trace greenish gray mottling, soft to hard, laminated to thin bedding, very fine
- -	R17NQ 5.1 ft		0		0	sand, fresh 79.6' - 0.05' thick greenish gray mottle 81.1' - trace < 0.02' thick white inclusions
_	100%		2	83.1' - Contact between siltstone and	0°.	Conglomerate 81.8-83.1' - dark reddish brown, white, and light reddish brown, soft to hard, thin bedding, fresh, trace greenish
- -	84.5		10+	sandstone, horizontal, rough, undulating, Contact between conglomerate and siltstone 83.7' - Fracture, horizontal, rough, undulating 84.1-84.5' - Fracture zone, horizontal, rough,	× : × : × : × : × :	\[\frac{1}{3} \]
85 <u> </u>			2	undulating, at clay seam (0.01' thick), very soft, alternating with siltstone 84.6' - Fracture, horizontal, smooth, undulating 84.6' - Fracture, horizontal, smooth, undulating	× : × : × : × :	 Raminated bedding 83.1-84.5' - moderately weathered 83.6-84.1' - <0.05' white clasts, 4-5 At 85.4': R-Scale = R3-R4
-	R18NQ 4.5 ft 100%	98	0		× : × : × : × :	84.1-84.5' - clay seams alternating with siltstone (0.02' thick or less) 84.5-94.2' - very soft to soft, fresh,
_					×	trace to some fine to medium grained sand



PROJECT NUMBER:

338884

BPA-11

SHEET 6 OF 9

ROCK CORE LOG

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687016.5 N, 2012396.5 E)

ELEVATION: 264.3 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	WATER LEVELS: 4.6 ft bgs START: 6/5/06						END: 6/8/06 09:17	LOGGER : LH/MJ
				DISCONTINUITIES			LITHOLOGY	COMMENTS
oz €	ZNY ONZ (%)		ES	DESCRIPTION	200		ROCK TYPE, COLOR,	CIZE AND DEDTH OF CACING
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG		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.
-			0		- × :	<u>*</u>		-
-	00.4		0		-X	*		-
-	89.1				- × :	X- 89	9.1-94.2' - grades to very fine to fine	R19: 10:25-10:35
90			0		- × :	∑ sa	andstone	1
174.3				_	$\begin{array}{c} \times \\ \times \end{array}$	*		At 90.1': R-Scale = R3-R4
1 -			0		$\begin{bmatrix} \times & \vdots \\ \times & \vdots \end{bmatrix}$	<u>*</u>]
	R19NQ	400	0		× :	1]
l -	5.2 ft 100%	100	U		_ × :	×.		
_			0		- × :	<u>*</u>		At 92.0': R-Scale = R3-R4
_					- × ;	3		-
-			0		- × ;	*		-
-	94.2				- × :	<u>*</u>		
95			0		-{∷::		andstone 4.2-97.5' - dark reddish brown, trace	R20: 10:40-10:48
169.3				_	†∷ ∶		reenish gray mottling, soft to hard, ick bedding, fine sand to medium	SC-3 collected —
-			0		† ∷∶	: sa	and, fresh, coarsens with depth,	95.6-96.6'
-	Doorlo				1:::		minated beds are siltstone and just the bottom of the unit	A+ 00 01: D 01 D0
	R20NQ 5.2 ft		0		 :::	:[~		At 96.3': R-Scale = R3 -
	100%]:::	:[]
			0		- ×		i ltstone t 97.5' - dark reddish brown,	
_					- × ;	× gr	reenish gray mottling, very soft to	_
_			1	98.6' - Fracture, horizontal, smooth, undulating, top of clay seam	- × :	×- w	oft, laminated to very thin bedding, ith sandstone lenses; black clasts	_
-	99.4			undulating, top or day seam	- × :	* th	roughout (0.02'), 40% sand 7.5-98.6' - fresh	R21: 10:55-11:05
100 <u> </u>			10+	99.9-100.8' - Fracture zone, horizontal and	X :	y <u> —</u> 97	7.5-99.4' - trace black clasts and	-
-				40-45 deg, rough, undulating, with clay seams, (0.02-0.2' thick)	×××××××××××××××××××××××××××××××××××××××		ack laminated beds 3.6-105.4' - slightly weathered	-
-			4	(0.02 0.2 41101()	- × :	*	,	1
-	R21NQ			101.5' - Fracture, horizontal, smooth, planar	- × :	*		At 101.2': R-Scale = R3-R4 _
-	5.1 ft 100%	83	0	•	- × :	*		1
-			0		× ;	*		1
			U		×	*		1
			0]×:	X		At 103.6': R-Scale = R3-R4
	104.5				× ;	1 L]
105			10+	104.5-105.4' - Fracture zone, smooth, planar, clay seams are <0.05' thick	_ × :	10	04.5-109.4' - no black clasts	R22: 11:13-11:25
159.3					_ × :	× 10	05.4-111.8' - fresh]
-			1	105.7' - Fracture, horizontal, smooth, undulating	- × :	λ L 10	05.5' - greenish gray laminated bed.	At 106.0': R-Scale = R3
-	R22NQ			anddaung	- × ;	* 0.	02' thick, not completely horizontal, onvoluted	AL 100.0 . N-30dle - N3
-	4.9 ft 100%		0		- × :	*		-
	100 %				- × :	}		-
								1

2BB-79 Rev. 1



PROJECT NUMBER:

338884

BPA-11

SHEET 7 OF 9

ROCK CORE LOG

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687016.5 N, 2012396.5 E)

ELEVATION: 264.3 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	LEVELS : 4.	6 ft bo	ıs	START : 6/5/06 14:	15	END : 6/8/06 09:17 LOGGER : LH/MJ
				DISCONTINUITIES	П	LITHOLOGY COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LO	ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS ROCK TYPE, COLOR, SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
-			0		× × × ×	× × gray mottle × × + - × × ×
110_	109.4		1		×××××××××××××××××××××××××××××××××××××××	 X X X X X X X X Y X X Y X X Y X X Y X X Y X X Y X X Y X X Y X X Y X X Y X X Y X X X X X X X X X X X X X X X X X X X X
154.3 - -			3	110.3' - Fracture, horizontal, rough, undulating 110.7' - Fracture, horizontal, rough, undulating 110.9' - Fracture, horizontal, rough, undulating	× × × ×	× × Clasts × × State SC-4 collected 110.9-111.8' SC-4 c
-	R23NQ 5.2 ft 100%		10+	110.9' - Fracture, horizontal, rough, undulating 111.8' - Fracture, horizontal, rough, undulating 111.9' - Fracture, horizontal, rough, undulating	× × · · ·	X X 111 4 111 5' glov soom 0 05' thick
-			3	112.4' - Fracture, horizontal, rough, planar 112.5' - Fracture, horizontal and vertical, rough, stepped 113.5' - Fracture, horizontal, rough, planar	-	 olive gray, very soft, laminated bedding, moderately weathered, alternating sandstone and siltstone
115_	114.6		7	113.6-114.6' - Fracture zone, rough, planar, with clay seams (<0.1' thick)	 	with clay seams (0.6-0.01' thick) 112.6-112.7' - clay seam, (0.05' thick) soft 112.9' - clay seam, (0.05' thick) soft R24: 11:50-12:13
149.3			10+	115.2-116.2' - Fracture zone, horizontal and vertical, rough, planar / undulating, clay seams (0.05' thick)	× × × ×	× X \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
-	R24NQ 5 ft 84%	62*	2	116.8' - Fracture, 30 deg, rough, undulating 117.4' - Fracture (2), horizontal, rough,	× × × × ×	X X Siltstone X Y 115.2-118.0' - olive gray, greenish X X gray, and white, soft, moderately X Weathered laminated beds
-			3	undulating, no stains 117.7' - Fracture, horizontal, tightly healed 118.0' - Fracture, horizontal, tightly healed 118.2' - Fracture, horizontal, rough, undulating	×	116.4' - clay seam, (0.01' thick) very soft 117.2-117.2' - clay seam, (0.05' thick) laminated beds, very soft
120 <u></u> 144.3	119.6		10+	119.6-120.0' - Fracture zone, horizontal, rough, undulating, clay seams (<0.02' thick)	× × × ×	× x 118.0-119.2' - dark reddish brown, × y
-	R25NQ		0	121.2' - Fracture, horizontal, smooth, undulating	×××××××××××××××××××××××××××××××××××××××	\hat{\chi} 118.0-118.2' - moderately weathered
-	4.7 ft 98%		0	121.3' - Fracture, horizontal, smooth, undulating		× x \ \ \contact \ \ \ \ \
-	124.3		10+	123.5' - Fracture, horizontal, rough, planar 123.9-124.3' - Fracture zone, horizontal,	× × × × ×	× xL \ 121.9-122.5' - gray and white, hard, × XL \ thin hedding, very fine sand to fine
125 139.3			0	rough, undulating, with clay seams	×××××	× > Siltstone x 122.5-127.7' - dark reddish brown, y greenish gray mottling, soft to hard, x draddisnal content
-	R26NQ		0		× × × × ×	× 122.5-124.3' - slightly weathered × 124.3-127.7' - fresh At 126.0': R-Scale = R3-R4
_	5.1 ft 100%		0		× × × ×	× } -

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PROJECT NUMBER:

338884

BORING NUMBER:

BPA-11 SHEET 8 OF 9

ROCK CORE LOG

ORIENTATION : Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687016.5 N, 2012396.5 E)

ELEVATION: 264.3 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD: CME-550, NQ Double Barrel

WATER	WATER LEVELS : 4.6 ft bgs		ıs	START : 6/5/06 14:15		END: 6/8/06 09:17	LOGGER : LH/MJ	
	(%)			DISCONTINUITIES	Ō	LITHOLOGY	COMMENTS	
gz €	ZAN QN OS)		ES	DESCRIPTION	5010	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.	
_			0		- : : :	Sandstone	_	
_					- ::::	At 127.7' - gray and white, hard to thin, medium bedding, very fine sand to	_	
-	100.4		0		- ∷::	fine sand, fresh	-	
-	129.4		$\overline{\sim}$	129.5-129.6' - Fracture zone, horizontal and	- ::::	129.4-133.0' - light gray and greenish	R27: 14:12-14:29	
130 <u> </u>			10+	vertical, smooth, undulating, and 45 deg	- :::	gray, soft to hard, laminated bedding	 At 130.0': R-Scale = R3-R4	
-					- ::::	<u>:</u> -	At 100.0 : 14-00ale - 110-114	
-			0		- :::	<u>:</u> -	-	
-	R27NQ				1:::	<u>:</u> -	-	
-	5.2 ft 99%	89	3		- :::	<u>:</u> -	-	
-	99%				∃ ∷:	<u>:</u> -	_	
-			3	132.8-133.0' - Fracture zone, horizontal and vertical, smooth, planar, clay seams (<0.01'	1:::	133.0-133.9' - reddish brown,	At 132.8-133.1': R-Scale = - R0-R1	
-				thick) laminated beds	 ∷∷	: - becomes coarser with depth	-	
-	10.1.0		0		†∷ ∶	133.9-136.1' - black and white, hard, very fine sand to coarse sand, angular	=	
135	134.6				† ∷∷	to subrounded, trace fine gravel	- R28: 14:34-14:44	
129.3			0	_	1:::	134.6-135.3' - becomes coarser with depth	 At 135.2': R-Scale = R3-R4	
-			_0_		 :::	135.3-136.1' - banded coarser and	711 100.2 . TO GOLIG THO THE _	
-			0	136.1-137.7' - Contacts with sandstone and	0,	finer areas, lighter and darker areas (not related); discolored reddish brown	_	
_	R28NQ			conglomerate and siltstone and conglomerate, sharp	00	Conglomerate		
	5.1 ft 100%	100	0		ره[136.1-137.7' - black, white, very dark grayish green, and light reddish		
_	100,0				×	brown, soft, medium bedding, fresh,	_	
_			0		×	note that black color seems to be associated with mottles or stains	_	
_					×	surrounding grains Siltstone	A	
-	139.7		0		 :::	: -\ 137.7-139.0' - dark reddish brown,	At 139.0': R-Scale = R3-R4 -	
140 <u></u> 124.3				139.7-144.7' - Microfractures throughout core,	. :::	mottled black, very soft to hard, fresh, trace to some medium sand, grades to	R29: 14:52-15:01	
124.5			0	tightly healed	- ∷::	sandstone	-	
-			2		∤ ∷∶	Sandstone At 139.0' - dark reddish brown, black,	-	
-					- ::::	greenish gray, and white, soft, fine	-	
-	R29NQ 5 ft	78*	2		- ∷∷	sand to coarse sand, angular to subrounded, poorly sorted	At 141.9': R-Scale = R3-R4	
-	100%	10	_	142.4' - Fracture, horizontal, smooth,	- ∷∶	- 139.0-144.0' - fresh	-	
-			0	undulating 142.6' - Fracture, horizontal, smooth,	-{∷::	141.3-144.7' - soft to hard, laminated to thin bedding, very fine sand to fine	-	
-				undulating	∃ ∷∶	: - sand, angular to subrounded, poorly : sorted to well sorted	-	
-			10+	142.7' - Fracture, horizontal, smooth, undulating	1:::	142.7-143.4' - coarser grained	-	
145	144.7			144.0-144.7' - Fracture zone, horizontal, rough, planar, clay seams (hard, <0.03' thick)	×	144.0-144.7' - moderately weathered	P20, 45,22, 45,44	
119.3			10+	144.7-145.4' - Fracture zone, horizontal,	×	X Siltstone X At 144.7' - dark reddish brown, mottled	R30: 15:32-15:44 At 144.7-145.4': R-Scale =	
-				rough, undulating, with clay seams, are 0.1' thick (3)	×	reddish black and greenish gray, very soft to soft, laminated to medium	R0-R1 -	
-			10+	145.8-146.6' - Fracture zone, horizontal and	×	bedding	_	
1 -	R30NQ			vertical, slickensided / rough, undulating	× ×		-	
1 -	5 ft	54*	0		××	bedding 144.7-147.2' - moderately weathered	1	
—	98%			<u> </u>	1×	x 144.7-147.2 - moderatery weathered	_	
					1			



PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-11	SHEET 9 OF 9

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687016.5 N, 2012396.5 E)

ELEVATION: 264.3 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

COMING	J LQUII MILI	II AN	DIVIL	IHOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS: 4.	6 ft bo	js –	START : 6/5/06 14:	15	END : 6/8/06 09:17	LOGGER : LH/MJ
	<u> </u>		, .	DISCONTINUITIES	Ö	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)		FRACTURES PER FOOT	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
ATA SA	J. H.	(%)	150 150 150	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	S	MINERALOGY, TEXTURE, WEATHERING, HARDNESS.	FLUID LOSS, CORING RATE AND
무건있는	N C C C C C C C C C C C C C C C C C C C	R Q D (%)	AAC ER F	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	¥₩	AND ROCK MASS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
	225	ď	##	I FICKINESS, SURFACE STAINING, AND TIGHTINESS		CHARACTERISTICS	,
-			0		- × :	146.6-147.2' - clayey material alternates with siltstone, laminated	At 148.0': R-Scale = R3-R4
-					- × :	→ bedding	-
-			40.		_ × :	147.2-149.7' - fresh	-
_	149.7		10+	149.1-149.7' - Fracture zone, 45 deg, rough, undulating	_ × :	_	_
150_	140.7		\sim	uridulating		Sandstone	R31: 08:28-08:41 on 6/8/06
114.3			0			149.7-151.5' - dark reddish brown,	
]:::	soft to hard, medium bedding, very fine sand to fine sand, subangular to	At 150.5': R-Scale = R3-R4
-	1		0			rounded, well sorted, fresh, trace	At 150.5': R-Scale = R3-R4 - SC-6 collected
_	R31NQ				×	medium grained	151.7-152.75'
-	4.7 ft	96	0		Tx i	Siltstone 151.5-159.2' - dark reddish brown,	-
-	97%				$- \hat{x} $	trace greenish gray mottling, very soft,	-
-			10+		$-\hat{\mathbf{x}}$	fresh 152.3-153.7' - white, <0.25' thick	-
-			10+	152 5 152 9' Eractura zona harizantal	- × ;	mottling - White, <0.25 thick	-
-	4544		0	153.5-153.8' - Fracture zone, horizontal, rough, undulating, no crumbling	_ × :	-	-
_	154.4		XXX	3, 1111	- × :	154.4-159.2' - 40% very fine sand	R32: 09:07-09:17
155			0	_	× :	× 104.4 100.2 4070 very line same	1.02. 00.07 00.17
109.3					T× :		At 155.3': R-Scale = R3-R4
			0		٦× :		7 TOOLS IN COOLS IN THE INT
-	Baaria				T× i		At 157.6': R-Scale = R3-R4
_	R32NQ 4.8 ft		_	4-0.0.	T× :		First water level = 4.6' bgs
-	101%		1	156.8' - Fracture, 45 deg, rough, undulating	- × ;	-	taken 6/8/06 at 10:18;
-					- × ;	-	second water level = 5.7' bgs taken 6/9/06 at 16:30
-			0		- × :	}	-
_					- × :	\ -	R-scale performed after
-	159.2		0		_ × :	_	drilling on stored samples
-			~~~			Bottom of Boring at 159.2 ft bgs on	-
160				_		6/8/06 09:17	
104.3							
					1		
-	1				1	Γ	_
-	1				1	<u> </u>	-
-					1	<u> </u>	-
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165_				_		L	
99.3							
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2BB-82 Rev. 1



PROJECT NUMBER:	BORING NUMBER:				
338884	BPA-12	SHEET	1	OF	5

SOIL BORING LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686970.3 N, 2012488.0 E)

ELEVATION: 263.9 ft MSL (NGVD 29) DRILLING CONTRACTOR: A. Martin, S&ME

DRILLING EQUIPMENT AND METHOD: BK-51, NW-1 Casing and AWJ Rods, Tricone Bit, 24 Split Spoon, 140 lb. Hammer and Cathead ORIENTATION: Vertical

WATER				,	START : 4/12/06 14:45 END : 4/14		
			RADE (ft)		SOIL DESCRIPTION	П	COMMENTS
	INTERV			STANDARD PENETRATION		8	222
	IIVI LIVV	RECOVI	ERV (in)	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,	101	DEPTH OF CASING, DRILLING RATE,
		KLCOVI	#TYPE	6"-6"-6" (N)	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
263.9 - - -	2.0	24.0	SS1SS		Lean Clay (CL) 0.0-2.0' - red, mottled gray and white, moist, hard, medium plasticity, slow dilatancy, some silt		- - -
_							_
- - -	2.5	11.0	SS2SS	12-24-38-36 (62)	Lean Clay (CL) 2.5-3.4' - red, mottled gray and white, moist, hard, medium plasticity, slow dilatancy, some silt		- - -
5	4.5				-	1	-
258.9 - -	5.0 6.5	19.0	SS3SS	5-8-14-19 (22)	Lean Clay (CL) 5.0-6.6' - red, mottled gray and white, moist, hard, medium plasticity, slow dilatancy, some silt, more moist than above, slickensides		PT-1 collected 5.0-7.0' -
- - -	7.5	8.0	SS4SS	36-50/2	Lean Clay (CL) 7.5-8.3' - red, mottled gray and white, moist, hard, low to medium plasticity, slow dilatancy, trace fine sands; wet zone @ 7' - approximately 0.5 inches thick		Offset: 5.5' N57W of BPA-12 Lab Results USCS: Sandy CL Driller Remark: Switched over to recirculation water after using ~750 gallons
10 253.9	9.5			(50/2")	Lean Clay (CL)		- - -
- -	12.0	19.0	SS5SS	15-32-28-50/3 (60)	10.0-11.6' - red, some mottling, moist, low to medium plasticity, slow dilatancy, trace fine sands		- - -
							Soil sampling completed at 17:00 on 4/12/06
- - 15 248.9 - -	12.5 \12.6 ∫	1.0	<u>(\$\$6\$\$</u> ,	50/1 (50/1")	Lean Clay (CL) 12.5-12.6' - red, moist to do that, low to medium plasticity, slow dilatancy, trace fine sands Begin Rock Coring at 12.7 ft bgs See the next sheet for the rock core log		- - - - - - -
20							- - -

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PROJECT NUMBER:	BORING NUMBER:					
338884	BPA-12	SHEET	2	OF	5	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686970.3 N, 2012488.0 E)

ELEVATION: 263.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

	LQOII WILL		D IVIL	THOD . BR-31, NQ Double Barrer			ORIENTATION : Vertical	
WATER	LEVELS:	-		START : 4/12/06 14	:45	END : 4/14/06 13:10	LOGGER : DT	
	. (%			DISCONTINUITIES	ق	LITHOLOGY	COMMENTS	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.	
_	12.7		0		×××	Siltstone At 12.7' - grayish red, some greenish	Rock coring began at 08:10 _ on 4/13/06	
_			0		× × ×	gray and light gray mottling more frequent in upper half foot,hard, fine grained	R1: 08:18-08:49	
15 <u> </u>				_	××××	- 12.7-15.8' - fresh	- -	
240.9			0	15.8-17.0' - Fracture zone, 20 deg, rough,	×	- 15.8-17.0' - moderately weathered	-	
-				10+	undulating	× ×	-	-
_	R1/R2N0 9.3 ft 89%			10+		×	× × 17.0-18.2' - fresh × ×	R2: 08:57-09:21
-			0		×	Sandstone 18.2-22.0' - grayish red, very fine sand	-	
-			0			to coarse sand, subrounded, poorly sorted, fresh, <50% silt, fining upward sequence	- -	
20 243.9			0	_		Sequence -	_	
-			1	21.0' - Fracture, 20 deg, undulating		-	-	
	22.0		0		:::		_	
-			0		0.00	Conglomerate 21.0-23.5' - grayish red, very fine sand to coarse gravel, subrounded, poorly	R3: 09:45-10:05 - -	
-			10+ 23.4-24.0' - Fracture zone, undulating	0,-	sorted, fresh, <50% silt Sandstone At 23.5' - grayish red, fine sand to	-		
25			0	_		medium sand, poorly sorted, fresh, <50% silt, some rounded grains, thin to medium bedding	_	
238.9			0			24.0-25.6' - lighter gray	-	
-	R3/R4N0		0		-	26.0-30.4' - becomes coarser with depth, conglomerate for about a half a foot, grades to fine grained silty	-	
-	10 ft 100%	92	0			sandstone 26.7-30.4' - up to 40% light gray infilling in matrix	R4: 10:10-10:33	
-			0		 :::	-	- -	
30			0			-		
233.9			10+	-	×	Siltstone	_	
-			0	30.5-31.0' - Fracture zone, 30 deg, rough, undulating	× × ×	At 30.4' - grayish red, light gray mottling, hard, medium bedding, fresh, coarsens with depth to 33.5'	- -	
	32.0		1		× × ×		R5: 10:52-11:32	
						ļ.		

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PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-12	SHEET 3 OF 5

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686970.3 N, 2012488.0 E)

ELEVATION: 263.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD: BK-51, NQ Double Barrel ORIENTATION: Vertical **WATER LEVELS:** START: 4/12/06 14:45 END: 4/14/06 13:10 LOGGER: DT DISCONTINUITIES LITHOLOGY COMMENTS 90 CORE RUN, LENGTH, AND RECOVERY (%) FRACTURES PER FOOT DESCRIPTION DEPTH AND ELEVATION BELOW SURFACE (ft) ROCK TYPE COLOR SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD <u>0</u> MINERALOGY, TEXTURE RQD(%) SYMBOL DEPTH, TYPE, ORIENTATION, ROUGHNESS, WEATHERING, HARDNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS AND ROCK MASS DROPS, TEST RESULTS, ETC. CHARACTERISTICS 32.5-33.0' - Fractures, 20 deg, rough, undulating 0 33.5' - sandstone lens, very fine to fine grained 0 35 228.9 0 1 Sandstone R5/R6NQ 36.5-37.0' - Fracture, 45 deg 36.5-36.7' - light gray, very thin 99 10 ft R6: 11:34-12:04 bedding, coarse sand, well sorted, 0 fresh Siltstone 36.7-37.7' - grayish red, light gray 0 mottling, hard, thin bedding, fresh Sandstone 37.7-37.8' - light gray, very thin bedding, coarse sand, well sorted, 0 40 fresh, grayish red siltstone clasts 223.9 caught up in sandstone filling 0 Siltstone 37.8-38.0' - grayish red, light gray mottling, hard, thin bedding, fresh 0 Sandstone 42.0 At 38.0' - light gray, thin to medium R7: 13:10-13:30 bedding, very fine sand to coarse 0 sand, well sorted, fresh, coarsening downward 39.0' - medium sand to coarse sand. 0 0.25 grayish red siltstone clasts 39.3' - becomes lighter with depth 39.7' - grades to finer grained grayish 0 red silty sandstone 45 42.0-45.0' - fine sand to medium sand, 218.9 45.1' - Contact between siltstone and subrounded, well sorted, few very thin 2 sandstone, sharp contact 45.2-45.7' - Fracture (2), 20 deg layers of grayish red siltstone, up to 1 thick, coarsens with depth Siltstone 0 R7/R8NQ 45.1-45.2' - grayish red, very thin 10 ft bedding, fresh, irregularly bedded R8: 13:33-14:10 99% Sandstone 0 45.2-47.0' - light gray, very thin to medium bedding, medium sand to 48.0-48.7' - Fractures, 15 deg, undulating, silt coarse gravel, subrounded to 1 infilling subangular, fresh, gravel is only 10% of volume 0 46.0' - grayish red, very thin bedding, irregularly bedded 50 46.5' - grayish red siltstone clasts in $213.\overline{9}$ sandstone 10+ 50.3-50.8' - Fracture zone, undulating, numerous joints/fractures Conglomerate 47.0-48.3' - light gray, medium sand to 3 coarse gravel 51.5-52.0' - Fractures, 15 deg, planar to 47.0-48.0' - fresh 52.0 undulating 48.0-48.3' - moderately weathered R9: 14:24-14:50 2



PROJECT NUMBER:

338884

BORING NUMBER:

BPA-12

SHEET 4 OF 5

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686970.3 N, 2012488.0 E)

ELEVATION: 263.9 ft MSL (NGVD 29) DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

			<u></u>	THOD . BK-31, NQ Double Ballel			ORIENTATION : Vertical					
WATER	LEVELS :			START : 4/12/06 14	:45	END: 4/14/06 13:10	LOGGER : DT					
	(%			DISCONTINUITIES	ŏ	LITHOLOGY	COMMENTS					
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.					
-			0	52.5-53.0' - Fractures, 10 deg, undulating	- × > - × > - × >	Siltstone At 48.3' - grayish red, greenish gray mottling, medium bedding, siltstone and claystone or mudstone	-					
55			0	_	- × > - × > - × >	conglomerate, looks like breccia, clasts are angular and sharp, broken, crumbly						
208.9			0		×	48.3-50.8' - moderately weathered 50.2-77.0' - darker grayish red filling of bioturbation tunnels 50.8-77.0' - fresh	-					
-	R9/R10N 10 ft	ე 92			0		- × > - × > - × >	52.0-54.2' - numerous greenish gray filling on fracture fragments 54.2' - uniform grayish red without	- R10: 14:53-15:35			
-	99%		0	58.2-58.7' - Fractures, 15 deg, undulating	- × × - × × - × ×	greenish gray fillings 54.5' - shiny glasslike surface on broken clast, not slickenside, more of	-					
-			2	56.2-56.7 - Fractures, 15 deg, undulating	 	a dense clast or pebble that broke 58.4' - laminated bedding preserved, some light gray laminae mixed with	Driller Remark: Decrease in					
60_ 203.9			0	-	- ×	grayish red silfstone layers 59.0' - disturbed laminae 59.3' - coarser, approaches very fine grained silty sandstone	coring rate from 59.0' to - 62.0'					
_			0		×	granica sity sanastorie	-					
_	62.0		~~~			-						
-			2	62.5' - Fracture, 10 deg, planar	- × × - × × - × ×	C2 Ol managish avan madding	R11: 07:55-08:38 on 4/14/06 -					
-			10+	63.4-63.8' - Fracture zone, 15 deg, undulating, numerous broken fragments	- ×	63.0' - greenish gray mottling - -	-					
65_ 198.9			0	-	- × > × > - × >	_	-					
-								0		- × > × > - × > × >	65.9-67.0' - some greenish gray mottling, hard, gravel sized light gray	-
_	R11/R12N 10 ft 100%	IQ 99	0		\times \hat{\times \hat	clasts	R12: 08:41-09:30					
_			0		× > × > × >	-	-					
-			0		×	-	-					
70 <u> </u>	-		2	– 70.4-70.8' - Fractures, 20 deg, undulating	- 	_						
-			0		- × > × > × >	<u>-</u> -	-					
_	72.0		0		- × × - × × - × ×	-	R13: 10:38-11:10					



PROJECT NUMBER:	BORING NUMBER:		
338884	BPA-12	SHEET	5 OF 5

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686970.3 N, 2012488.0 E)

ELEVATION: 263.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS :			START : 4/12/06 14:	45	END: 4/14/06 13:10	LOGGER : DT		
	(%)			DISCONTINUITIES	90	LITHOLOGY	COMMENTS		
ND ND	AND (%)	(ZES IT	DESCRIPTION	O LO	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,		
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.		
-			0	-	× × × × × × × ×	73.0-74.0' - larger mottling zones 73.5-73.8' - light gray clasts	-		
- 75			0	_	× × × × × ×	-	_		
188.9			0	-	× × × × × ×	-	-		
_	R13/R14N - 10 ft 97%	IQ 96	0	-	× × × × × ×		-		
_		50	2	77.2-78.1' - Fractures, 70 deg, undulating		Sandstone 77.0-78.7' - reddish brown, light gray, occasional grayish red clasts or	R14: 11:13-11:42 - -		
-					0	-	× × × ×	greenish gray mottling, medium bedding, fine sand to medium sand, fresh, gradational contact with	-
80_			0	_	× × × × × ×	\underlying siltstone Siltstone At 78.7' - grayish red, fresh, sandstone	_		
183.9			0	-	× × × × × ×	stringers every foot or so, with coarsening with depth, bottom coarse grained sand is 50% volume of rock	-		
_	82.0		2 ※※	81.2-81.3' - Fractures, 20 deg, undulating	× × × × × ×	81.6-82.0' - dark greenish gray mottling, light gray clasts to 1/2	-		
-			2	82.4-83.0' - Fractures, 15 deg and 30 deg, undulating	× × × × × ×	- Houning, light gray clasts to 1/2	R15: 11:55-13:10 - -		
-	DATA		2		- ×	83.5-85.3' - mottled greenish gray, occasional light gray clasts, some	-		
85	R15NQ 5 ft 100%	92	0	84.3-84.7' - Fractures, 20 deg, undulating	× × × × × ×	mottling is almost purplish, in lower half foot	-		
178.9 - -			0	-	× × × × × ×	85.5-87.0' - fewer and smaller clasts/mottles	Drillers Remark: Recirculation mud was thick		
-	87.0		0		× × × × × ×	-	R-Scale not performed on rock core samples –		
-						Bottom of Boring at 87.0 ft bgs on - 4/14/06 13:10	-		
-						- -	_		
90_ 173.9				_ 		_			
-						-	-		
-						-	-		
_						-	_		

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PROJECT NUMBER:

338884

BPA-13

SHEET 1 OF 9

SOIL BORING LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686879.4 N, 2012520.3 E)

ELEVATION: 263.7 ft MSL (NGVD 29) DRILLING CONTRACTOR: D. Hedges, S&ME

DRILLING EQUIPMENT AND METHOD: CME-550, 3-5/8 Tricone Bit, 24 Split Spoon and 140 lb. Automatic Hammer ORIENTATION: Vertical

				THOD : CIVIL-330	3-5/8 Fricone Bit, 24 Split Spoon and 140 lb. Automa			ORIENTATION: Vertical
				l	START : 6/8/06 15:17 SOIL DESCRIPTION	END : 6/15		09:50 LOGGER : LH COMMENTS
DEPIRE			SIVADE (II)	STANDARD PENETRATION	GOIL DEGOME HON		90	OGIVIIVILIAIO
	INTERV			TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLO	OR,	SYMBOLIC LOG	DEPTH OF CASING, DRILLING RATE,
		RECOV			MOISTURE CONTENT, RELATIVE DENSITY	OR	BOL	DRILLING FLUID LOSS, TESTS, AND
			#TYPE	6"-6"-6" (N)	CONSISTENCY, SOIL STRUCTURE, MINERAL	LUGY	SYN	INSTRUMENTATION
263.7	0.0			(-)	∖ Topsoil		777	
WATER LEVELS : 10.0 DEPTH BELOW EXISTING INTERVAL (ft) RECO 263.7 0.0 16.8 2.0					\0.0-0.1'	/ -		-
-		16.8	SS1SS		Clay (CL) 0.1-1.4' - yellowish red, mottled light greenish gra	av drv		-
-				(13)	stiff, stratified, trace organics and roots		1///	-
-	2.0					-	ł	-
-	2.5				Clay (CL)		///	-
-					2.5-3.7' - yellowish red, mottled very dark gray, m	noist, -		-
-		20.4	SS2SS		hard, trace fine to coarse sand, trace roots	-		-
-				(40)	Clay (CL) ─ 3.7-4.2' - very dark gray, moist, hard	_		-
	4.5				3.7-4.2 - Very dark gray, moist, nard		ł	-
	5.0				Clay (CL)		///	_
- 200.1	0.0				5.0-5.4' - yellowish red and very dark gray, mottle	ed light /-	f ///	-
-		4.0	SS3SS		greenish gray, dry to moist, hard, laminated		ł	-
_				(50/4")		_	l	-
-	7.0					-	Į.	-
_	7.5				01 (01)		////	-
_	7.5				Clay (CL) 7.5-7.7' - yellowish red, mottled light greenish gra	av.	Γ	-
_		4.0	SS4SS	50/4	moist to co, hard, laminated			_
_				(50/4")		_		
_	9.5					_		Soils are friable throughout
							,,,,	
253.7		3.0	SS5SS	50/3	Clay (CL) 10.0-10.3' - yellowish red, mottled light greenish	gray /-		Soil sampling completed at 16:22 on 6/8/06
	10.8			(50/3")	moist, hard, laminated	gray,	1	
					Begin Rock Coring at 10.8 ft bgs See the next sheet for the rock core log			_
_					See the flext sheet for the rock core log	_		_
						_		
						_		
						_	1	_
_						_	1	_
15						_		_
							1	_
_						-	1	-
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PROJECT NUMBER: BORING NUMBER: **BPA-13** 338884 SHEET 2 OF 9

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (686879.4 N, 2012520.3 E)

ELEVATION: 263.7 ft MSL (NGVD 29) DRILLING CONTRACTOR: D. Hedges, S&ME

CORING	G EQUIPMEN	IT AN	D MET	THOD : CME-550, NQ Double Barrel		"	ORIENTATION : Vertical
WATER	LEVELS : 10).0 ft l	ogs	START : 6/8/06 15:	17	END : 6/15/06 09:50	LOGGER : LH
	(%			DISCONTINUITIES	၂ ဗွ	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
-	10.8				1	- No Recovery 10.8-14.1'	Rock coring began at 08:00 - on 6/9/06
-	R1NQ 3.3 ft 0%	0				-	R1: 08:00-08:08 on 06/09/06 -
15 248.7 - -			10+	14.2-14.3' - Clay seam, horizontal and vertical, rough, undulating, 0.01' thick, alternating with	× × × × × ×	Siltstone At 14.1' - dark reddish brown, mottled	R2: 08:54-09:04 At 14.1-19.1': R-scale = R0
			10+	siltstone 14.70' - Fracture, horizontal, rough, planar 15.0' - Fracture, horizontal, rough, planar	× × × × × ×	black and greenish gray, very soft, laminated bedding, many clay seams ranging from 0.01' to 0.1' thick 14.1-19.1' - highly weathered	(with some R1 and R2) —— At 15.6-16.0': R-scale = R2
	R2NQ 5 ft	0	10+	15.1' - Fracture, horizontal, rough, planar 15.6-16.1' - Fracture zone, horizontal and 45 deg, rough, undulating	× × × × × ×	15.3-15.4' - clay seam, very soft, friable material	-
-	100%		10+	16.3' - Fracture, horizontal, rough, undulating 16.7' - Fracture, horizontal, rough, undulating 17.5-17.9' - Fracture zone, horizontal, rough,	× × × × × ×	17.1-17.2' - clay seam, very soft, friable material	-
-	19.1		10+	undulating 18.2' - Fracture, horizontal, rough, undulating 18.7-18.9' - Fracture zone, horizontal, rough,	× × × × × ×	- _ 18.25-19.1' - <0.05' thick white clasts	At 18.4-18.8': R-scale = R1
	19.1		3	undulating 19.2' - Fracture, horizontal, rough, undulating	× × × × × ×	19.1-23.3' - fresh - 19.1-23.3' - very soft to soft	R3: 09:18-09:30
20 243.7				19.5' - Fracture, horizontal, rough, undulating 19.9' - Fracture, horizontal, rough, undulating 20.0' - Fracture, horizontal, rough, undulating	1× ×	19.1-20.3' - white clasts -	At 19.8': R-Scale = R3-R4 —
-	R3NQ	72	4	20.3' - Fracture, horizontal, rough, undulating 20.4' - Fracture, horizontal, rough, undulating	× × × × × ×	_	- At 21.1': R-Scale = R3-R4
-	5 ft 100%		3	20.5' - Fracture, horizontal, rough, undulating 20.6' - Fracture, horizontal, rough, undulating 21.5-21.8' - Fracture zone, horizontal and	× × × × × ×	-	-
-			3	vertical, rough, undulating 22.1-22.2' - Fracture zone, rough, undulating, clay seams (0.05' thick)	- × × - × × - × ×	-	-
-	24.1		10+	22.6' - Fracture, horizontal, rough, undulating 23.6' - Contact between siltstone and	<u>**</u> :	- Sandstone 23.3-26.5' - weak red, soft to hard, thin	At 23.0': R-Scale = R3 At 23.3-23.5': R-Scale = R0 -
- 25			0	sandstone, horizontal, rough, undulating	- - - -	to medium bedding, very fine sand to fine sand, subangular to rounded, well sorted, fresh	R4: 09:38-09:47
238.7			0]:::	23.3-23.5' - clay seam, very soft, friable 24.1-26.5' - white, reddish gray,	At 25.3': R-Scale = R3-R4 -
-	R4NQ 5 ft	98	0		1	greenish gray, and dark gray, greenish gray mottling Conglomerate	-
-	98%		0		 	26.5-26.6' - soft to hard, fresh Sandstone	
-			0	28.0' - Contact between siltstone and sandstone, horizontal, tightly healed, very	× × × ×	26.6-28.0' - white, reddish gray, greenish gray, and dark gray, greenish gray mottling, thin to bedding,	- At 28.5': R-Scale = R3
-	29.1		~~~	evident	× × × × × ×	subangular to subrounded, fresh 27.1' - becomes coarser with depth	R5: 09:53-10:07
30_ 233.7			0	<u>-</u>	× × × × × ×	27.7-28.0' - dark reddish brown siltstone clasts	_
_			0		× ×	-	At 30.5': R-Scale = R3-R4



PROJECT NUMBER: BORING NUMBER: **BPA-13** 338884 SHEET 3 OF 9

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (686879.4 N, 2012520.3 E)

ELEVATION: 263.7 ft MSL (NGVD 29) DRILLING CONTRACTOR: D. Hedges, S&ME

CORING	EQUIPMEN	NT AN	D MET	THOD : CME-550, NQ Double Barrel				ORIENTATION : Vertical
WATER	LEVELS : 1	0.0 ft b	gs	START : 6/8/06 15:	17		END: 6/15/06 09:50	LOGGER : LH
	<u>(%</u>			DISCONTINUITIES	ő	L	LITHOLOGY	COMMENTS
H AND ATION W ACE (#)	NAN PAND		ZES T	DESCRIPTION] 3		ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG		MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
-	R5NQ				-× ×	X-	Siltstone At 28.0' - dark reddish brown, mottled	-
-	5 ft	100	0		- ×	<u>X</u>	greenish gray and reddish black,	-
-	103%				- × ×	<u>}</u>	fresh, very soft 29.1-39.1' - white mottling	-
-			0		- ×	}	23.1-33.1 - White motining	-
-					×	×-		At 32.9': R-Scale = R4
-			0		××	×-		
-	34.1		$\times\!\!\times\!\!\times$		×	X-		R6: 10:10-10:21
35			0		- × ×	<u>}</u>		-
228.7				-	√× ×	}	-	SC-1 collected — 34.8-35.9'
-			0		−Î× ×	*		-
-	R6NQ				××	×		1
-	5 ft	100	0		××	X-		-
-	103%				⊢× ×	<u>X</u>		-
-			0		- × ×	<u>}</u>		At 37.4': R-Scale = R3-R4
-					₹ ×	*		-
-			0		×	×		1
-	39.1		XXX		××	×-	39.1-43.5' - very soft to soft, trace fine	R7: 10:25-10:41
40			2		- ×	X-	sand	-
223.7				39.8' - Fracture, horizontal, rough, planar – 40.1' - Fracture, horizontal, rough, planar	×××	<u>}</u>	-	-
-			0	40.1 - Fracture, Horizontal, Tough, planal	- × ×	}		-
-	R7NQ				√x ×	*		-
-	5 ft	92	0		×	×		-
-	98%				××	X-		-
-			0		××	<u>X</u>		At 42.3': R-Scale = R3-R4 -
-					- × ×	<u>}</u>		-
_			0		 	1	Sandstone	=
-	44.1		$\sim\sim$			╬╢	43.5-44.1' - pale red and reddish brown, soft to hard, very fine sand to	R8: 13:28-13:32
45			0		⊢× ×	<u>*</u>	medium sand, subangular, poorly	-
218.7				-	×××	<u>}</u>	sorted, fresh, coarsest in middle, finest on top and bottom of length	_
_			0		− × ×	X	Siltstone	1
-	R8NQ				×	× ×	At 44.1' - dark reddish brown, mottled greenish gray and reddish black, very	=
_	5 ft	100	0		××	×	soft to soft, laminated to thin bedding,	
_	100%				×	X-	fresh 44.5-45.7' - 30-40% very fine sand	-
-			0	47.7' - Contact between siltstone and	- × -	秥	with traces of medium and coarse	1
-				sandstone, sharp	1::	:[sand in sandy lenses 45.3-46.1' - 30-40% very fine sand	
-	40.4		0		1::	: -	with traces of medium and coarse	- At 48.6': R-Scale = R3
-	49.1			49.2' - Fracture, horizontal, rough, undulating	1∷	1	sand in sandy lenses 46.4' - 30-40% very fine sand with	R9: 13:46-13:55
50			1	+o.z - Fracture, nonzontal, rough, undulating	1::	1	traces of medium and coarse sand in	<u>-</u>
213.7			-	-	1::	1	sandy lenses	-
			0		1::	#		

2BB-90 Rev. 1



PROJECT NUMBER:

338884

BPA-13

SHEET 4 OF 9

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686879.4 N, 2012520.3 E)

ELEVATION: 263.7 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				THOD : CME-550, NQ Double Barrel	_			ORIENTATION : Vertical
WATER	LEVELS : 10).0 ft b	gs	START : 6/8/06 15:1 DISCONTINUITIES	7	END : 6/15/06 09:50 LITHOLOGY	_	LOGGER : LH COMMENTS
					90	LITHOLOGY	_	COIVIIVIEN 19
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
-	R9NQ 5 ft 98%	88	10+	51.8-51.9' - Fractures (2), horizontal, rough, undulating, contact between siltstone and sandstone	× × × × × × × × ×	47.2-47.6' - 30-40% very fine sand with traces of medium and coarse sand in sandy lenses Sandstone At 47.7' - white, light reddish brown, greenish gray and dark gray, very soft to soft, medium bedding, medium sand to coarse sand, angular to		At 51.4': R-Scale = R3-R4
- 55	54.1		1 ~~~ 0	53.8' - Fracture, horizontal and 45 deg, slickensided, undulating 54.1-59.1' - Microfractures throughout core sample, greenish gray infilling —	× × × × × × × ×	rounded, poorly sorted, fresh 49.1-51.8' - light reddish brown, white, very dark grayish brown, greenish gray, light and dark reddish brown, thin bedding, silty bands to 50.9'		At 53.5': R-Scale = R3-R4 R10: 14:00-14:16
208. 7 - - -	R10NQ 5 ft 1 98%	98	0		× × × × × × × × × × × × × × ×	Siltstone 51.8-53.2' - dark reddish brown, mottled greenish gray, very soft, thin bedding, fresh, white clasts (<0.05' thick) throughout 51.8-52.8' - mottled olive 51.9-52.0' - clay seam, stiff, friable		
-	59.1		0	-	× × × × × × × × × ×	material Sandstone 53.2-53.4' - greenish gray and white, soft, very thin to thin bedding, fine sand to medium sand, fresh Siltstone		R11: 08:22-08:36 on
60 203.7 - - - -	R11NQ 5 ft 100%	100	0 0 0		× × × × × × × × × × × × × × × × × × ×	At 53.4' - dark reddish brown, mottled greenish gray, very soft, thin to medium bedding, fresh 54.1-59.1' - mottled greenish gray, black, and reddish black, very soft to soft 61.5' - 0.02' thick, 0.07' long greenish gray mottle with a vug in the middle, 0.001' thick, 0.02' long		06/13/06
- -	64.1		1	63.3-63.6' - Fracture, vertical and 60 deg, tightly healed	× × × × × × × × × ×	- - 63.9-61.5' - greenish gray mottle, very		R12: 09:12-09:26
65 198.7 - - - -	R12NQ 5 ft 98%	98	0 1 0		× × × × × × × × × × × × × × × × × × ×	soft, 0.1' thick, small pin point vugs in the middle 64.6-65.0' - grades to 40% very fine sand 66.5-68.6' - grades to 40% very fine sand		
- - - - 70	69.1		0 0 10+	69.1-69.7' - Fracture zone, horizontal, rough, undulating 69.2-74.1' - Trace microfractures with greenish —	× × × × × × × × × × × × × × × × × × ×	67.7-69.1' - trace 0.02' thick white inclusions 69.1-71.7' - <0.03' thick white inclusions		At 67.6': R-Scale = R3-R4 R13: 09:29-09:47
193.7			0	gray infilling throughout core	× × × × × ×	70.0-75.6' - mottled reddish black		-

2BB-91 Rev. 1



PROJECT NUMBER:

338884

BPA-13 SHEET 5 OF 9

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686879.4 N, 2012520.3 E)

ELEVATION: 263.7 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				HOD : CME-550, NQ Double Barrel	_		ORIENTATION : Vertical
WATER	LEVELS : 10).0 ft b	ogs	START : 6/8/06 15:1 DISCONTINUITIES		END : 6/15/06 09:50 LITHOLOGY	LOGGER : LH COMMENTS
	Ģ %		(n	DESCRIPTION	-0G		CONNIVILIATO
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
- - -	R13NQ 5 ft 98%	86	0	- - -	× ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;	x- x- x- x- x- x-	At 72.3': R-Scale = R3-R4
- - 75_ 188.7	74.1		0	- - -	× ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;	- - - - -	R14: 09:51-10:13
- - - -	R14NQ 5 ft 102%	100	0 0	- - - -	×××	Sandstone At 75.6' - dark reddish brown, mottled trace greenish gray, soft to hard, very fine sand to fine sand, subangular to rounded, well sorted, fresh, contacts are gradational 76.6-77.9' - 40-50% silt	At 77.0': R-Scale = R3
- - 80	79.1		0	- - -		77.9-78.7' - 40-50% silt - 79.1-83.1' - coarser and finer bands	R15: 10:18-10:28
183.7	R15NQ 5 ft 99%	99	0 0	- - - -		80.6' - 0.03' thick, 0.08' long greenish gray mottle and <0.02' thick, 0.07' long white clasts	At 81.65': R-Scale = R3-R4
-	84.1		0	- - -	× × × × × × × × × × × × × × × × × × ×	Siltstone At 83.1' - dark reddish brown, mottled greenish gray, very soft, trace white clasts 83.1-85.7' - fresh	SC-2 collected 83.1-84.1'
85_ 178.7 - -	R16NQ 5 ft 92%	22	0 !0+ 10+	85.3' - Fracture, horizontal, rough, undulating - 85.4' - Fracture, horizontal, rough, undulating 85.7-88.8' - Fracture zone, horizontal and vertical, rough, undulating -	× ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;	85.7-89.5' - highly weathered	Driller's Remark: Start losing water about 20 gallons a run At 85.1-89.1': R-Scale = R0-R1
- - - - - 90	89.1		10+ 10+ XX 10+	88.8-89.1' - Fracture zone, horizontal and vertical, rough, undulating, some greenish gray mottles in clay	× ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;	89.1-99.1' - very soft to soft 89.1-89.5' - trace white clasts 89.5-101.2' - fresh	R17: 11:00-11:19
173.7			10+		× ; × ; × ;	X- 05.0-101.2 - 116511	-

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PROJECT NUMBER:

338884

BPA-13

SHEET 6 OF 9

ROCK CORE LOG

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686879.4 N, 2012520.3 E)

ELEVATION: 263.7 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

				THOD : CIVIE-330, NQ Double Barrel				ORIENTATION . Vertical	
WATER	LEVELS : 10).0 ft b	ogs	START : 6/8/06 15:1	7	_	END : 6/15/06 09:50	LOGGER : LH	_
	(%			DISCONTINUITIES	စ္က	١L	LITHOLOGY	COMMENTS	
Qz €	2 N Y Y		ES	DESCRIPTION	13		ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	(%) Q	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	SYMBOLIC LOG		MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AN	ID
FYOF	NG- CO	Oρ	AC_ R F	PLANARITY, INFILLING MATERIAL AND	MB	2	AND ROCK MASS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC	
뮤크뮈S	응필문	R O	[문문	THICKNESS, SURFACE STAINING, AND TIGHTNESS	S	5	CHARACTERISTICS	DROPS, TEST RESULTS, ETC	•
<u> </u>				89.4-89.5' - Fracture zone, rough, undulating,	×	<u>X</u> -	90.6-90.7' - clay seam, 0.04' thick	At 90.6-90.65': R-Scale =	_
l -	R17NQ 5 ft	84	0	<0.01' thick clay infilling, clay between laminated siltstone beds, greenish gray	×	3		R0	_
l _	98%	04	0	mottling	×	3		At 90.9': R-Scale = R3	
l _				· ·	×	1		At 92.1': R-Scale = R3-R4	
I -			1	92.4-92.8' - Fracture, horizontal and 45 deg, rough, slickensided/undulating, 45 deg fracture	×	X			
-				with horizontal fractures through it	×	X			
-			0		×	X-			-
-	94.1		\sim		×	X-		D40 44 05 44 07	-
-			1	-	××	X-		R18: 11:25-11:37	_
95			' '	94.7' - Fracture, horizontal, rough, undulating	×	X_	_		
168.7					×	1		At 95.3': R-Scale = R3-R4	
			0		×	3	05 0 00 51 00 400/	7.1. 50.0 . TO Godie – TO-114	
-	R18NQ				×	X	95.9-96.5' - 30-40% very fine sand		_
-	5 ft	99	0		×	X			-
-	103%			-	×	X-			-
-			0		×	X-			-
l -					×	<u>x</u>			_
l _				_	×	X_	98.3-101.2' - 30-40% very fine sand		_
	99.1		0		×	8	30.0 101.2 00 4070 very line 3drid		
_	33.1		XXX		×	3		R19: 11:44-11:56	_
100			0		×	3		At 00 7h D Coole value D4	_
163.7				-	×	X	-	At 99.7': R-Scale value: R4	_
-			0		×	X-			-
-					×	X			_
_	R19NQ 5 ft	98	4	101.1' - Fracture, horizontal, rough, undulating 101.2' - Fracture, horizontal, rough, undulating,		7	Sandstone	1	_
l _	103%	90	4	tightly healed]::	:[101.2-103.2' - dark reddish brown,		_
				101.4-101.8' - Fracture, 45 deg, rough,			white, reddish black and greenish gray, soft to hard, medium bedding,	At 102 25 D Cools - D4	
-			0	undulating	1::	T	fine sand to medium sand, subangular	At 102.3': R-Scale = R4	_
-				102.0' - Fracture, horizontal, rough, undulating	<u> ; ; </u>	上	to rounded, poorly sorted, fresh	SC-3 collected	-
1 -			0	-	 î:	: -\	Siltstone 103.2-103.4' - fresh	103.1-104.1'	-
-	104.1				ę.		Sandstone	1	-
-			1		×	<u></u>	103.4-103.8' - dark reddish brown,	R20: 13:08-13:19	_
105				<u> </u>	×		white, reddish black and greenish		_
158.7				105.0' - Fracture, horizontal, rough, undulating	×	3	gray, soft to hard, very fine sand to fine sand, subangular to rounded, poorly		
			4	105.3' - Fracture, horizontal, rough, undulating 105.4' - Fracture, horizontal, rough, undulating	×	×	sorted, fresh		_
_	R20NQ		\vdash	105.6' - Fracture, horizontal, rough, undulating	× × ×	X-	Conglomerate	Driller's Remark: Still losing	-
-	5 ft	84	0	105.8' - Fracture, horizontal, rough, undulating	××	X-	103.8-104.0' - dark reddish brown, white, greenish gray, and light	~20 gallons a run	-
-	98%			-	××	X-	reddish brown, soft to hard, very thin	At 106.2': R-Scale = R3-R4	-
-			0		×	*	bedding, very fine sand to medium		-
_					×	X	gravel, fresh, <0.05' thick white clasts		_
			_		××	X	Siltstone	At 108.1': R-Scale = R3-R4	
	100 1		0]×̂	3	104.0-113.7' - dark reddish brown, white, reddish black and greenish		
1 -	109.1		\sim	100.2' Fracture harizantal rough undulating	×	3	gray, very soft to soft, fresh	R21: 13:26-13:38	-
110			3	109.2' - Fracture, horizontal, rough, undulating 109.3' - Fracture, horizontal, rough, undulating	×	X	107.2-107.7' - 0.05' thick white clasts		-
110 153.7				109.4' - Fracture, horizontal, rough, undulating	×	X-	-		
-			0		×	X -			_
			Ť		†×	1			
					1				
					_			ļ.	

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PROJECT NUMBER:

338884

BPA-13 SHEET 7 OF 9

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686879.4 N, 2012520.3 E)

ELEVATION: 263.7 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				HOD : CME-550, NQ Double Barrel		END 0/45/00 00 50	ORIENTATION : Vertical
WATER	LEVELS : 10).0 ft t	gs	START : 6/8/06 15:	7	END : 6/15/06 09:50 LITHOLOGY	LOGGER : LH COMMENTS
	ے (%)				90	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)		FRACTURES PER FOOT	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING,
VATI VATI	E R GTH OVE	%) ₀	CTU	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	BOL	WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
DEP ELE BEL SUR	COR	R Q D (%)	FRA	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYM	AND ROCK MASS CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
					× >	<u> </u>	At 110.7': R-Scale = R3-R4 -
_	R21NQ		40.	111.2' - Fracture, horizontal, smooth,	\times >	111.3' - clay seam, very soft, 0.03'	At 111.3': R-Scale = R0
_	5 ft 101%	90	10+	undulating	× > × > × >	thick	_
l _					x x		Driller's Remark: Lost 23 gallons of water during core -
			0		x >		run
					× ×		At 112.9': R-Scale = R3-R4
	114.1		0		$\stackrel{\times}{\cdots}$	Sandstone	1 _
]:::	113.7-117.9' - dark reddish brown,	R22: 13:47-13:58
115			0		1:::	 mottled greenish gray, soft to hard, fine sand to medium sand, subangular 	
148.7				_	1:::	to rounded, poorly sorted, fresh, trace	At 115.0': R-Scale = R3
_			0		 :::	 medium grained sand 	_
-	R22NQ				1:::	Ī	_
_	5 ft 100%	100	0		1:::	f	-
_	100 %				1:::	- 116.8-117.2' - coarse grained layer	At 116.9': R-Scale = R3-R4
_			0		:::	117.6-117.9' - coarse grained layer	_
_				-	× >	Siltstone	-
_			1	118.3' - Fracture, horizontal, rough, planar	× >	At 117.9' - dark reddish brown, mottled greenish gray and reddish black, soft,	-
-	119.1				× >	fresh	R23: 14:04-14:18
100			1	119.5' - Fracture, 45 deg, smooth, undulating	× > × > × >	– 119.1-129.1' - very soft to soft 119.5-124.1' - laminated beds on	14.04-14.10
120 <u> </u>				120.1-120.5' - Fracture zone, horizontal,	x	10-40 degree angles	At 119.9': R-Scale = R3-R4 —
-			10+	rough, planar	× >	– 119.9-120.1' - very fine sand layers, laminated, lighter	-
-	R23NQ			121.1-121.5' - Fracture zone, horizontal,	× >	iaminateu, iigntei	-
_	5 ft	82	10+	rough, undulating, greenish gray stains	× >	-	-
-	98%				× >	+	At 122.0': R-Scale = R3-R4
-			0		× >	}	-
_					× >	1	-
_			0		× >	1	-
_	124.1		~~~		× > × > × >	-	
_			1	104 El. Fractivo harizantal arreath	x	_	R24: 14:23-14:36
125 <u> </u>			·	124.5' - Fracture, horizontal, smooth, undulating —	× ;	_	Drillor's Remark: Water
130.7			1		× >	-	Driller's Remark: Water loss now becomes 10
_			'	125.6' - Fracture, horizontal, rough, undulating	\times >	1	gallons a core run
-	R24NQ 5 ft	96	1	126.0-126.4' - Fracture, 45 deg, rough, stepped	× > × > × >	1	SC-4 collected 126.4-127.4'
	99%	30	_ '		× >	1	_
			0		× >	}_	_
			U		× > × > × >]_	_
			_		× >	1	At 128.4': R-Scale = R3-R4
	129.1		0		× >	1	AL 120.4. N-30018 - N3-N4
					× >	1	R25: 14:44-14:57
130_			0	_	××	100.0.120.11. 1	
133.7					× > × > × >	129.9-130.1' - trace coarse grained sand	
			0		<u>×</u>	1	
						<u> </u>	

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PROJECT NUMBER:

338884

BPA-13

SHEET 8 OF 9

ROCK CORE LOG

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686879.4 N, 2012520.3 E)

ELEVATION: 263.7 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	LEVELS : 10	0.0 ft b	ogs	START : 6/8/06 15:	17	END: 6/15/06 09:50	LOGGER : LH
	(%			DISCONTINUITIES	LOG	LITHOLOGY	COMMENTS
ON (#)	AND SD SD		ZES T	DESCRIPTION	CLC	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
-	R25NQ				× ×	- 130.3-130.4' - 30-40% very fine to fine	-
-	5 ft 104%	99	0		× × × × × ×	sand 131.0-131.2' - 0.05' thick, 0.3' long greenish gray mottle]
-			0		× × × × × ×	_ 132.7-133.5' - dark and light sand layers	At 132.6': R-Scale = R3-R4
-	134.1		10+	133.5' - Fracture, horizontal, smooth, planar, top of (0.04' thick) clay seam	××	Siltstone At 133.5' - olive gray, dark reddish	At 133.5': R-Scale = R0
	134.1		XXX	133.7' - Fracture, horizontal, rough, planar	× × × ×	brown, and greenish gray, mottled	At 133.8': R-Scale = R0 At 133.9': R-Scale = R3
135_			3	134.2' - Fracture, horizontal, smooth, planar 134.5' - Fracture, horizontal, smooth, —	× ×	very dusky red, very soft — 133.5-139.8' - moderately weathered	R26: 15:03-15:20 At 134.5-138.0': R-Scale = —
128.7			10+	undulating 134.7-134.8' - Fracture (2), horizontal, smooth,	× ×	133.8' - clay seam, 0.03' thick, very soft to soft	R0-R1
-			10+	planar	× × × × × ×	 135.7-136.0' - clay seam, very soft, 	At 134.8-135.2': R-Scale = R3
-	R26NQ 5 ft	32*	10+	135.1-135.7' - Fracture zone, horizontal and vertical, smooth, rough, planar	1× ×	friable material 136.5-136.8' - clay seam, very soft,	
-	94%	02		136.0-136.5' - Fracture zone, horizontal,	××	- friable material	At 137.0-137.3': R-Scale =
-			1	rough, smooth, planar/undulating 136.9' - Fracture, horizontal, smooth,	× × × ×		R3 -
-	-			planar/stepped 137.1-137.5' - Fracture zone, horizontal,	××	- material	-
-			10+	rough, smooth, planar/undulating	× ×	-	-
-	139.1		\bowtie	137.9-138.2' - Fracture, 45 deg and horizontal, rough, undulating	× × × ×	-	At 139.0': R-Scale = R4
140			10+	138.5' - Fracture, horizontal, smooth,	Îx x	-	R27: 15:38-15:49 – At 139.6-139.8': R-Scale =
123.7				undulating 138.8' - Fracture, horizontal, rough, undulating	××	— 139.8-144.1' - trace medium grained sand	R0
-			2	139.0-139.1' - Fracture zone, horizontal and vertical, rough, undulating	××	139.8-145.0' - fresh	-
-	R27NQ			139.2' - Fracture, horizontal, rough, undulating	× × × × × ×	 140.5' - clay seam, 0.03' thick, very soft, friable material 	1
-	5 ft 98%	76	3	139.3' - Fracture, horizontal, rough, undulating 139.5' - Fracture, horizontal, rough, undulating	\times ×	- '	At 141.3': R-Scale = R3 -
-	3070			139.7' - Fracture, horizontal and 45 deg,	× ×	142.0-144.1' - coarsens a little,	1
-]		0	rough, undulating 140.3' - Fractures (2), horizontal, rough, planar	××	- 30-40% very fine sand	1
-				141.1' - Fracture, horizontal, smooth, planar 142.0' - Fracture, horizontal, smooth, planar	× × × ×	-	1
	144.1		2	143.3' - Fracture, horizontal, smooth, planar	× ×]
1 _				143.5' - Fracture, horizontal, smooth, planar 143.5' - Fracture, horizontal, tightly healed	× ×	_	R28: 16:00-16:19
145_			1	_	× ×		At 144.7': R-Scale = R4
118.7			10+	145.0' - Fracture, horizontal, smooth, undulating, very soft, friable material	× × × ×	145.0-147.3' - moderately weathered]
_			10+	145.3' - Fracture, horizontal, rough, undulating	××	-	At 145.5-146.3': R-Scale = R1
-	R28NQ 5 ft		10+	145.5' - Fracture, horizontal, rough, undulating 145.6' - Fracture, horizontal, rough, undulating,	× × × ×	<u>-</u>	At 146.3-146.6': R-Scale = -
-	104%	39	10+	very soft, friable material	× × × ×	=	R3-R4 At 146.6-147.3': R-Scale =
-			2	145.8-146.2' - Fracture zone, horizontal, rough, undulating	l [°] ×	- 147.3-149.1' - fresh	R1 140.0-147.3. R-3cale = -
-				146.6-147.3' - Fracture zone, horizontal and vertical, rough, undulating, many angles	× ×	-	4
-			1	147.9' - Fracture, horizontal and vertical,	××	-	4
-	149.1			rough, undulating 148.0' - Fracture, horizontal and vertical,	××		1
-			0	rough, undulating	× × × ×	Siltstone At 156.5' - dark reddish brown, mottled	R29: 08:46-09:00 on 06/15/06
150 <u> </u>				148.1' - Fracture, horizontal and vertical, rough, undulating	l ^x x	reddish black and greenish gray, very	
-	-		0	3 7 3	××	soft to soft, medium to laminated bedding, fresh, 30-40% very fine sand	-
					ľ	-	

2BB-95 Rev. 1



PROJECT NUMBER:	BORING NUMBER:					
338884	BPA-13	SHEET	9	OF	9	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686879.4 N, 2012520.3 E)

ELEVATION: 263.7 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS: 10).0 ft b	gs	START : 6/8/06 15:1	7	END: 6/15/06 09:50	LOGGER : LH
	(%)			DISCONTINUITIES	ő	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
- -	R29NQ 5 ft 104%	100	0	149.0' - Fracture, horizontal and 5 deg, smooth, undulating	× > × > × > × > × >	- - -	At 150.6': R-Scale = R3-R4
_			0		× > × > × > × >		- - At 153.3': R-Scale = R3-R4 -
_	154.1		0 >>>> 0		\(\times \) \(154.1-156.5' - soft	R30: 09:06-09:19
155_ 108.7_			0		× > × > × > × >	-	
_	R30NQ 5 ft	100	1		× > × > × >	Sandstone	-
	102%		0	156.8-157.5' - Fracture, 45 deg, rough, undulating		 156.5-159.1' - reddish brown, mottled white, greenish gray, dark reddish brown, and reddish black, soft to hard, very fine sand to fine sand, 	At 156.9': R-Scale = R3-R4 -
_	159.1		0			subrounded, fresh, well sorted to poorly sorted 158.2' - beds begin to have trace	_ -
160 103.7			0	- -	× > × > × >	coarse grained sand and fine to medium gravel sized silt clasts	R31: 09:23-09:40 SC-5 collected 162.8-163.9' At 161.4': R-Scale = R3-R4
-	R31NQ		0		 	159.1-160.1' - dark reddish brown, mottled reddish black and greenish gray, very soft to soft, fresh, 30-40% very fine sand	First water level = 10.0' bgs
_	5 ft 96%	96 (0			Sandstone 160.1-164.1' - white, greenish gray, light reddish brown, and black, soft to	taken 6/15/06 at 11:30; second water level = 7.8' bgs taken 6/16/06 at 16:57
-			0	<i>,</i>	: : : : : : : : :	hard, very thin to medium bedding, very fine sand to coarse sand, angular to subrounded, poorly sorted, fresh, coarser and finer beds	R-scale performed after drilling on stored samples -
165	164.1		XXX	<u>. </u>		Bottom of Boring at 164.1 ft bgs on 6/15/06 09:50	<u> </u>
98.7						-	
-						_ -	-
-					1	- -	-
						- - -	- -
170 93.7				_		-	_

2BB-96 Rev. 1



PROJECT NUMBER:	BORING NUMBER:				
338884	BPA-14	SHEET	1	OF	6

SOIL BORING LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686783.7 N, 2012564.5 E)

ELEVATION: 263.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: L. Morrison, S&ME

DRILLING EQUIPMENT AND METHOD: CME-550, Tricone Bit, 24 Split Spoon and 140 lb. Automatic Hammer ORIENTATION: Vertical

WATER				THOD : CIVIL-330,	START : 7/6/06 17:20	ND : 7/7/	ne 16	2.20	LOGGER : LH
			SRADE (ft)		SOIL DESCRIPTION	IND . 1/1/		0.20	COMMENTS
	INTERV		(11)	STANDARD PENETRATION TEST RESULTS			90-		
			ERY (in)	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR MOISTURE CONTENT, RELATIVE DENSITY C)LIC I	F)	DEPTH OF CASING, DRILLING RATE,	
			#TYPE	6"-6"-6" (N)	CONSISTENCY, SOIL STRUCTURE, MINERALC	SYMBOLIC LOG	PP (TSF)	DRILLING FLUID LÓSS, TESTS, AND INSTRUMENTATION	
263.9 - - -	0.0 2.0	23.0	SS1SS		Topsoil (CL) 0.0-0.2' - reddish brown, dry to moist, soft, trace grand organics	ravel _ _ _		2.0	- - -
-	2.5 3.8	15.0	SS2SS	8-10-50/3 (60/9")	Clay (CL) 2.5-3.9' - reddish brown, mottled light greenish gra moist, stiff	ay, – –		4.5	Soil sampling completed at 17:45 on 7/6/06 -
5 258.9					Begin Rock Coring at 3.9 ft bgs See the next sheet for the rock core log	- - -			- -
- - -						- - -			- - -
- -						<u>-</u> -			- - -
- 10						- -			- - -
253.9 - -						_			-
- -						- -			- - -
- - -						- -			- - -
15 <u> </u>						_			-
-						-			-
-						-			- - -
-						- -			- -
20_						_			
		•							

2BB-97 Rev. 1



BORING NUMBER: PROJECT NUMBER: 338884

BPA-14

SHEET 2 OF 6

ORIENTATION: Vertical

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (686783.7 N, 2012564.5 E)

ELEVATION: 263.9 ft MSL (NGVD 29) DRILLING CONTRACTOR: L. Morrison, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	LEVELS : 0.	0 ft bo	gs	START : 7/6/06 17:	20_	END : 7/7/06 16:20	LOGGER : LH
				DISCONTINUITIES	П	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
5 258.9 - -	3.9 R1NQ 1.1 ft 5.0 64%	0	0 3 0	_	× × × × × × × × × × × × × × × × × × ×	Siltstone At 3.9' - reddish brown to dark reddish brown, mottled light greenish gray, very soft 3.9-6.7' - highly weathered 3.9-5.0' - clay-like material 5.0-5.9' - clay seam, horizontal breaks, very soft 5.9-9.6' - mottled light greenish gray	Rock coring began at 08:35 on 7/7/06 R1: 08:35-08:43 on 07/07/06 R2: 08:54-09:06 At 5.0' PP: 2.0 tsf
- - - - 10	R2NQ 5 ft 104%	61	0 0 10+		× × × × × × × × × × × × × × × × × × ×	and reddish black, laminated bedding 6.9-10.0' - moderately weathered 7.3-7.5' - trace gravel sized white clasts - 9.6-10.0' - mottled reddish black, soft	
253.9 - - - -			10+ 10+ 0	9.9-10.0' - Fracture zone, 45 deg, rough, undulating, tightly healed fractures associated are vertical to 60 deg 11.6-11.9' - Fracture zone, rough, undulating, very soft clay-like material	× × × × × × × × × × × × × × × × × × ×	to hard 10.0-11.9' - clay-like material, very soft, 4 clay seams 10.0-13.2' - highly weathered 11.9-13.3' - mottled reddish black	R3: 09:19-09:28 At 10.0' PP: 3.2 tsf At 10.0-12.8': R-scale = R0 At 10.4': PP: 2.1 tsf At 11.2': PP: 4.5+ tsf
- - 15	15.0		0	14.6' - Fracture, rough, undulating, parabolic shaped fracture —	× × × × × × × × × × × × × ×	13.2-15.6' - fresh 13.3-15.0' - mottled reddish black, soft to hard 14.6-14.6' - very soft, laminated bedding	At 12.8-15.0': R-Scale = R1 R2
248.9 - - - - -	R4NQ 5 ft 102%	46	3 3 4	Sпарец пасше	*	bedding 15.0-17.7' - no mottling, clay-like material 15.0-17.7' - clay seam, horizontal breaks, very soft 15.6-17.6' - highly weathered 15.7-16.1' - friable material 17.3-17.7' - friable material 17.6-22.4' - slightly weathered 17.7-20.0' - mottled olive	R4: 09:36-09:45 At 15.5': PP: 2.2 tsf SC-1 collected 15.0-15.7' At 15.7-17.7': R-Scale = R0 At 16.3': PP: 1.4 tsf At 16.7': PP: 1.2 tsf At 17.2': PP: 1.6 tsf
20 243.9 - - - - -	20.0 R5NQ 5 ft 100%	58	3 10+ 10+ 2	19.0' - Fracture, horizontal, smooth, planar 19.1' - Fracture, rough, planar 19.6' - Fracture, horizontal, rough, planar 19.7' - Fracture, horizontal, rough, planar 20.2' - Fracture, horizontal, smooth, planar 20.3' - Fracture, horizontal, smooth, planar 20.4'-20.6' - Fracture zone, horizontal, smooth, planar 20.8' - Fracture, horizontal, rough, planar 21.0-21.5' - Fracture, 60 deg, rough, undulating 22.3' - Fracture zone, horizontal, rough, planar, 0.05' thick 23.3' - Fracture, 10 deg, smooth, planar	× × × × × × × × × × × × × × × × × × ×	- 20.8-22.3' - soft - 20.8-22.3' - soft - 22.4-23.1' - highly weathered 22.4-22.8' - clay seam, very soft 23.0-23.1' - clay seam, 0.05' thick, very soft	R5: 09:56-10:04 At 20.2-21.4': R-Scale = R0 At 21.8': R-Scale = R3-R4 At 22.0-23.0': R-Scale = R0 At 22.4': PP: 3.1 tsf At 23.0': PP: 1.9 tsf
					××		

2BB-98 Rev. 1



PROJECT NUMBER:

338884

BPA-14

SHEET 3 OF 6

ROCK CORE LOG

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686783.7 N, 2012564.5 E)

ELEVATION: 263.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: L. Morrison, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	ATER LEVELS : 0.0 ft bgs		S	START : 7/6/06 17:20		END: 7/7/06 16:20	LOGGER : LH		
	_ (%			DISCONTINUITIES	ပ္ခ	LITHOLOGY	COMMENTS		
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.		
-	25.0		3	24.2' - Fracture, horizontal, rough, undulating 24.5' - Fracture, 10 deg, rough, undulating 24.8' - Fracture, horizontal, rough, undulating		23.1-52.1' - fresh 23.3-24.5' - at medium sand to gravel sized white clasts 25.0-52.1' - very soft to soft	R6: 10:18-10:27		
-	R6NQ		0			25.0-26.7' - 0.01-0.1' thick white clasts - -	- - -		
-	- 5 ft - 98%		8 0		- × × × × × × × × × × ×	-	At 27.4': R-Scale = R3-R4 -		
30_ 233.9	30.0		0	-		- -	- - -		
233.9	9		0	31.1' - Fracture, horizontal, smooth, planar	- × × - × × - × ×	-	R7: 10:36-10:45 -		
-	R7NQ 5 ft	79	9	31.8' - Fracture, horizontal, rough, planar 31.9' - Fracture, horizontal, rough, planar	- × × × × × × × × × × × × × × × × × × ×	-	At 31.5': R-Scale = R3-R4		
-	100%	7.5	0	32.0' - Fracture, horizontal, rough, planar 32.1' - Fracture, horizontal, smooth, planar 32.2' - Fracture, horizontal, rough, planar 32.3' - Fracture, horizontal, rough, planar	- × × - × × - × ×	- 32.9-35.6' - 0-30% very fine sand -	-		
- - 35	35.0		1	32.4' - Fractures (2), horizontal, rough, planar 32.5' - Fracture, horizontal, rough, planar 32.6' - Fracture, horizontal, smooth, planar 32.7' - Fracture, horizontal, smooth, planar	- × × - × × - × ×	-	-		
228. 9 -			0	32.9' - Fracture, horizontal, smooth, planar 34.4' - Fracture, horizontal, smooth, planar	- × × - × × - × ×	-	R8: 10:54-11:03		
-	R8NQ		0		- × × - × ×	_	At 36.0': R-Scale = R3 -		
-	5 ft 100%	100	0		- × × × × × × × × × × × × × × × × × × ×	_ 37.2-37.4' - gravel sized white clasts	- - At 38.2': R-Scale = R3-R4		
-			0			- 38.8-39.7' - gravel sized white clasts			
40 <u> </u>	40.0		0	-		40.2-40.7' - gravel sized white clasts	R9: 11:09-11:20		
-			0		- × × × × × × × × × × × × × × × × × × ×	- - -	-		
-	R9NQ - 5 ft 100%		0		- × × - × × - × ×	42.2-42.8' - gravel sized white clasts 43.0-43.7' - gravel sized white clasts	At 42.0': R-Scale = R3 -		
-			0		- × × × ×	<u>-</u>	-		

2BB-99 Rev. 1



PROJECT NUMBER:

338884

BPA-14

SHEET 4 OF 6

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686783.7 N, 2012564.5 E)

ELEVATION: 263.9 ft MSL (NGVD 29) DRILLING CONTRACTOR: L. Morrison, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

WATER	FER LEVELS : 0.0 ft bgs			START : 7/6/06 17:2	0	END: 7/7/06 16:20	LOGGER : LH		
	(%)			DISCONTINUITIES	90	LITHOLOGY	COMMENTS		
QN (£)	Ä, AND 3Y (9		ZES T	DESCRIPTION	C LC	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,		
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.		
45_	45.0		0	_	× × × × × ×	-	-		
218. 9 -			0	-	× × × × × ×	45.2-45.6' - gravel sized white clasts	R10: 11:28-11:33		
-	R10NQ		0	-	× × × × × ×	-			
-	5 ft 100%	100	0	-	× × × × × ×	-	At 47.3': R-Scale = R3 -		
_			0	- -	× × × × × ×	-	- - At 49.1': R-Scale = R3-R4		
50_ 213.9			0	_	× × × × × ×	_ _ 50.3-50.3' - trace medium sand	R11: 12:58-13:10		
-			0	-	× × × × × ×	50.9-51.2' - sandstone lens 51.5-51.7' - sandstone lens	_		
-	R11NC 5 ft	97	0	-	× ×	Sandstone 52.1-58.5' - white and very dark	At 52.1': R-Scale = R3-R4		
- -	97%		0	- - -		greenish gray, soft, laminated to medium bedding, very fine sand to coarse sand, subangular to subrounded, poorly sorted, fresh, coarsens with depth	SC-2 collected 53.0-53.95' -		
55 208.9	55.0		0			_	R12: 13:15-13:28		
-			0	-		-	- - At 56.3': R-Scale = R3-R4 -		
-	R12NQ 5 ft 104%	94	0	<u>-</u>		-	-		
-			0	- -	: : : × × × ×	Siltstone At 58.5' - dark reddish brown, mottled greenish gray and reddish black, very	At 58.2': R-Scale = R3-R4		
60 203.9	60.0		4 >>>> 0	59.4' - Fracture, horizontal, rough, undulating	× × × × × × × ×	── 58.5-59.4° - tresn 58.5-61.1' - gravel sized white clasts	R13: 13:33-13:44		
-			8	59.8' - Fracture, horizontal, rough, undulating 59.9' - Fracture, horizontal, rough, undulating 61.1' - Fracture, horizontal, rough, undulating 61.1' - Fracture, horizontal, rough, undulating	× × × × × × × × ×	59.4-61.2' - slightly weathered 61.2-62.4' - moderately weathered	At 61.2-62.4': R-Scale = R1		
-	R13NQ 5 ft 102%	78	3	61.4' - Fracture, horizontal, rough, undulating 61.5' - Fracture, horizontal, rough, undulating 61.7' - Fracture, horizontal, rough, undulating 61.7' - Fracture, horizontal, rough, undulating	× × × × × × × × × × × × × × × × × × ×	- 62.4-76.3' - fresh 62.4-71.3' - soft			
_			0	62.0' - Fracture, horizontal, rough, undulating 62.1' - Fracture, horizontal, rough, undulating	× × × × × ×	_	-		

2BB-100 Rev. 1



PROJECT NUMBER:	BORING NUMBER:					
338884	BPA-14	SHEET	5	OF	6	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686783.7 N, 2012564.5 E)

ELEVATION: 263.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: L. Morrison, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

00	2 2 4 5 11 11 12 1		D 111C	THOD . CIVIE-930, NQ Double Barrel			ORIENTATION : Vertical	
WATER	LEVELS: 0.	0 ft bc	ıs	START : 7/6/06 17:2	0	_	END: 7/7/06 16:20	LOGGER : LH
	_			DISCONTINUITIES	ပ္	L	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG		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.
65	65.0		0	62.3' - Fracture, horizontal, rough, undulating 62.4' - Fracture, horizontal, rough, undulating	× × × ×	X X X X X		-
198.9 -			0	-	× × × ×	× × ×		R14: 13:52-14:03
-			0	-	× × ×	X X X		At 65.9': R-Scale = R3
-	R14NQ 5 ft 99%	99	0	-	× × ×	*- *- *- *		-
-	3370		0		× × ×	X X X		-
-	70.0		0		× × × ×	X X X		-
70 <u> </u>	70.0		0	-	× × ×	× × ×		R15: 14:09-14:22
-			0		× × × ×	X X X]
-	R15NQ 5 ft	99	1	72.3' - Fracture, horizontal, rough, planar	× × × ×	* *		-
-	99%		1	73.5' - Fracture, horizontal, rough, planar	××××	X X X		At 73.0': R-Scale = R3
-			0	- · · · · · · · · · · · · · · · · · · ·	× × ×	× × × *	74.2-75.0' - soft	-
75 <u> </u>	75.0		2		× × × ×	X X X		R16: 14:09-14:44
-			10+	75.6' - Fracture, horizontal, rough, planar 76.0' - Fracture, horizontal, rough, undulating 76.1' - Fracture, horizontal, rough, undulating 76.3-76.5' - Fracture zone, horizontal, rough,	× × ×	X X X	76.3-77.2' - moderately weathered 76.5-79.3' - laminated beds	-
-	R16NQ 5 ft 100%	61	2	undulating 76.6' - Fracture, horizontal, rough, undulating 76.8' - Fracture, horizontal, rough, undulating	× × × ×	X X X	77.2-80.0' - slightly weathered to fresh	-
-			3	77.5' - Fracture, nonzontal, rough, planar 77.5' - Fracture, horizontal, rough, undulating	× × × ×	X X X		At 78.1': R-Scale = R3
80_	80.0		2	77.6' - Fracture, horizontal, rough, undulating 78.4' - Fracture, horizontal, rough, planar 78.6' - Fracture, horizontal, rough, undulating	××××	X		-
183. <u>9</u> -			0	79.3' - Fracture, horizontal, smooth, planar 79.7' - Fracture, horizontal, rough, undulating	××	×××	80.0-86.7' - slightly weathered 80.0-82.7' - laminated beds	R17: 15:13-15:25
-			0		× × × × ×	X X		-
-	R17NQ 5 ft 100%		0		× × ×	× × × ×	82.7-85.0' - soft	At 82.2': R-Scale = R3
_			0		× × ×	Х Х Х		-
	1				_			I

2BB-101 Rev. 1



PROJECT NUMBER:	BORING NUMBER:					
338884	BPA-14	SHEET	6	OF	6	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686783.7 N, 2012564.5 E)

ELEVATION: 263.9 ft MSL (NGVD 29) DRILLING CONTRACTOR: L. Morrison, S&ME

CORING EQUIPMENT AND METHOD: CME-550, NQ Double Barrel ORIENTATION: Vertical WATER LEVELS: 0.0 ft bgs START: 7/6/06 17:20 END: 7/7/06 16:20 LOGGER: LH DISCONTINUITIES LITHOLOGY COMMENTS 90 CORE RUN, LENGTH, AND RECOVERY (%) FRACTURES PER FOOT **DESCRIPTION** DEPTH AND ELEVATION BELOW SURFACE (ft) ROCK TYPE COLOR SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD SYMBOLIC MINERALOGY, TEXTURE RQD(%) DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS WEATHERING, HARDNESS, AND ROCK MASS DROPS, TEST RESULTS, ETC. CHARACTERISTICS 0 85 85.0 178.9 R18: 15:33-15:42 85.2' - Fracture, horizontal, rough, planar 3 85.4' - Fracture, horizontal, rough, planar 85.7' - Fracture, horizontal, rough, undulating 86.0' - Fracture, horizontal, smooth, planar 2 86.3' - Fracture, horizontal, rough, planar 86.6-86.7' - trace fine to medium sand Sandstone R18NQ At 87.1': R-Scale = R3-R4 86.7-88.2' - dark reddish gray, soft to 82 3 87.3' - Fracture, horizontal, rough, undulating 5 ft hard, medium bedding, very fine sand 104% 87.4' - Fractures (2), horizontal, rough, to coarse sand, subangular, poorly undulating 0 sorted, slightly weathered Siltstone 88.2-100.0' - dark reddish brown. 0 mottled greenish gray and reddish black, soft, slightly weathered 90 90.0 88.2-90.0' - trace very fine sand $173.\overline{9}$ R19: 15:51-16:03 1 90.4' - Fracture, horizontal, smooth, planar At 91.1': R-Scale = R3 0 R19NQ 0 5 ft 85 92.4' - mottled greenish gray 99% 92.7' - mottled greenish gray 93.0-95.4' - gravel sized white clasts 2 93.3' - Fracture, horizontal, smooth, planar 93.4' - Fracture, horizontal, smooth, planar At 93.9': R-Scale = R3 94.3' - Fracture, 30 deg, rough, undulating 94.5' - Fracture, 30 deg, rough, slickensided 3 95 95.0 168.9 94.7' - Fracture, horizontal, rough, undulating R20: 16:10-16:20 0 At 97.8': R-Scale = R4 10+ 96.8' - Fracture, horizontal, rough, undulating First water level = 0.0' bgs R20NQ 5 ft 96.9-97.0' - Fracture zone, horizontal, rough, 82 taken 7/7/06 at 18:16; 1 undulating second water level = 1.5' 94% 97.2' - Fracture, horizontal, rough, undulating bgs taken 7/8/06 at 14:40 97.3-97.4' - Contact between siltstone and 0 sandstone, horizontal, rough, planar, reddish black stains 99.1' - Fracture, horizontal, smooth, planar R-scale performed after 99.2' - Fracture, horizontal, smooth, planar 100 drilling on stored samples 100.0 99.3' - Fracture, horizontal, smooth, planar 163.9 Bottom of Boring at 100.0 ft bgs on 99.7' - Fracture, horizontal, smooth, planar 7/7/06 16:20

2BB-102 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BPA-15 SHEET 1 OF 5

SOIL BORING LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687089.1 N, 2012553.1 E)

ELEVATION: 262.7 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

DRILLING EQUIPMENT AND METHOD: CME-550, Tricone bit, 24 Split Spoon, and 140 lb. Automatic Hammer ORIENTATION: Vertical

WATER				TIOD : CIVIL-330	START : 7/22/06 16:01 END : 7/2-	4/06	08:43 LOGGER : LH/EM
			RADE (ft)		SOIL DESCRIPTION	Т	COMMENTS
	INTERV			STANDARD PENETRATION		-00°	2 22
			ERY (in)	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,	LIC	DEPTH OF CASING, DRILLING RATE,
		INLOOV!	#TYPE	6"-6"-6" (N)	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
262.7 - - -	2.0	24.0	SS1SS	4-7-14-18 (21)	Clay (CL) 0.0-2.0' - reddish brown, mottled light greenish gray and black, dry, very stiff		- - -
_	2.5	24.0	SS2SS	16-27-45-35	Clay (CL) 2.5-4.5' - reddish brown, mottled light greenish gray and black, dry, hard		PT-1 collected 3.0-5.0'
- - 5	4.5	21.0	00200	(72)	-		- - -
257.7 - -	5.0	15.6	SS3SS	15-20-50 (70)	Clay (CL) 5.0-6.3' - reddish brown, mottled light greenish gray and black, moist, hard		- - -
_	7.0				-		_
- -	7.5	16.2	SS4SS	20-28-50/4 (78/10")	Clay (CL) 7.5-8.9' - reddish brown, mottled light greenish gray and black, moist, hard		- - -
10 252.7	9.5				Clay (CL)		- -
- -		9.0	SS5SS	24-50/3 (50/3")	10.0-10.9' - reddish brown, mottled light greenish gray and black, moist, hard		- - -
-	12.0	3.0	00000		Clay (CL)		Soil sampling completed at 17:06 on 7/6/06
-	12.8 13.4	3.0	SS6SS,	50/3 (50/3")	Clay (CL) 12.5-12.8' - reddish brown, mottled light greenish gray and black, moist, hard Begin Rock Coring at 13.4 ft bgs		Drillers Remark: Drilled through 12.65-13.4' with tricone bit.
15 <u></u> 247.7					See the next sheet for the rock core log		- -
-					- -		-
-					- - -		-
-					- -		-
20							



PROJECT NUMBER:

338884

BPA-15

SHEET 2 OF 5

ROCK CORE LOG

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687089.1 N, 2012553.1 E)

ELEVATION: 262.7 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	LEVELS : 1.	5 ft bg	s	START : 7/22/06 16	:01	END: 7/24/06 08:43	LOGGER : LH/EM		
	_ (%			DISCONTINUITIES	ō	LITHOLOGY	COMMENTS		
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.		
_	13.4 R1NQ		10+	13.4-13.5' - Fracture zone, rough, undulating	× ×	Siltstone	Rock coring began at 10:26		
15_ 247.7	0.9 ft 14.3_61%_	44	0	13.9' - Fracture, horizontal, rough, undulating	× × × × × × × ×	At 13.4' - dark reddish brown, mottled greenish gray and reddish black, very soft to soft, fresh, gravel size white clasts 13.4-13.6' - laminated bedding	on 7/23/06 _ R1: 10:26-10:28 on 07/23/06 _ R2: 10:52-11:03		
_			4	15.7' - Fracture, horizontal, rough, undulating	× × × × × ×	-	-		
- -	R2NQ 5 ft 97%	82	2	16.1' - Fracture, horizontal, rough, undulating 16.2' - Fracture, horizontal, rough, undulating 16.4' - Fracture, horizontal, rough, planar 16.4' - Fracture, horizontal, rough, undulating	× × × × × × × ×	- - -	- At 16.8': R-Scale = R2 -		
-					× × × × × ×	<u>-</u> -	-		
-	19.3		0 **** 1		× × × × × ×		- R3: 11:11-11:20 -		
20 <u> </u>			10+	20.1' - Fracture, horizontal, smooth, planar	× × × × × ×	 20.1-20.5' - 0-20% very fine sand	_		
-	R3NQ 5 ft	96	1	21.1-21.2' - Fracture zone, horizontal, rough, planar, clay, <0.01' thick, very soft, friable	× × × × × ×	21.0-21.3' - laminated bedding	-		
-	104%		0	21.6' - Fracture, horizontal, smooth, planar	× × × × × ×	22.1-22.8' - 0-20% very fine sand	At 21.8': R-Scale = R5		
_			2	23.6' - Fracture, horizontal, smooth, planar	× × × × × ×	23.0-24.1' - laminated bedding	-		
25	24.3		_ XXX 0	23.8' - Fracture, horizontal, smooth, planar	× × × × × ×	- -	R4: 11:25-11:34 –		
237.7			0	25.4-25.7' - Contact between siltstone and sandstone, gradual, tightly healed	× × × × · · · ·	Sandstone			
_	R4NQ 5 ft	100	1	26.8' - Contact between siltstone and	 	25.6-26.1' - white and dark greenish gray, stained dark reddish brown, soft to hard, thin bedding, very fine sand to	At 26.3': R-Scale = R3 -		
	101%		0	sandstone, horizontal, smooth, planar	× × × × × ×	medium sand, angular to subrounded, poorly sorted, fresh, trace coarse grained sand]		
_	20.0		0		× × × × × ×	Siltstone At 26.8' - dark reddish brown, mottled reddish black and greenish gray, soft,]		
30 <u> </u>	29.3		0		× × × × × ×	fresh 28.3-36.1' - medium sand to gravel sized white clasts 29.6-30.1' - 0-20% very fine sand	R5: 11:42-11:51 -		
232.7			0		× × × × × ×	25.0-30.1 - 0-20 /0 Very line Sand - -	- At 30.9': R-Scale = R2-R3		
-	R5NQ 5 ft 97%	95	0		× × × × × ×	- 22.0.25.41 lominoted and units	-		
-	31 70				3	32.3' - Fracture, horizontal, rough, planar 32.4' - Fracture, horizontal, rough, planar 33.1' - Fracture, horizontal, rough, undulating	× × × × × ×	32.0-35.4' - laminated and very soft - -	-
				control industrial industrial industrial	××				

2BB-104 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BPA-15

SHEET 3 OF 5

ROCK CORE LOG

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687089.1 N, 2012553.1 E)

ELEVATION: 262.7 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	LEVELS : 1.	5 ft bo	ıs	START : 7/22/06 16	:01	END: 7/24/06 08:43	LOGGER : LH/EM	
				DISCONTINUITIES		LITHOLOGY	COMMENTS	
gz €	AAN Q⊗		ES	DESCRIPTION] S	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.	
_	34.3		0		× × ×	-	-	
35	34.3		3	34.6' - Fracture, horizontal, rough, undulating	×	24.5-35.4' - very soft, laminated	R6: 11:57-12:07 –	
227.7			0	35.1' - Fracture, horizontal, rough, undulating 35.3' - Fracture, horizontal, rough, undulating		— bedding -	SC-1 collected 35.3-36.2' -	
-	R6NQ 5 ft	94	94 1 0		× > × > × > × >	- -	- -	
-	102%	01		37.1' - Fracture, horizontal, rough, planar	× > × > × >	<u> </u>	-	
-		-			×	-	At 38.0': R-Scale = R2-R3	
-	39.3		0		- (x) - (x) - (x)	- -	R7: 13:06-13:13 -	
40				_		Sandstone 39.8-41.5' - dark reddish brown, very fine sand, angular to subrounded,		
-	R7NQ		2	40.6' - Fracture, 45 deg, rough, undulating 41.2' - Fracture, 45 deg, rough, undulating	- : : : : : : :	 poorly sorted, fresh, sandstone lens 	At 41 41 P Scolo - P2	
-	5 ft 102%	100	100 0		×	Siltstone - At 41.5' - dark reddish brown, mottled reddish black and greenish gray, soft,	At 41.4': R-Scale = R2 -	
-			0		×	fresh	-	
-	44.3		0			43.9-44.0' - gravel size white clasts	R8: 13:22-13:27	
45_ 217.7			0	<u> </u>	× > × > × >	_	R6: 13:22-13:27 -	
-			0		× > × > × >	45.8-48.0' - 0-50% Very fine to fine sand	- -	
-	R8NQ 5 ft 100%	100	0		× > × > × >	-	-	
-			0	47.3-48.0' - Contact between siltstone and sandstone, gradational contact	× > × >	Sandstone	At 47.2': R-Scale = R4	
-	49.3		0		 	 48.0-50.4' - dusky red to white, greenish gray, and dark reddish gray, mottled greenish gray and dark 	-	
50 212.7			0	- -	<u> </u>	reddish gray, soft to hard, fresh, gradational contact with overlying siltstone; fines upward	R9: 13:33-13:44	
			10+	50.4-50.6' - Fracture zone, <5 deg, rough, undulating, heavily fractured	× > × >	49.5-49.8' - 0-20% gravel Siltstone At 50.4' - dark reddish brown, mottled	49.3-50.4' -	
-	R9NQ 5 ft 100%	68	10+	50.7' - Fracture, <5 deg, rough, undulating 50.8' - Fracture, <5 deg, rough, undulating 51.4' - Fracture, <5 deg, rough, undulating	× > > × > × > × > × > × > × > × > × > ×	- greenish gray and reddish black, soft 50.4-52.3' - moderately weathered 50.6-52.6' - gravel sized white clasts	<u> </u>	
-	.5570		1	51.5' - Fracture, <5 deg, rough, undulating 51.7-52.3' - Fracture zone, <5 deg, rough, undulating, 0.01' thick clay infilling, heavily fractured		50.6-52.6 - gravei sized writte clasts - 52.3-82.3' - fresh	-	
					××			



PROJECT NUMBER:	BORING NUMBER:					
338884	BPA-15	SHEET	4 0	F	5	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687089.1 N, 2012553.1 E)

ELEVATION: 262.7 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

OOMING	D EQUIT WEN	II AIN	DIVIL	THOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS: 1.	5 ft bo	IS	START : 7/22/06 16	:01	END : 7/24/06 08:43	LOGGER : LH/EM
	<u>(</u> %			DISCONTINUITIES	ဗ္ဂ	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
-	54.3		1	52.6' - Fracture, <5 deg, rough, undulating, 0.01' thick clay infilling 53.9' - Fracture, <5 deg, rough, undulating	× × × × × ×	_	At 53.6': R-Scale = R3 R10: 13:50-14:00
55 207.7			1	55.3' - Fracture, horizontal, smooth, undulating	× × × × × × × × × × × × × × × × × × ×		
- -	R10NQ 5 ft 102%	96	10+	56.6-56.9' - Fracture zone, smooth, planar, clay seams (0.01' thick), rough and planar	× × × × × × × ×	_ 56.2-56.9' - very soft and laminated -	-
-			0		× × × × × × × ×	-	-
60	59.3		0 		× × × × × × × ×	- - 59.3-63.2' - coarsens with depth	At 58.6': R-Scale = R2 R11: 14:25-14:35
202.7	R11NQ		4	60.0' - Fracture, horizontal, smooth, planar 60.4' - Fracture, horizontal, smooth, planar 60.6' - Fracture, horizontal, rough, planar 61.1' - Fractures (2), horizontal, smooth, planar	× × × × × × × × × × × × × × × × × × ×	- - -	At 60.9': R-Scale = R4
- - -	5 ft 99%	84	0		× × × × × × × × × × × × × ×	- 62.6-69.3' - coarse sand and gravel sized white clasts, medium sand sized	- - -
- - - 65	64.3		0		× × × × × ×	-	R12: 14:40-14:43 -
197.7 - -			1	65.3' - Fracture, horizontal, smooth, planar	× × × × × × × ×	- - -	At 65.1': R-Scale = R4
- -	R12NQ 5 ft 98%	96	3	66.3' - Fracture, horizontal, smooth, planar 66.4' - Fracture, horizontal, smooth, planar 66.9' - Fracture, horizontal, smooth, planar	× × × × × × × × × ×	- -	- - -
-	60.2		0		× × × × × ×	-	-
70 192.7	69.3		0		× × × × × × × ×		R13: No time recorded on
-	R13NQ 5 ft	98	0		× × × × × × × ×	-	-
- -	98%	33	0		× × × × × × × ×	- -	At 72.5': R-Scale = R3-R4

2BB-106 Rev. 1



PROJECT NUMBER:	BORING NUMBER:		
338884	BP∆-15	SHEET	5 OF 5

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687089.1 N, 2012553.1 E)

ELEVATION: 262.7 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				THOD . CIVIE-330, NQ Double Barrel				ORIENTATION : Vertical
WATER	LEVELS : 1.	5 ft bo	IS	START : 7/22/06 16	:01	_	END: 7/24/06 08:43	LOGGER : LH/EM
	િ ઉ			DISCONTINUITIES	ტ	L	LITHOLOGY	COMMENTS
oz€	-, S S D S D S		ËS	DESCRIPTION	2	Г	ROCK TYPE, COLOR,	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	(%) _Q	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	SYMBOLIC LOG		MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
DEP ELE BEL SUR	COR	a Q		PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYM		AND ROCK MASS CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
_			$\overset{\circ}{\otimes}$		×	×		_
	74.3		^^^		×××	× ×-		R14: 08:15-08:24 –
75 <u> </u>			1	_	× ×	<u>X</u>	-	_
_			1	75.5' - Fracture, 45 deg, slickensided, undulating	×××	x X X		-
-	R14NQ 5 ft	100	0		×××××××××××××××××××××××××××××××××××××××	× ×		-
_	103%				××	X		At 76.9': R-Scale = R4 -
-			0		× ×	<u>x</u> +		-
-	79.3		0		××	X	78.5-79.3' - coarse sand sized white clasts	- At 80.2': R-Scale = R3
80			0		××××	*	79.2' - mottled green	R15: 08:33-08:43 – First water level = 1.5' bgs
182.7	R15NQ			_	×××	X X	-	taken 7/24/06 at 18:15; second water level = 2.2'
-	3 ft 110%	100	2	81.1' - Fracture, horizontal, rough, planar	× ×	× ×	81.2-81.3' - trace coarse sand sized	bgs taken 7/25/06 at 16:00 _
_	82.3		0	81.2' - Fracture, horizontal, rough, planar	×××	X X	white clasts	R-scale performed after drilling on stored samples -
-	02.0				† <u> </u>	Ŧ	Bottom of Boring at 82.3 ft bgs on 7/24/06 08:43	-
-						F		_
-					1	ŀ		-
85 <u></u> 177.7				_		L	-	
-					1	ŀ		-
-						F		_
-					-	ŀ		-
-						F		
-					1	ŀ		-
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PROJECT NUMBER:	BORING NUMBER:				
338884	BPA-16	SHEET	1	OF	9

SOIL BORING LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687020.2 N, 2012592.5 E)

ELEVATION: 262.8 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

DRILLIN	G EQUI	PMENT A	AND MET	THOD : CME-550	, 3-5/8 Tricone Bit, 24 Split Spoon and 140 lb. Automatic Hamm	er	ORIENTATION : Vertical
WATER	LEVELS	S: 9.0 ft l	ogs		START : 6/20/06 11:11 END : 6/2	7/06	14:36 LOGGER : LH/EM
DEPTH B	ELOW EX	KISTING C	SRADE (ft)	STANDARD	SOIL DESCRIPTION	(¹)	COMMENTS
	INTERV	AL (ft)		STANDARD PENETRATION TEST RESULTS		SYMBOLIC LOG	
		RECOV	ERY (in)	TEST RESSETS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR	1 2	DEPTH OF CASING, DRILLING RATE,
			#TYPE	6"-6"-6"	CONSISTENCY, SOIL STRUCTURE, MINERALOGY	MB	DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
				(N)		Š	
262.8	0.0				Topsoil ¬ (0.0-0.4'	1///	_
		20.4	SS1SS	4-7-13-22	Clay (CL)		
		20.4	33133	(20)	0.4-1.7' - reddish brown, trace light greenish-gray		
	2.0			, ,	mottled, dry, very stiff, laminated beds, trace roots	Y ///	
						1	1
	2.5	9.0	SS2SS	00 50/0	Clay (CL)		_
-	3.3	0.0	00200	22-50/3 (50/3")	2.5-3.2' - reddish brown, mottled reddish black and light greenish gray, dry to moist, hard, laminated beds	1///	1
-				(00,0)	greenist gray, dry to moist, hard, laminated bods	1	-
-						1	Soil sampling completed at 11:23 on 6/20/06
5	4.8					1	-
257.8					Begin Rock Coring at 4.8 ft bgs — See the next sheet for the rock core log	1	
-					See the next sheet for the rock core log	┨	-
-						┨	-
_						┨	-
-						┨	-
-						-	-
_						┨	-
_						-	-
_					,	1	_
_						1	_
10					_	1	
252.8							_
						1	1
-						1	1
-						1	1
-						1	-
-						1	-
45 -						┨	-
15 <u> </u>					_	1	-
-						-	=
-						┨	-
-						-	-
-						1	_
						1	_
						1	_
						1	_
						1	
20		L				1	

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PROJECT NUMBER:

338884

BPA-16

SHEET 2 OF 9

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687020.2 N, 2012592.5 E)

ELEVATION: 262.8 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

CORING	3 LQUIFIVILIN	IAN	DIVIL	THOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS: 9.0	0 ft bo	IS	START : 6/20/06 11:	11	END : 6/27/06 14:36	LOGGER : LH/EM
	<u> </u>			DISCONTINUITIES	၅	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	(%	FRACTURES PER FOOT	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING,
VAT	S T S S S S S S S S S S S S S S S S S S	R Q D (%)	CTL	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	IBOI	WEATHERING, HARDNESS, AND ROCK MASS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
品品品の	RES	S Q	FRA	THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYN	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
257.8	4.8		0		×	Siltstone	Rock coring began at 14:01 —
-			U	-	×	At 4.8' - reddish brown, mottled reddish black and greenish gray, very	on 6/20/06 R1: 14:04 - 14:07 and 14:14
-			0	-	× ×	 soft, laminated beds, high clay content, rock is elastic and cohesive 	- 14:18 on 6/20/06
-	R1NQ			-	×	4.8-17.7' - highly weathered	SC-1 collected
-	4.5 ft 104%	0	0	-	×	<u>*</u>	6.0-7.0'
-	10170			-	× ×	3	1
			0		×	X	
_			0	_	× × ×	<u>1</u>	At 8.5': R-Scale = R2-R3
_	9.3		XXX	_	××	9.3-14.3' - white clasts (0.02' - 0.05'	R2: 14:35-14:39 and 14:40-
10_ 252.8	.		0		×	thick)	14:41
252.0	.			-	× ×	} -	1
-			0	-	××) -	At 10.7': R-Scale = R1
-	R2NQ	0	0	-	×	}	1
_	5 ft 84%	U	U	-	× ×	}	1
-			0	-	×	*	1
-			0	-	×	*	1
-				-	× ×	}	1
_	14.3		\bowtie	_	×	≭	R3: 14:48-14:57
15			0		×××	<u>L</u>	At 14.8': R-Scale = R1
247.8				_	××	1	711 14.5.11 Oddio 111
_			0	<u>-</u>	×	*_	_
_	R3NQ			-	× ×	} -	_
-	5 ft 104%	32	0	-	×	X -	-
-				-	×	}	-
-	-		0	-	× ×	17.7-27.6' - dark reddish brown, mottled greenish gray, fresh	1
-			2	-	×	*	1
-	19.3		XXX	-	× × ×	}	1
20	1		0	-	××	\$	R4: 15:09-15:17 -
242.8				_	×	X	At 19.8': R-Scale = R3-R4 —
]		1	20.5' - Fracture, horizontal, rough, undulating	× × ×	1]
_	R4NQ				×	1	At 21.3': R-Scale = R3-R4
_	5 ft 98%	98	0	-	×	* _	_
-	30 /0			-	× × ×	} -	-
-			1	-	×	} -	-
-				23.2' - Fracture, horizontal, rough, undulating	× × ×	23.3-23.6' - trace medium sand	-
-	24.3		0	-	× × ×	}	-
-				-	×	*	R5: 15:22-15:29 -
					<u>L</u>		

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PROJECT NUMBER:

338884

BPA-16

SHEET 3 OF 9

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687020.2 N, 2012592.5 E)

ELEVATION: 262.8 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS: 9.0	VELS: 9.0 ft bgs START: 6/20/06 11:11		END: 6/27/06 14:36	LOGGER : LH/EM		
	_ (%			DISCONTINUITIES	g	LITHOLOGY	COMMENTS
QN (±)	AND ₹₹ (%	_	ZES T	DESCRIPTION		ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
237.8	R5NQ 5 ft 102%	88	2	25.7' - Fracture, horizontal, rough, planar	× × × × × × × × × × × × × × × × × × ×	24.3-27.6' - trace very fine to medium sand 24.3-24.4' - clay seam, very soft, friable material 25.4-25.5' - clay seam, very soft, friable material	
-	102 /6		1	27.4' - Fracture, horizontal, rough, planar 27.6' - Contact between siltstone and sandstone, horizontal, rough, planar	× > × > · · · ·	Sandstone 27.6-33.0' - weak red, soft to hard,	<u> </u>
-	29.3		0] - - -	 very fine sand to coarse sand, subangular to subrounded, poorly sorted, fresh 	-
30_ 232.8			0	_	 ::::	- 29.3-33.0' - bands of coarser and finer materials	R6: 15:33-15:41 Drillers remark: lost 40
-			3	30.6-30.8' - Fracture zone (3), horizontal and vertical, rough, undulating	 	-	gallons in last 2' of core run _
-	R6NQ 5 ft 99%	86	0			-	At 31.5': R-Scale = R3
-			1		 	Siltstone	-
-	34.3		1	33.3' - Fracture, 30 deg, rough, undulating, black and greenish gray stains 34.0' - Fracture, 30 deg, rough, undulating	× > × > × >	33.0-34.3' - dusty red, soft, fresh, very fine to coarse grained sand, fine gravel (<5%), medium bed	-
35_ 227.8	0 1.0		0		×.) 	Sandstone 34.3-36.5' - weak red, soft to hard,	R7: 15:46-15:56 – At 35.0': R-Scale = R3-R4
-			2	35.5-35.6' - Fractures (2), horizontal, rough, planar, silt lense with breaks on top and bottom		very fine sand to coarse sand, subangular to subrounded, poorly sorted, fresh, bands of coarser and finer materials	
_	R7NQ 5 ft 100%	94	2	36.5' - Contact between siltstone and sandstone, horizontal, rough, planar 36.7' - Fracture, horizontal, rough, planar	× > × > × >	Siltstone At 36.5' - dark reddish brown, mottled greenish gray, very soft, fresh] -
_			0	oc. Tradato, nonzoniar, roagn, pariar	× > × > × > × >	37.3-37.7' - very soft to soft, white clasts (0.02-0.04' thick)	At 37.7': R-Scale = R3-R4
-	39.3		0		×		
40_ 222.8			0	- -	- 	- — 39.8-40.2' - very fine sand (30%)	R8: 16:01-16:12 -
-			0		× > × > × >	40.4-43.1' - trace to some white clasts (0.02-0.1')	-
-	R8NQ 5 ft 94%	94	0		X	- 41.4-41.9' - very fine to fine sand (30%)	At 41.7': R-Scale = R3-R4
-			0		×	-	-
-	44.3		0		- (x) - (x) - (x)		-
-					× >	44.3-49.3' - mottled greenish gray	R9: 16:17-16:31 -

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PROJECT NUMBER:

338884

BPA-16

SHEET 4 OF 9

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687020.2 N, 2012592.5 E)

ELEVATION: 262.8 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

CORING EQUIPMENT AND METHOD: CME-330, NQ Double barrer										
WATER	LEVELS: 9.	0 ft bo	ıs	START : 6/20/06 1	1:11	END : 6/27/06 14:36	LOGGER : LH/EM			
	(%)			DISCONTINUITIES	٥	LITHOLOGY	COMMENTS			
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)		FRACTURES PER FOOT	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	CIZE AND DEDTIL OF CACING			
₹Ē_뱅	J. H.	(%) _Q	JAN TO	DEDTU TO OD SUTATION DOUGLANGO	ヿ ;;	MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND			
FASA	SGT SOV	0	SET	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY. INFILLING MATERIAL AND	1BC	WEATHERING, HARDNESS, AND ROCK MASS	SMOOTHNESS, CAVING ROD			
		R Q	FF.	THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYN	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.			
			0				_			
217.8					××					
_	1		0		×	<u>f</u>	1			
-	-		"		×	}-	1			
-	R9NQ				-×	1	1 -			
l _	5 ft	100	0		- ×	1				
	103%				××					
			0		×	47.4-49.3' - soft, trace medium sand	1			
-	-				- ×	7	1			
-					-×	}-	At 48.3': R-Scale = R3 -			
_	40.2		0		-×	-	1 -			
l -	49.3		XXX		×	49.3-50.4' - mottled greenish gray,	R10: 08:06-08:12 on			
50			0		×	soft, 0-30% very fine sand	6/21/2006			
212.8]			-	×		At 50.0': R-Scale = R3-R4			
1 -					1	- Sandstone] 			
-			0	51.0' - Contact between siltstone and	-1∷	_ 50.4-57.9' - very dark gray and light	-			
_	R10NQ			sandstone, mixed up; silt extends (in portions)	1::	reddish gray, soft, very thin to medium bedding, very fine sand to coarse	_			
	5 ft	100	0	into sandstone	1::	sand, subangular to subrounded,				
	104%				1::	poorly sorted, fresh	1			
-	-		0		1::	F ' '	1 1			
-	-		0		-	-	-			
_					4::	-	1 -			
l _			0]::	- 53.8-54.1' - beds on 30 degree angle]			
	54.3				1	33.0-54.1 - beds on 30 degree angle	D44: 00:47 00:04			
55 -	1		0		1::	Ī .	R11: 08:17-08:24 -			
207.8	-		"	-	Ⅎ∷	-	I ⊣			
-					-1::	-	1 -			
l _			0		1::	L	At 55.7': R-Scale = R3			
	D44NO				::		SC-2 collected			
	R11NQ 5 ft	97	0		1::		56.2' - 57.2'			
-	97%	0.			1::	<u>F</u>	1			
-					4::	-	I -			
I -			0	57.9' - Contact between siltstone and	- ×	Siltstone	1 _			
				sandstone, 45 deg, rough, undulating	××	At 57.9' - dark reddish brown, mottled				
1			0		×	greenish gray, very soft, white clasts	1			
1 -	59.3		XXX		××	(0.02' - 0.04' thick)	1			
-				FO CL Franking hadra the his	-×	57.9-97.7' - fresh 59.3-64.3' - mottled greenish gray and	R12: 08:30-08:37 -			
60_			0	59.6' - Fracture, horizontal, rough, planar	×	reddish black, very soft to soft	-			
202.8				60.1' - Fracture, horizontal, rough, planar	×	59.3-62.3' - white clasts (0.01-0.05'				
			0	60.2' - Fracture, horizontal, rough, undulating	×	thick)	1			
I -					××	T	1			
-	R12NQ				- ×	}	-			
-	5 ft 99%	85	0		-\x\	<u>}</u>	At 61.7': R-Scale = R3-R4 _			
1 _	33/0			62.3' - Fracture, horizontal, rough, planar	- × ×	1]			
			0	62.4' - Fracture, horizontal, rough, planar	×		1			
I -	1			62.5' - Fracture, horizontal, rough, planar	×	1	1			
-	-				\dashv ×	}	At 63.5': R-Scale = R3-R4			
1 -	64.2		0		- × ×	∔				
l _	64.3		<u> </u>		- × ×	1	R13: 08:42-08:48			
					×	1	11.5. 55. 12 55. 10			
					1					



PROJECT NUMBER:	BORING NUMBER:		
338884	BPA-16	SHEET	5 OF 9

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687020.2 N, 2012592.5 E)

ELEVATION: 262.8 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				THOD . CIVIE-930, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS: 9.	0 ft bo	ıs	START : 6/20/06 11	:11	END : 6/27/06 14:36	LOGGER : LH/EM
	<u></u>			DISCONTINUITIES	ڻ ا	LITHOLOGY	COMMENTS
oz €	CORE RUN, LENGTH, AND RECOVERY (%)		S	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	
DEPTH AND ELEVATION BELOW SURFACE (ft)	A'UN ER'A	(%	FRACTURES PER FOOT		- 3	MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
H A S A	SOV	R Q D (%)	PF	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	l BG	WEATHERING, HARDNESS, AND ROCK MASS	SMOOTHNESS, CAVING ROD
SEEE	REGE	A Q	동편 주류	THICKNESS, SURFACE STAINING, AND TIGHTNESS	S	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
			0			— 64.3-69.3' - mottled greenish gray and	
197.8					××××	reddish black, very soft to soft	
			0		T× ?	[
_					1× ;	f	At 65.9': R-Scale = R3-R4
-	R13NQ		0		- × ;	}	-
-	5 ft 100%	100	0		$-\frac{\hat{x}}{\hat{x}}$	}-	-
_					- × ∶	}-	-
_			0		_ × ;	1	_
_					××	1	At 68.1': R-Scale = R3-R4
			0		T× ?	[
_	69.3				- × ;		11
70			0		- × ;	 69.3-99.3' - mottled greenish gray and reddish black, soft 	R14: 08:55-09:02
70 <u> </u>			0	-	$\frac{1}{x}$	reddish black, solt	-
102.0					_ × >	}_	-
l _			0		_\	1	
	R14NQ				××	1	
	5 ft	100	0		7× ;	[At 71.7': R-Scale = R3-R4
-	104%				× ;	70.01 1.11 1.40.051)	
-					- x :	72.2' - white clast (0.05')	-
-			0		- × ;	}-	-
_					_ × ;	1	_
l _			0		× ;	1	At 73.7': R-Scale = R3-R4
	74.3		$\times\!\!\times\!\!\times$		××	1	R15: 09:08-09:20
75			0		1× ;	f	K15. 09.06-09.20
187.8				_	× ;	75 0 70 01 1 11 1 1 10 041 0 051	
-					- × ;	75.2-76.0' - white clasts (0.01' - 0.05' thick)	1
-			0		-1	- unok)	At 70 4h D O - le - DO D4
_	R15NQ				_ ^	<u> </u>	At 76.1': R-Scale = R3-R4
_	5 ft	100	1	76.8' - Fracture, horizontal, smooth, undulating	- × ;	76.7-79.3' - white clasts (0.01' - 0.05'	
	100%			. 0.0	× ;	thick)	At 77.2': R-Scale = R3-R4
-			0		- × ;	f	1
-					× ;	f	1
-			_		-1	}-	-
_	79.3		0		_ × >	}-	-
_	19.5			79.4' - Fracture, horizontal, smooth, undulating	- × ;	<u> </u>	R16: 09:27-09:39
80			1	75.4 Tradiate, Horizontal, Smooth, and diduling	× >	1	
182.8				_]× ;	Γ	At 79.9': R-Scale = R3-R4 —
_			4		1× ?	f	1
-				80.9' - Fracture, 20 deg, smooth, undulating	- × ;	91 1 91 E' play sooms	1
_	R16NQ			81.1-81.5' - Fractures (7), horizontal, smooth, undulating, 0.01-0.02' thick clay seams	- ≎ 3	81.1-81.5' - clay seams	-
-	5 ft 102%	82	4	undulating, 0.01-0.02 thick day seams	- × × × × × × × × × × × × × × × × × × ×	}	-
_	102/0			82.2' - Fracture, horizontal, rough, planar	(x)	1	
1			0		× ;	1	1
-					\mathbb{T}_{\times}	1	1
_			1	83.6' - Fracture, horizontal and 20 deg, rough,	- × × × × × × × × × × × × × × × × × × ×	f	
-	84.3			planar	- × (}	-
-			\sim	84.2' - Fracture, horizontal, rough, planar	- x	 	R17: 09:51-10:00 -
					1^	1	
						ļ.	

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PROJECT NUMBER:

338884

BORING NUMBER:

BPA-16

SHEET 6 OF 9

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687020.2 N, 2012592.5 E)

ELEVATION: 262.8 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

CORING EQUIPMENT AND METHOD. CME-330, NQ Double Barrel								ORIENTATION : Vertical
WATER	LEVELS: 9.	0 ft bo	js	START : 6/20/06 1	1:11	_	END: 6/27/06 14:36	LOGGER : LH/EM
	(9)			DISCONTINUITIES	ڻ ا	L	LITHOLOGY	COMMENTS
oz €	CORE RUN, LENGTH, AND RECOVERY (%)		S	DESCRIPTION	SYMBOLIC LOG		ROCK TYPE, COLOR,	
DEPTH AND ELEVATION BELOW SURFACE (ft)	RUN H, A ER'	(%	FRACTURES PER FOOT				MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
F S S F	RE F GTI	R Q D (%)	FCT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	1 0g		WEATHERING, HARDNESS, AND ROCK MASS	SMOOTHNESS, CAVING ROD
	SON	οκ	FRA	THICKNESS, SURFACE STAINING, AND TIGHTNESS	≥	:	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
	014		0			<u> </u>		
177.8			Ľ		-× ×	χ	_	At 85.0': R-Scale = R3-R4
-			0		٦×	3	05.7.07.71	1 1
-			0		-× ×	*	85.7-87.7' - white clasts (0.01' thick)	1 -
_	R17NQ				-×	X		At 86.3': R-Scale = R3-R4
l _	5 ft	99	0		- ×	X		
	99%				×	Š		
-			0		- ×	*		1
-			"		-l× ×	X		-
_					-× ×	<u>X</u> _		-
_			0		- X	X.		_
	89.3				×	×		D40: 40:40 40:20
90			0		××	*		R18: 10:10-10:30 -
172.8					⊢× ×	*	_	At 89.8': R-Scale = R3-R4 —
-					- x	¥-	90.2' - large greenish gray mottles	-
l _			0		×	ΧL	90.2-91.5' - soft to hard, grades from 0 to 30% fine to medium sand with small	
	D.401.10				×	×	white clasts (0.01-0.02')	
-	R18NQ 5 ft	89	0		××	ď	90.2-94.3' - white clasts (0.01-0.05')	1
-	89%	03	"		Η×	3	91.5' - large greenish gray mottles	At 92.0': R-Scale = R3-R4
_					-×	X		-
_			0		××	X_		SC-3 collected
			_		×	X		92.75 - 93.55'
_			0		×	X		1
-	94.3		\bowtie		-× ×	*		1
-			VVV		- ×	X -	94.2' - large greenish gray mottles	R19: 10:37-10:47 -
95			0		××	X_	– 94.8' - 50-95% large greenish gray	_
167.8					×	Ŕ	and reddish black mottles	At 95.1': R-Scale = R3-R4
			10+		×	χ		
-				95.8-96.4' - Fracture zone, horizontal, rough	- ×	X-		1
-	R19NQ				- ×	<u>X</u> -	96.4-97.5' - white clasts 0.01' - 0.05'	-
_	5 ft	78*	1	96.6' - Fracture, 30 deg	-×	X_	thick	At 96.7': R-Scale = R3-R4
l _	99%			07.41 Franking beginning to make an disloting	^×	Ŷ		
Ι -			10+	97.4' - Fracture, horizontal, rough, undulating 97.7-98.1' - Fracture zone, horizontal, rough,	- × × - ×	XT	97.7-98.1' - clay seams	1
I -			Ľ	undulating, 0.01' thick clay seam	××	*	97.7-98.6' - moderately weathered	1 1
-				98.4-98.6' - Fracture zone, horizontal, rough,	-× ×	*	98.4-98.6' - clay seams	1 -
1 -	00.2		2	undulating, 0.01' thick clay seam	∃ ŝ	}	98.6-110.1' - fresh	-
I -	99.3		<u> </u>	99.0' - Fracture, horizontal, rough, undulating	- × - × - ×	*	99.3-110.1' - trace greenish gray and	R20: 11:01-11:09
100			0		×	X	reddish black mottling, soft, trace	1.23. 11.31 11.33
162.8					×	y	medium sand at bottom	
-					Η×	*		1 -
-			0		-×	*		-
I _	R20NQ				_×	1		
	5 ft	96	0		×	χ		At 101.5': R-Scale = R3-R4
-	96%				×	3		1
-			[-×	*		1
-			0		-× ×	X		-
I _					×	X.		l J
			0		×	Ŕ		At 103.6': R-Scale = R3
-	104.3		XXX		××	*		1 1
-					- ×	*		R21: 11:13-11:36 -
					TÎ	1		
					-			
			L			ㅗ		

2BB-113 Rev. 1



PROJECT NUMBER:

338884

BPA-16 SHEET 7 OF 9

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687020.2 N, 2012592.5 E)

ELEVATION: 262.8 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				THOD : CME-550, NQ Double Barrel				ORIENTATION : Vertical
WATER	LEVELS: 9.	0 ft bo	IS	START : 6/20/06 1	1:11 	END : 6/27/06 14		LOGGER : LH/EM
_	CORE RUN, LENGTH, AND RECOVERY (%)			DISCONTINUITIES	9	LITHOLOGY		COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	ZAN YAN	<u></u>	FRACTURES PER FOOT	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COL MINERALOGY, TEX	OR,	SIZE AND DEPTH OF CASING,
FAC PAC	E RI STH OVE	R Q D (%)	FOC	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	BOL	WEATHERING, HARD	DNESS,	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
EEE.	SOR	۱۵۶	FRA(PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	Σ	AND ROCK MAS CHARACTERISTI		DROPS, TEST RESULTS, ETC.
	016	ш.	0					
157.8					××	1		At 105.0': R-Scale = R3-R4
-			0		×	[1
_					×	[1
-	R21NQ 5 ft	100	0		×			1 7
-	104%	100			-× ×	<u> </u>		-
-			0		-×	}		At 107.5': R-Scale = R3-R4
-			U		-×	}-		-
-					-×	108.2-108.7' - trace very f	fine sand	-
_	109.3		0		-×	(<15%) -		-
_	103.5		$\times\!\!\times\!\!\times$		- ×			R22: 11:31-11:45
110_			0	<u>-</u>	_×	109.7' - large white clasts	(0.07' thick,	At 109.7': R-Scale = R3-R4
152.8					_::	0.1 long)] _
_			1	110.6-111.0' - Fracture, 60 deg, rough		Sandstone 110.1-111.1' - dusky red,	mottled dark	
	DOONO				××	reddish brown, soft, fresh		
_	R22NQ 5 ft	100	0]××	- \- 50% silt - \110.3' - laminated silt laye	or /	At 111.5': R-Scale = R3-R4
_	100%				×	Siltstone	J	1
-			0		×	At 111.1' - dark reddish bi	rown, soft to	1
-			Ŭ		₹ ×	 hard, medium bedding, from medium grained, white class 	esh, fine to	-
-			0		- ×	0.01-0.05' thick		-
-	114.3		U		-\x\in	112.3-113.8' - trace greer	nish gray and	At 113.7': R-Scale = R3-R4 _
-					-××	reddish black mottling, wh	nite clasts	R23: 11:35-12:02 -
115 <u> </u>			0	-	×	113.8-114.3' - trace greer	nish gray	
147.5					-×	mottling 115.4' - begins to grade to	n sandstone	-
_			1	115.8' - Fracture, horizontal, rough, planar	×	_ 0-30% very fine to mediur	m sand	_
_	R23NQ			116.3-116.3' - Fractures (2), horizontal, rough,	×_	- Sandstone		1 _
_	5 ft	100	1	undulating, clay and 0.05 thick shale layer]::	116.3-124.0' - dusky red		_
	106%					reddish gray, very fine to grained, soft, medium sar		
-			1	117.6' - Fracture, horizontal, smooth, planar	1::	subangular, poorly sorted	l, fresh,	1
_					7::	lighter and darker bands,		At 117.9': R-Scale = R3-R4
-			0		1::	 more silt content (up to 50 	J%)	
-	119.3				1::	<u> </u>		-
120			$\underset{0}{\bigotimes}$		1::	 119.3-124.0' - very fine to grained, soft to hard, very 		R24: 12:58-13:09 -
142.8				-	\exists	grained, soft to hard, very subangular to subrounded	d, grayish	At 120.0': R-Scale = R3-R4
-					-	 green and dusky red siltst 	tone lenses,	-
-			0		-	laminated to medium bed 20 degree orientation, we		-
-	R24NQ				4.:	 poorly sorted 	55.154 15] -
-	5 ft 100%	100	0		4::	-		-
_	100 /0				4::	_] _
_			0]::	L]
]::	L		
			0		:]
	124.3				×			1
					-× ×			
						l		<u> </u>



PROJECT NUMBER:

338884

BPA-16

SHEET 8 OF 9

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687020.2 N, 2012592.5 E)

ELEVATION: 262.8 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

CORING	EQUIPMEN	ORIENTATION : Vertical					
WATER	LEVELS: 9.0	0 ft bo	ıs	START : 6/20/06 11	:11	END : 6/27/06 14:36	LOGGER : LH/EM
	. (6			DISCONTINUITIES	ق	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
137.8			1	124.0' - Contact between siltstone and sandstone, 20 deg, rough, planar, tightly	× ;	— Siltstone At 124.0' - dark reddish brown, trace	R25: 09:24-09:42 on — 6/27/2006
_	DOCALO		0	healed 125.0' - Fracture, 45 deg, rough, stepped	X	greenish gray and reddish black mottling, soft, fresh 124.3-129.3' - very soft to soft	At 126.1': R-Scale = R3-R4
_	R25NQ 5 ft 100%	87	1	127.0' - Fracture, horizontal, smooth, planar	- × × × × × × × × × × × × × × × × × × ×	127.2-127.8' - sand to gravel sized	-
_			3	127.8' - Fracture, horizontal, smooth, planar 127.9' - Fracture, horizontal, smooth, planar 128.1' - Fracture, horizontal, smooth, planar	× ; × ; × ;	white clasts	_
_	129.3		1	129.0' - Fracture, horizontal, smooth, pianal 129.0' - Fracture, horizontal, rough, undulating, greenish gray stains	× × × × × ×	129.0-129.3' - trace very fine sand	At 128.8': R-Scale = R3-R4 _ R26: 09:52-10:06 _
130 <u> </u>			0		× × × × × × × × × × × × × × × × × × ×	_	Tried to retreive the last 0.55' but couldn't -
-	R26NQ 5 ft	89	0		× ; × ; × ;	-	-
_	89%		0		× ;		- At 132.7': R-Scale = R3-R4
_	134.3		0		× ; × ; × ;	-	-
135 127.8	104.0		0	_	× ; × ; × ;	_	R27: 10:22-10:41
_	507110		10+	136.0-136.2' - Fracture zone, 45 deg and	× ;	-	-
- -	R27NQ 5 ft 100%	84	0	horizontal, slickensided/rough, undulating	× ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;		At 137.1': R-Scale = R3-R4 SC-4 collected 137.5' - 138.5'
-	139.3		10+	138.9' - Fracture, horizontal, rough, undulating 139.3' - Fracture zone, horizontal, rough,	× × × × × × × × × × × × × × × × × × ×	_	-
140 <u> </u>			0	undulating, 0.05' thick	× ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;		R28: 10:49-11:08 -
_	R28NQ 5 ft	72*	10+	141.4-141.8' - Fracture zone, horizontal and vertical, rough/smooth, planar	× ; × ; × ;	Siltstone At 141.4' - olive gray, greenish gray,	At 141.1': R-Scale = R3-R4 -
-	106%		3	142.3' - Fracture, horizontal, smooth, planar 142.9' - Fracture, 30 deg, smooth, undulating	× ; × ; × ;	and dark reddish brown, laminated beds 141.4-147.6' - moderately weathered 142.4-143.3' - beds on 30-40 degree	-
- -	144.3		10+	143.5' - Fracture, horizontal, smooth, planar	× ; × ; × ; × ;	angle 143.3' - clay seam, very soft, friable material, 0.05' thick	- - R29: 11:26-11:52 -
					× .		

2BB-115 Rev. 1



PROJECT NUMBER:

338884

BPA-16

SHEET 9 OF 9

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687020.2 N, 2012592.5 E)

ELEVATION: 262.8 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIE WATER LEVELS : 9.0 ft bqs START : 6/20/06 11:11 END : 6/27/06 14:36 LOGG									
WATER		0 ft bo	S	START : 6/20/06 11 DISCONTINUITIES	:11 	END : 6/27/06 14:36 LITHOLOGY	LOGGER : LH/EM COMMENTS		
	(%)				90.	LITHOLOGY	COMMENTS		
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	(%	FRACTURES PER FOOT	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND		
YEA SEA	Z E F	R Q D (%)	CTL PF0	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	/BO	WEATHERING, HARDNESS, AND ROCK MASS	SMOOTHNESS, CAVING ROD		
部温温学	SHR	A Q	FE.	THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYI	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.		
117.8			10+	143.7-144.3' - Fracture zone, with clay seams, —	× ×	— 144.3-146.9' - dark greenish gray and	_		
-				material is crumbled up, very soft rock and clay, very few pieces with horizontal breaks	× >	greenish gray, mottled olive yellow and pale olive, very soft, laminated			
-			10+	and bedding planes	× >	- beds	SC-5 collected 145.7' - 146.5'		
-	R29NQ			144.5-144.9 - Fracture zone, with clay seams, crumbled up, undulating, rough, planar,	× > × > × >	}	-		
-	5 ft 101%	73*	4	smooth, clay seams are very soft, friable and >	-{	146.9-152.4' - mottled dark reddish	1		
-			_	0.1' thick 145.2' - Fracture, horizontal, smooth, planar	××	brown and pale olive, soft, trace very fine sand	1		
-			1	145.4' - Fracture, horizontal, smooth, planar	- (×)	- 146.9-147.0' - clay seam, very soft	At 147.9': R-Scale = R3-R4		
-			_	148.5' - Fracture, horizontal, smooth, planar	× >	(easily indented with fingernail), friable material	-		
-	149.3		3	148.9' - Fracture, horizontal, smooth, planar	× > × > × >	- 147.3-147.6' - clay seam, alternating	1		
450			3	149.6' - Fractures (2), horizontal, smooth,		with siltstone, very soft, friable material, laminated beds, <0.01' -	R30: 13:27-13:46 –		
150 <u> </u>			3	planar	- (×)	- 0.02' thick	1 -		
-			_	150.0' - Fracture, horizontal, rough, undulating 150.4' - Fractures (2), horizontal, smooth,	××	147.6-152.4' - fresh	1		
-			1	planar	××	}	-		
-	R30NQ 5 ft	97	0	-	× >	}	-		
-	99%	91	U	-	× > × > × >	-	At 151.7': R-Scale = R3-R4 _		
-			3		× >	Siltstone	1 -		
-	-		3	152.7' - Fracture, horizontal, rough, planar 152.8' - Fracture, horizontal, rough, planar	× >	_ 152.4-156.3' - dark reddish brown, mottled pale olive and greenish gray,	1		
-			0	152.8' - Fracture, horizontal, rough, planar	××	fresh	1		
-	154.3				۲× ۶	}	1		
155			0	-	×	}	R31: 13:55-14:09 -		
107.8					×××		-		
-			0	-	× >	[1		
-				-	× >	-	- - At 156.2': R-Scale = R3-R4		
-	R31NQ 5 ft	96	0	-	× > × > × >	- Siltstone 156.3-163.3' - dark greenish gray and	71 100.2 : 11 Ocale 110 114		
-	96%			-	x	greenish gray, mottled olive yellow,	1		
-			0	-	××	very soft, fresh, laminated beds	1 1		
-				-	××	[1 1		
-	1		0	·	× ×	†	1		
-	159.3		XXX	-	× × × ×	<u> </u>	D20: 14:16 14:26		
160]		0	-	× ×	T	R32: 14:16-14:36 -		
102.8]			_	××	T	7		
-	R32NQ		0		××	f	At 160.7': R-Scale = R3-R4		
-	4 ft	100			×	161.0-163.3' - mottled weak red	First water level = 9.0' bgs		
	108%		0]× ;	[taken 6/27/06 at 15:30;		
					××	1	second water level = 5.4' - bgs taken 6/28/06 at 18:05 _		
			2	162.7-162.9' - Fracture zone, horizontal and 45	× × × × × × × × × × × × × × × × × × ×	1]		
	163.3		$\times\!\!\times\!\!\times$	deg, rough, undulating, with clay seam at bottom (0.02' thick)	l× ;	Bottom of Boring at 163.3 ft bgs on	R-scale performed after Adrilling on stored samples		
-]			South (0.02 tillor)	1	6/27/06 14:36	driming on stored samples		
_]					_]		
<u> </u>					\vdash				
	•				-	•	•		

2BB-116 Rev. 1



PROJECT NUMBER:

338884

BPA-17 SHEET 1 OF 4

SOIL BORING LOG

 PROJECT : PEC COLA, New Hill, NC
 LOCATION : (NAD 27) (686934.2 N, 2012635.6 E)

 ELEVATION : 262.4 ft MSL (NGVD 29)
 DRILLING CONTRACTOR : L. Morrison, S&ME

DRILLING EQUIPMENT AND METHOD: CME-550, 3-5/8 Tricone Bit, 24 Split Spoon and 140 lb. Automatic Hammer ORIENTATION: Vertical WATER LEVELS: 5.3 ft bgs START: 7/8/06 08:15 END: 7/8/06 11:26 LOGGER: LH SOIL DESCRIPTION COMMENTS DEPTH BELOW EXISTING GRADE (ft) STANDARD PENETRATION LOG INTERVAL (ft) TEST RESULTS SYMBOLIC DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION SOIL NAME, USCS GROUP SYMBOL, COLOR, RECOVERY (in) MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY 6"-6"-6" #TYPE (N) 262.4 0.0 Topsoil 0.0-0.1 Clay (CL) SS1SS 3-7-11-11 20.4 0.1-0.7' - yellowish red, mottled black and gray, dry, (18)medium stiff 2.0 Clay (CL) \0.7-1.7' - reddish brown, dry, very stiff Clay (CL) 2.5-4.1' - reddish brown, mottled dark reddish gray, 2.5 weak red, and light greenish gray, dry, very stiff 19.2 SS2SS 5-5-20-26 (25)4.5 Soil sampling completed at 08:41 on 7/13/06 5 257.4 5.0 1.0 **ASS3SS** 5.1 5.0-5.1' - reddish brown, mottled dark reddish gray, weak red, and light greenish gray, dry, very stiff 50/1 (50/1")Begin Rock Coring at 5.2 ft bgs See the next sheet for the rock core log 10 252.4 15 $247.\overline{4}$ 20



PROJECT NUMBER:

338884

BPA-17 SHEET 2 OF 4

ROCK CORE LOG

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686934.2 N, 2012635.6 E)

ELEVATION: 262.4 ft MSL (NGVD 29)

DRILLING CONTRACTOR: L. Morrison, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	WATER LEVELS : 5.3 ft bgs		START : 7/8/06 08:	15	END : 7/8/06 11:26	LOGGER : LH	
	6)			DISCONTINUITIES	Ğ	LITHOLOGY	COMMENTS
92 €	Ä, AND ≪ (%		ES T	DESCRIPTION	C LO	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERAL.OGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
_	5.2		0		× ×	Siltstone	Rock coring began at 09:18
-			1	6.2' - Fracture, horizontal and 30 deg, rough, undulating	× × × × × ×	At 5.2' - dark reddish brown, mottled reddish black and greenish gray, very soft, laminated beds 5.2-5.7' - clay seam, very soft, moist	on 7/8/06 R1: 09:18-09:23 on - 07/08/06 At 5.2-12.3': R-Scale = R0-
-	R1NQ 4.8 ft	0	0		× × × × × ×	- 5.2-12.8' - highly weathered _ 7.2-7.7' - 20-30% very fine sand	R1 - At 5.5': PP: 3.25 tsf
-	100%		0		× × × × × ×	-]
10	10.0		5	9.5' - Fracture, horizontal, smooth, planar 9.6' - Fracture, horizontal, smooth, planar —	× × × × × ×	9.2-9.3' - clay seam, very soft, moist	At 9.2': PP: 1.3 tsf
252.4			4	9.7' - Fracture, nonzontal, smooth, planar 9.7' - Fractures (2), horizontal, smooth, planar 10.1' - Fracture, horizontal, rough, planar 10.2' - Fracture, 45 deg, rough, undulating	× × × × × × × ×	10.0-15.0' - soft, beds not laminated 10.6-10.8' - clay seam, firm, friable	R2: 09:37-09:53
-	DONO		10+	10.6' - Fracture, 30 deg, rough, undulating 11.1-12.0' - Fracture zone, rough, smooth, planar, undulating	× × × ×	material - -]
-	R2NQ 5 ft 100%	28	2	12.3' - Fracture, horizontal, smooth, planar 12.5' - Fracture, horizontal, rough, planar	× × × × × × × ×	_ _ 12.8-14.5' - slightly weathered]
-			0		× × × × × ×	- 13.4-14.5' - 20-40% very fine sand -	- At 13.7': R-Scale = R3
15_ 247.4	15.0		3	14.5' - Fracture, horizontal, rough, planar 14.6' - Fracture, horizontal, smooth, planar —	× × × × × ×	14.5-20.0' - highly weathered	At 14.5-20.0': R-Scale = R0-
-			2	14.8' - Fracture, 20 deg, rough, undulating 15.1' - Fracture, horizontal, rough, planar 15.3' - Fracture, horizontal, rough, planar	× × × × × ×	-	R3: 10:02-10:11
-	R3NQ		0		× × × × × ×	16.9-18.6' - heavily mottled reddish	
-	5 ft 100%	0	0		× × × × × ×	_ black -	
-			0	19.1-20.0' - Fracture, horizontal, smooth,	× × × × × × × ×	-]
20 242.4	20.0		3	undulating, clay and siltstone alternating seams, firm	× × × ×	20.0-20.1' - mottled red	R4: 10:17-10:25
-			2	20.8' - Fracture, horizontal, rough, undulating, reddish black stains	× × × × × ×	20.1-20.9' - mottled reddish black 20.0-25.5' - moderately weathered	At 20.0-21.3': R-scale = R1
-	R4NQ 5 ft	76	1	20.9' - Fracture, horizontal, rough, undulating, reddish black stains 21.3' - Fracture, horizontal, rough, planar 21.6' - Fracture, horizontal, rough, planar	× × × × × × × ×	-]
-	95%		1	22.4' - Fracture, horizontal, smooth, planar	× × × × × × × ×	-	At 22.9': R-Scale = R2-R3 -
-			0	23.7' - Fracture, 20 deg, rough, planar	× × × × × ×	-	At 23.7-25.0': R-Scale = R1 R2
25	25.0		$\times\!\!\times\!\!\times$	-	× × × ×	_	_

2BB-118 Rev. 1



PROJECT NUMBER:

338884

BPA-17 SHEET 3 OF 4

ROCK CORE LOG

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686934.2 N, 2012635.6 E)

ELEVATION: 262.4 ft MSL (NGVD 29)

DRILLING CONTRACTOR: L. Morrison, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	LEVELS: 5.3	3 ft bo	IS	START : 7/8/06 08:1	15		END: 7/8/06 11:26	LOGGER : LH
				DISCONTINUITIES	(J	T	LITHOLOGY	COMMENTS
oz €	CORE RUN, LENGTH, AND RECOVERY (%)		S	DESCRIPTION	SYMBOLIC LOG		DOCK TYPE COLOR	
EVATION ELOW JRFACE (ft)	N. A. S.	(9	FRACTURES PER FOOT	DEGORII TICIV	윽	2	ROCK TYPE, COLOR, MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING,
EPTH AN EVATION ELOW JRFACE	H ES	(%) 🛭	J. S.	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	屃	Ž I	WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
판권공류		Ø	AAC ER	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	Įξ		AND ROCK MASS	DROPS, TEST RESULTS, ETC.
	032	ď		THICKNESS, SURFACE STAINING, AND TIGHTINESS			CHARACTERISTICS	, ,
_			10+	250-25.5' - Fracture zone, some clay	××	×	05.5.00.01.11.11.11.11.11.11	R5: 10:29-10:40 _
					×××	X	25.5-26.2' - highly weathered, clay	
					× >		seam, firm 26.2-35.0' - moderately weathered	At 25.0-26.2': R-scale = R0
-			4	26.5' - Fracture, horizontal, rough, planar	× ;	X	20.2-33.0 - Moderatery Weathered	_
-	DENO			26.6' - Fracture, horizontal, smooth, planar	××	<u></u>		-
_	R5NQ 5 ft	61	1	26.8' - Fracture, horizontal, rough, planar	×	ΧL	27.2-29.0' - soft, no laminated beds,	_
	98%	٠.	•	27.4' - Fractures (2), horizontal and 60 deg,	× >	X	20-40% very fine sand	
_				smooth, stepped	× ×	Χ		At 27.9': R-Scale = R3-R4
-			2	28.5' - Fracture, horizontal, rough, planar	- × ∶	<u>}</u>		-
_				28.6' - Fracture, horizontal, rough, planar	××	X-		_
			4	29.0' - Fracture, horizontal, rough, undulating	××	X		
30	30.0		4	29.2' - Fracture, horizontal, smooth, planar	× >	\mathbf{x}		1
232.4	55.0		$\sim\sim$	29.6' - Fracture, horizontal, smooth, planar —	×	X —	30.0-30.5' - soft, no laminated beds,	R6: 10:47-10:56
			0	29.8' - Fracture, horizontal, smooth, planar	×	X -	and 20% very fine sand	-
_				_	× >	$\frac{1}{2}$	•]
				31.1' - Fracture, horizontal, rough, planar	××	×	31.2-31.7' - soft, no laminated beds,	
-			2		× ;	XT	and 20% very fine sand	1
-	DENO			31.7' - Fracture, horizontal, rough, undulating	×××	<u>X</u> -	•	-
_	R6NQ 5 ft	74	5	32.1' - Fractures (2), horizontal, rough, planar 32.4' - Fracture, horizontal, rough, planar	_ × >	X	32.1-32.4' - soft, no laminated beds, and 20% very fine sand	At 32.4-33.0': R-Scale = R0-
	100%			32.4 - Fracture, nonzontal, rough, planar	× ×	×	•	R1
				33.0' - Fracture, horizontal, smooth, planar	× >	<u>X</u>	32.9-35.0' - gravel sized white clasts	SC-1 collected
-			1	33.5' - Fracture, horizontal, rough, planar	××	}		33.0-33.5'
_				, , , , , , , , , , , , , , , , , , , ,	××	X L		_
			4	34.0' - Fracture, horizontal, rough, planar 34.1' - Fracture, horizontal, rough, planar	× >	X_		
35	35.0		4	34.1 - Fracture, horizontal, rough, planar	××	λ	34.5-35.0' - soft, no laminated beds,	
227.4	00.0			34.5' - Fracture, horizontal, rough, planar	× ;	X-	and 20% very fine sand	R7: 11:01-11:11
-			3	35.3' - Fracture, horizontal, rough, undulating	×	<u>X</u> -	35.0-40.0' - slightly weathered 35.5-35.6' - 0.1' thick reddish black	-
_				35.8' - Fracture, horizontal, rough, undulating	× >	χL	and greenish gray mottles	_
				36.0' - Fracture, horizontal, rough, planar	× ×	X	35.7-35.8' - 0.1' thick reddish black	
_			1	36.1' - Fracture, horizontal, rough, planar	× ×	Χ	and greenish gray mottles	At 36.4': R-Scale = R3-R4
-	R7NQ			-	- × ×		36.1-40.0' - soft, no laminated beds,	-
_	5 ft	88	0		××	X-	0-40% very fine sand, coarsens with	_
	100%		_		× ×	X	depth	
					× >	χ		1
-			0		×	X		-
-				-	××	X -		-
			0		× >	\mathbb{Z}		
40	40.0				××	×		
222.4	. 3.0			_	1 ::::	-	Sandstone	R8: 11:18-11:26
-			0		∤∷ ∷		40.0-44.0' - dusky red and weak red,	-
-					1:::	:[-	hard, laminated to medium bedding,	
					[:::		very fine sand to coarse sand,	At 41.1': R-Scale = R3-R4
			0		1:::	:[subangular to subrounded, poorly sorted, fresh, coarser and finer bands	At 42.8': R-Scale = R3-R4
-	R8NQ			-	┨∷∷	: -	sorted, ilesii, coarsel allu ililei ballus	First water level = 5.3' bgs
_	5 ft	92	0		. ∷	: -		taken 7/8/06 at 14:36
	98%]:::	<u>:</u> L		
				43.1-43.4' - Fracture, 50 deg, rough,	 :::	:[R-scale performed after
_			2	undulating	1∷:	: -	43.6-43.7' - siltstone lense with gravel	drilling on stored samples -
-				43.3-43.6' - Fracture, 65 deg, rough,	× ;	*	43.6-43.7 - slitstone lense with gravel sized white clasts	-
_			0	undulating	× ; × ; × ;	*L `	OIZOG WITTE CIGOLO	
45	45.0				ê ŝ	8		
			~~~	T	<b> </b>	<b>T</b>	Γ	
					1			
					1	1		



PROJECT NUMBER:	BORING NUMBER:			
338884	BPA-17	SHEET	4 OF	4

#### **ROCK CORE LOG**

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686934.2 N, 2012635.6 E)

ELEVATION: 262.4 ft MSL (NGVD 29)

DRILLING CONTRACTOR: L. Morrison, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	LEVELS : 5.	3 ft bo	ıs	START : 7/8/06 08:15	5	END: 7/8/06 11:26	LOGGER : LH
	6)			DISCONTINUITIES	9	LITHOLOGY	COMMENTS
gz €	N, AND ?Y (%		ES	DESCRIPTION	070	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
				44.0' - Contact between siltstone and sandstone, horizontal, rough, undulating, hummocky, tightly healed		Siltstone  44.0-45.0' - dark reddish brown, mottled reddish black and greenish gray, very soft to soft, fresh, laminated beds, 0-20% very fine to medium sand  Bottom of Boring at 45.0 ft bgs on 7/8/06 11:26	- - - - - - - - - - - - - - - - - - -
55_ 207.4				-		_	-
207.4				-		_	-
_				-		_	_
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60 202.4				-		_	_
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				]			_
65						_	



PROJECT NUMBER:

338884

BORING NUMBER:

BPA-18 SHEET 1 OF 3

# **SOIL BORING LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687144.9 N, 2012671.5 E)

ELEVATION: 261.9 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

DRILLING EQUIPMENT AND METHOD: CME-550, Tricone Bit, 24 Split Spoon, and 140 lb. Automatic Hammer ORIENTATION: Vertical

DRILLIN	IG EQUI	PMENT A	AND MET	HOD: CME-550	Tricone Bit, 24 Split Spoon, and 140 lb. Automatic Hammer			ORIENTATION : Vertical
WATER	LEVELS	5 : 5.5 ft b	gs		START : 7/13/06 16:25 END : 7/1	4/06	13:18	B LOGGER : JF
DEPTH E	BELOW EX	(ISTING C	RADE (ft)	STANDARD	SOIL DESCRIPTION	ני		COMMENTS
	INTERV	AL (ft)		PENETRATION TEST RESULTS		SYMBOLIC LOG		
		RECOVI	ERY (in)	120111200113	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR	12	Œ	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND
			#TYPE	6"-6"-6"	CONSISTENCY, SOIL STRUCTURE, MINERALOGY	MBC	(TSF)	INSTRUMENTATION
			,,,,,	(N)		λS	ద	
261.9	0.0				Silt (ML)			
			00400	7 45 40 04	0.0-Ò.8' - red, dry to moist, very fine grained, nonplastic,	Ш	ł	
-		9.0	SS1SS	7-15-18-21 (33)		1		Soil is pulverized, acting cohesionless
-	2.0			(66)	•	1		-
-	2.0					1		-
-	2.5				Sandy Silt (ML)	$\mathbf{f}_{\Pi}$	ł	-
-					2.5-2.9' - dark reddish brown, moist, medium dense to	₩	1	-
-		8.0	SS2SS		loose, nonplastic, 20% fine sand Silt (ML)	-		-
-				(33)	2.9-3.2' - red, dry to moist, nonplastic, trace gravel	┨		Silt is pulverized as above
-	4.5					-		Oilt is pulverized as above
5 <u> </u>	5.0				Class (CL)	1//	1	_
256.9	5.0				Clay (CL) 5.0-5.8' - dark reddish brown, moist, medium stiff,	<i>V///</i>	1	_
_		9.0	SS3SS	26-15-50/2	nonplastic to low plasticity	<b>1</b>	1	_
_		0.0		(65/8")			1.5	_
l _	7.0							
_	7.5				Clay (CL)		1	
-					7.5-7.7' - dark reddish brown, moist, medium stiff, nonplastic to low plasticity	1		-
-		5.0	SS4SS	50/5 (50/5")	Silt (ML)	1	1.5	-
-	9.5			(30/3 )	7.7-7.9' - red, dry to moist, nonplastic, trace gravel	1		-
10 -	9.5					1		Soil sampling completed at 17:40 on
10 <u> </u>	, 10.0	3.0	SSSSS		Silt (ML)	Ш	1	7/13/06 —
-	10.3			50/3	\\\ 10.0-10.3' - red, dry to moist, nonplastic, trace gravel \  /	-		-
-				(50/3")	Begin Rock Coring at 10.3 ft bgs See the next sheet for the rock core log	1		-
-					See the flext sheet for the rock core log	-		-
-						-		-
-						-		-
_						4		-
l _								_
_								_
								_
15								
246.9					_	1		
-						1		_
-					•	1		-
-						1		-
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-						-		-
20								



BORING NUMBER: PROJECT NUMBER: **BPA-18** 338884 SHEET 2 OF 3

**ROCK CORE LOG** 

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (687144.9 N, 2012671.5 E)

ELEVATION: 261.9 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

ORIENTATION: Vertical

WATER	LEVELS : 5.	EVELS: 5.5 ft bgs		START : 7/13/06 16	:25	END: 7/14/06 13:18	LOGGER : JF		
	(%			DISCONTINUITIES	၅	LITHOLOGY	COMMENTS		
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)		ZES IT	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,		
TH A VATIC OW FACE	KE RU GTH, OVEI	(%) О	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	IBOLI	MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD		
SE PE	RES R	A Q	FRA	THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYN	AND ROCK MASS CHARACTERISTICS	DROPS, TEST RESULTS, ETC.		
-	10.3		10+		× × × × × ×	- <b>Siltstone</b> At 10.3' - dark reddish brown, very soft	Rock coring began at 08:20 - on 7/14/06		
-			101		*	to soft, fine grained	R1: 08:20-09:20 on		
-			10+	-	1× ×	- 10.3-12.2' - highly weathered	07/14/06 - At 10.3-11.9': R-Scale = R0-		
	R1NQ 4.2 ft	53			*	- 12.2-14.5' - moderately weathered	R1		
_	101%		10+	12.9' - Fracture, 15 deg, rough, undulating,	×××	· -			
-				<0.0002' thick clay infilling 13.2' - Fracture, <5 deg, rough, undulating,	×	-	Driller stopped rig as pressure (9K) rises some -		
-	 		1	<0.0002' thick clay infilling	× × × × × ×	-	clay at top blocking off flow, went back down to finish run		
15	14.5		<u>.</u>	-	× ×   × ×   × ×	14.5-19.5' - bluish green mottling	R2: 09:25-09:40		
246.9			0	_	1×	14.5-25.0' - highly weathered	SC-1 collected		
_			0		*	15.4-16.6' - soil-like	15.0-15.8'		
			U		]× ×	- -	At 16.0-18.8': R-Scale = R0-		
_	R2NQ 5 ft	0	1		×	16.6-20.0' - 30% very fine sand	-		
-	96%			-	× ×	-	-		
-			0	-	× ×   × ×	-			
-				-	1××	-	-		
-	19.5		0 ×××	-	*	-	At 19.0': R-Scale = R2-R3		
20			1		1×	-	At 19.2-24.0': R-Scale = R0 R1		
241.9			'	20.3' - Fracture, <5 deg, rough, undulating,	]×	20.3-20.4' - clay seam	R3: 10:05-10:19		
-			2	clay seam, breaks at clay seams, breaks at clay seams: 20.3, 21.2, 21.4, 21.95, 22.1		20.7-20.7' - clay seam			
-	R3NQ			·	$\times$ $\times$	21.2-21.4' - clay seam	-		
-	5 ft 98%	0	3	21.8' - Fracture, <5 deg, rough, undulating	× ×   × ×   × ×	22.0-22.1' - clay seam	1		
-	0070				1×	-	1		
			1		1× ×	23.0-23.3' - clay seam	]		
_			1	23.8' - Fracture, <5 deg, rough, undulating		- -			
-	24.5			24.0' - Fracture, <5 deg, rough, undulating	× ×   × ×	24.5-29.5' - dark purple and trace	R4: 10:26-10:44		
25 <u> </u>			0	_	┨ [╳] ╶╬	bluish green mottling	1\4. 10.20-10.44 —		
-					<b>∤</b> × ∦	25.0-29.5' - slightly weathered			
-			0		× ×   × ×	-			
_	R4NQ 5 ft	98	1		]× *[	-	1		
] -	102%	90	1	27.1' - Fracture, <5 deg, rough, undulating	× × × × × ×	-	At 27.3': R-Scale = R3-R4		
_			2		$\times$ ×	-	-		
-					× × × × × ×	28.2-28.4' - clay seam	-		
-	20.5		0		× ×   × ×   × ×	29.5-39.5' - red, trace bluish green	-		
30	29.5		<b>~~~</b>		1×	mottling 29.4' - very fine sand	At 29.2': R-Scale = R3-R4 _ R5: 10:50-11:15		
231.9			0		××	23.4 - Very lille Sailu	_		
							<u>.                                    </u>		

2BB-122 Rev. 1



WATER LEVELS: 5.5 ft bgs

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

0

0

0

0

100 0

R7NQ

5 ft 100%

44.5

45

216.9

221.9

PROJECT NUMBER:	BORING NUMBER:					
338884	BPA-18	SHEET	3 (	)F	3	

#### **ROCK CORE LOG**

END: 7/14/06 13:18

purple and trace bluish green mottling,

40.5-41.8' - very dusky red to gray,

grades from siltstone to sandstone, fine grained

41.8-44.5' - gray, soft, fine sand to

Bottom of Boring at 44.5 ft bgs on

medium sand, angular to subangular, fresh, slightly darker at bottom (44.25-44.5')

25% fine sand

Sandstone

7/14/06 13:18

ORIENTATION: Vertical

LOGGER: JF

SC-2 collected

At 43.8': R-Scale = R3-R4

First water level = 5.5' bgs taken 7/14/06 at 13:30

R-scale performed after

drilling on stored samples

41.8-42.65'

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687144.9 N, 2012671.5 E)

ELEVATION: 261.9 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

DISCONTINUITIES LITHOLOGY COMMENTS CORE RUN, LENGTH, AND RECOVERY (%) DEPTH AND ELEVATION BELOW SURFACE (#) FRACTURES PER FOOT DESCRIPTION ROCK TYPE, COLOR. SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD <u>0</u> MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS RQD(%) DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS DROPS, TEST RESULTS, ETC. CHARACTERISTICS 29.5-31.7' - white pink clay rip up clasts (10%) 0.4 to 0.8 0 29.5-41.8' - fresh R5NQ 5 ft 100 0 At 32.2': R-Scale = R3-R4 0 0 34.5 R6: 11:25-11:33 35 0 226.9 0 R6NQ At 36.5': R-Scale = R3 5 ft 100 0 100% 0 At 38.7': R-Scale = R3-R4 0 39.5 39.5-40.5' - dark reddish brown, dark R7: 13:00-13:18 40

START: 7/13/06 16:25



PROJECT NUMBER:	BORING NUMBER:
338884	BPA-19

#### **SOIL BORING LOG**

SHEET 1 OF 5

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687070.7 N, 2012705.5 E)

ELEVATION: 261.4 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

DRILLIN	DRILLING EQUIPMENT AND METHOD: CME-550, 3-5/8 Tricone Bit, 24 Split Spoon and 140 lb. Automatic Hammer ORIENTATION: Vertical									
WATER	LEVELS	s : 9.6 ft b	gs		START : 7/11/06 14:09 END : 7/1	3/06	14:25	5 LOGGER : LH/EM		
DEPTH B	BELOW EX	(ISTING G	RADE (ft)	STANDARD	SOIL DESCRIPTION	O		COMMENTS		
	INTERV	AL (ft)		PENETRATION TEST RESULTS			DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND			
		RECOVE	ERY (in)	TEOTINEOUETO	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR	SYMBOLIC LOG	Œ.			
			#TYPE	6"-6"-6"-6"	CONSISTENCY, SOIL STRUCTURE, MINERALOGY	MB	(TSF)	INSTRUMENTATION		
				(N)		ς	윤			
261.4	0.0					1//	1	_		
_		21.6	SS1SS	3-4-11-12	Clav (CL)		1			
		21.0	33133	(15)	0.3-1.8' - reddish brown, reddish black and light		1			
	2.0			` /	greenish gray, dry, stiff, trace gravel at the top	<b>Y</b> //	4	1		
-						1		1		
-	2.5				Clay (CL)		1	1		
-					2.5-3.7' - reddish brown, reddish black and light greenish gray, moist, stiff	<b>V</b> //		1		
-		10.0	SS2SS	25-50/4 (50/4")	greensir gray, moist, suii	<b>*</b> ///	4.5+	-		
-	4.5			(30/4-)		1		-		
5	4.5					1		-		
256.4	5.0				Clay (CL)	///		-		
-					√ 5.0-5.4' - reddish brown, reddish black and light  // // // // // // // // // // // // /	+	1	-		
-		4.0	SS3SS	50/4	greenish gray, moist, stiff	1		-		
-				(50/4")		4		-		
-	7.0					-		DT 4 cellected		
-	7.5				01 (01)			PT-1 collected 7.0-7.5'		
_	7.5				Clay (CL) 7.5-9.1' - light yellowish brown, reddish black and light	<i>V//</i>	1	_		
_		19.2	SS4SS	17-20-18-13	greenish gray, dry to moist, stiff, trace sand, friable	¥///	1	_		
_			00.00	(38)	material, trace gravel at top 2	<i>V//</i>		_		
	9.5					ľ				
10						<u></u>				
251.4	10.0				Clay (CL)					
		5.0	SS5SS	50/5	light greenish gray, dry to moist, stiff, discontinuities on	T	1			
		5.0	33333	(50/5")	\45 deg.					
-	12.0			(**** )				1		
-						1		Soil sampling completed at 15:20 on		
-	12.5	2.0	SS6SS		─ Clay (CL)	1//	1	7/11/06		
-	12.7			50/2 (50/2")	-√12.5-12.7′ - reddish brown, light greenish gray and light /yellowish brown, moist to dry, stiff to hard	1				
-				(30/2)	Begin Rock Coring at 13.0 ft bgs	1		-		
-					See the next sheet for the rock core log	1		-		
						1		-		
15 <u> </u>					_	-				
-						-		-		
-						-		-		
_						-		-		
-						-	1	_		
						1	1	_		
						1	1	_		
						1	1			
						1	1			
						1	1			
20							L			
							1			



PROJECT NUMBER:

338884

BPA-19

SHEET 2 OF 5

# **ROCK CORE LOG**

ORIENTATION : Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687070.7 N, 2012705.5 E)

ELEVATION: 261.4 ft MSL (NGVD 29) DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	LEVELS: 9.	6 ft bo	IS	START : 7/11/06 14	:09		END: 7/13/06 14:25		LOGGER : LH/EM
	(%)			DISCONTINUITIES	98		LITHOLOGY		COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	(%) Q	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS,	SYMBOLIC LOG		ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS,		SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
DEP- ELEV SURI	LENC RECOR	ROI	FRA( PER	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	X × SYM	4_	AND ROCK MASS CHARACTERISTICS  Siltstone	4	DROPS, TEST RESULTS, ETC.  Rock coring began at 16:10
-	R1NQ 1.6 ft 88%	0	2	13.5' - Fracture, horizontal, rough, planar 14.0' - Fracture, horizontal, rough, planar	× ×   × ×   × ×	×	At 13.0' - dark reddish brown, reddish black and greenish gray, very soft, highly weathered, very soft		on 7/11/06 - R1: 16:10-16:15 At 13.7': R-Scale = R4
15 246.4	14.6		××× 0			¥-	14.6-21.8' - laminated bedding		R2: 16:32-16:41
-			4		× × × × × ×	* * * *			<u>-</u>
-	R2NQ 5 ft 96%	0	0	16.2' - Fracture, horizontal, rough, planar 16.2' - Fracture, horizontal, rough, planar 16.5' - Fracture, horizontal, rough, planar 16.6' - Fracture, horizontal, rough, planar	× × × × × ×	X X X X X			At 16.9': R-Scale = R1
- -	33,0		1	18.4-18.8' - Fracture zone, 60 deg, rough,	× × × × × ×	X X X X X	17.9-18.3' - soft		At 18.2': R-Scale = R3-R4
-	19.6		0	undulating	× × × × × ×	X X X X			
20 241.4			10+	19.8' - Fracture, horizontal, rough, planar 19.9-20.2' - Fracture, horizontal, rough, planar 20.5-20.8' - Fracture, horizontal, rough, planar	× × × × × ×	× × × ×			R3: 08:18-08:27 on 7/12/2006
-	R3NQ		10+	21.0-21.1' - Fracture zone, horizontal and vertical, rough, planar	× × × × × ×	*- * *- *-			At 21.4': R-Scale = R2
-	5 ft 102%	56*	2	21.8' - Fractures (2), horizontal, rough, planar 21.8' - Contact between siltstone and sandstone		: - :	Sandstone At 21.8' - dusky red and weak red, soft to hard, thin to medium bedding, very		- -
_			2	22.6' - Fracture, 60 deg, rough, undulating 22.9' - Fracture, 40 deg, rough, undulating	]::::  ::::	:	fine sand to fine sand, subangular to subrounded, well sorted 21.8-24.3' - fresh		At 23.4': R-Scale = R3-R4
25	24.6		2	24.3' - Fracture, horizontal, rough, undulating 24.5' - Fracture, horizontal, rough, undulating	]::::	:[ :[;	24.3-26.3' - moderately weathered		R4: 08:34-08:45
236.4			2	24.7' - Fracture zone, rough, undulating  25.8-26.2' - Fracture zone, vertical, rough,			25.6-25.8' - clay-like siltstone lens		SC-1 collected 24.8-25.6' –
-	R4NQ 5 ft	100*	2	undulating 26.6' - Fracture, horizontal, rough, planar	× × × × × ×	$\mathbb{X}^{\setminus}$	25.6-25.8' - clay seams, alternating siltstone, very soft to firm friable material		At 26.0': R-Scale = R5 At 26.2-27.1': R-Scale = R2
-	104%	100	2		× × ×	X	Siltstone 26.3-27.3' - dark reddish brown, mottled reddish black and greenish gray, very soft, moderately weathered		At 27.1-27.4': R-Scale = R0
-			1	28.4-28.5' - Fracture zone, rough, undulating	: : : : : : × ×	: -	gray, very soil, moderately weathered 27.1-27.3' - clay seam, very soft to stiff, very fine to fine sand (0 - 30%) in clay, friable material		At 20.1.20.21: D. Coolo = D0
30 231.4	29.6		XXX 1	sandstone, horizontal, rough, undulating —	× × × × × ×		Sandstone 27.3-27.5' - dark reddish brown, mottled reddish black and greenish		At 29.1-29.3': R-Scale = R0 R5: 08:51-09:07
			3	30.1' - Fracture, horizontal, rough, undulating 30.6-31.1' - Clay seams (3), horizontal, rough, planar, alternating with siltstone, friable	× × × × × ×	×- ×- ×-	gray, soft, thin bedding, very fine sand to coarse sand, subangular, poorly sorted, moderately weathered		At 30.1-30.7': R-Scale = R2 At 30.7-32.7': R-Scale = R0
-	R5NQ 5 ft 102%	34*	10+	material, very soft 31.2-31.3' - Fracture zone, horizontal, rough, planar, 0.02' thick clay infilling 31.4-33.3' - Clay seams, horizontal, rough,	× × × × × ×	× × × ×	Siltstone 27.5-28.1' - dark reddish brown, mottled reddish black and greenish gray, very soft, moderately weathered		- - -
				planar, up to 0.35' thick clay infilling	× ×	<u>                                     </u>			_

2BB-125 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BPA-19

SHEET 3 OF 5

# **ROCK CORE LOG**

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687070.7 N, 2012705.5 E)

ELEVATION: 261.4 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	LEVELS: 9.	6 ft bg	ıs	START : 7/11/06 14	09	END : 7/13/06 14:25	LOGGER : LH/EM
				DISCONTINUITIES	0	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
-	34.6		10+	34.0' - Fracture, horizontal, rough, undulating	× × × × × × × × × ×	28.0-28.1' - clay seam, very soft, 0 -   10% very fine sand, friable material   Sandstone   28.1-29.0' - white, soft to hard, laminated to thin bedding, very fine	-
35 226.4 -			5	35.0' - Fracture, horizontal, rough, planar 35.1' - Fracture, horizontal, rough, planar 35.2' - Fractures (2), horizontal, rough, planar 35.3' - Fracture, horizontal, rough, planar	× × × × × × × ×	sand to coarse sand, subrounded, well sorted, moderately weathered 28.6' - siltstone lens 28.7-28.8' - siltstone lens Siltstone	R6: 09:11-09:15 on 7/12/06 Rig stopped in the middle of core run continued core run on 10:50-10:56 07/13/2006 At 35.6': R-Scale = R3
-	R6NQ 5 ft 97%	88	2	36.1' - Fracture, horizontal, rough, planar  37.0' - Fracture, horizontal, rough, planar  37.6' - Fracture, horizontal, rough, planar	× × × × × × × ×	At 29.0' - dark reddish brown, mottled greenish gray, very soft 29.2-29.4' - clay seam, firm to stiff, friable material 29.0-30.7' - moderately weathered	- - - At 37.9': R-Scale = R3-R4
-	39.6		0	38.5' - Fracture, horizontal, rough, planar 38.6' - Fracture, horizontal, rough, planar	× × × × × × × ×	29.6-34.4' - laminated bedding  29.8' - 0.04' thick, 0.03' long white clast 30.7-34.0' - highly weathered  34.0-38.6' - slightly weathered	At 39.0': R-Scale = R3-R4  R7: 11:04-11:14
40 221.4 - -			0		× × × × × × × × ×	34.4-34.6' - soft 37.2-37.6' - soft 37.2-37.6' - some laminated beds, trace fine sand 38.6-49.6' - fresh	-
-	R7NQ 5 ft 104%	100	0		× × × × × × × × ×	- 38.8-39.3' - soft 39.6-44.6' - mottled reddish black, soft, 0-20% very fine sand	
-	44.6		0	- -	× × × × × × × × ×	-	-
45 216.4 -			0		× × × × × × × ×	44.6-49.6' - mottled trace reddish black and greenish gray, soft, 0-30% very fine sand, coarsens with depth	R8: 11:18-11:28
-	R8NQ 5 ft 98%	92	1	46.5' - Fracture, horizontal, rough, planar	× × × × × × × ×	-	At 46.9': R-Scale = R3-R4
-			0	47.7' - Fracture, horizontal, rough, planar 48.0' - Fracture, horizontal, rough, undulating	× × × × × × × × × × × × × × × × × × ×	- - -	
50	49.6		0	- - -	× ×	Sandstone 49.6-55.4' - dark reddish brown, very dark greenish gray, and white to light	R9: 11:33-11:43
- - -	R9NQ 5 ft 99%	99	0	- - -		gray, soft to hard, very thin to medium bedding, very fine sand to coarse sand, subangular to subrounded, well sorted, fresh, lighter and darker bands 49.6-50.0' - gradational zone, grades from siltstone to sandstone	At 51.0': R-Scale = R3-R4 -
					:::		

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PROJECT NUMBER:

338884

BPA-19

SHEET 4 OF 5

# **ROCK CORE LOG**

ORIENTATION : Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687070.7 N, 2012705.5 E)

ELEVATION: 261.4 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

CORING	LQUIFIVILIV	II AIN	חואוב	THOD : CIME-550, NQ Double Barrel			ORIENTATION: Vertical
WATER	LEVELS: 9.	6 ft bo	ıs	START : 7/11/06 14	1:09	END : 7/13/06 14:25	LOGGER : LH/EM
	(%)			DISCONTINUITIES	ပ္ခ	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
	025	ď			رن ک	CHARACTERISTICS	
_			1	51.1' - Fracture, horizontal, rough, undulating	<b>.</b> :::	_	_
_			0		<b>.</b> :::		At 53.6': R-Scale = R4
_	54.6				<b>.</b> :::	-	_
55 206.4			2	_	<b>.</b> :::		R10: 11:46-12:02
200.4				55.4' - Contact between siltstone and		Siltstone	
-			3	sandstone, horizontal, rough, undulating, black	-\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	_ At 55.4' - dark reddish brown, mottled	-
_				and greenish gray stains 55.4' - Fracture, horizontal, rough, undulating,	-\x\ \x	greenish gray, soft 55.4-58.6' - slightly weathered	-
-	R10NQ 5 ft	92	2	black and greenish gray stains	- (x )	55.4-57.6' - gravel sized white clasts 56.1-58.6' - very soft, laminated	-
_	103%	32	_	55.8' - Fracture, horizontal, smooth, undulating 55.9' - Fracture, horizontal, smooth, undulating	- × ×	bedding	At 57.4': R-Scale = R4
_			2	56.5' - Fracture, horizontal, rough, undulating	- × >		-
_				56.6' - Fracture, horizontal, rough, undulating, black and greenish gray stains	_ × >	1	_
_			0	56.6' - Fracture, horizontal, rough, undulating,	_ × >	58.6-67.5' - fresh	_
_	59.6			black and greenish gray stains 56.7' - Fracture, horizontal, rough, undulating,	- × ×	_	_
60_			0	black and greenish gray stains	-  × ×	_	R11: 13:03-13:15
201.4			U	56.8' - Fracture, horizontal, rough, undulating, black and greenish gray stains	- X >		_
_			4	57.6' - Fracture, horizontal, rough, undulating,	- × >		_
l _			1	black and greenish gray stains	]× >		_
_	R11NQ			61.5' - Fracture, horizontal, rough, undulating	_ × >	1	_
l _	5 ft 100%	94	0		]× >	1	At 62.0': R-Scale = R3-R4
_					]× >		_
l _			0		]× >		
l _					x 3		_
l _	64.6		0		× >		
65	0 1.0			_	××	64.6-67.5' - very soft to soft	R12: 13:29-13:39
196.4			0		] × >	1	
					\ \ \ \ \ \		
			0		× >	<u> </u>	At 66.3': R-Scale = R3-R4
	R12NQ				]		71.00.0.11.00.0
	5 ft 98%	98	0		TX X		
	0070			67.5' - Contact between siltstone and sandstone, horizontal, rough, undulating	]:::	Sandstone 67.5-69.2' - very dark gray and light	SC-2 collected
-			0	sandstone, nonzontal, rough, undulating	7:::	gray, soft to hard, medium bedding,	67.5-68.3'
-					7:::	fresh	
	69.6		0		× >	Siltstone	R13: 13:45-13:54
70	09.0				- × ×	69.2-70.2' - dark reddish brown,	
191.4			0	- 70.2' - Contact between siltstone and	-  <u>×                                    </u>	── mottled trace greenish gray reddish	_
_				sandstone	1:::	sand, contact is gradual, but abrupt	-
-			0		<b>-</b>  :::	- \69.6-70.2' - 15% very fine to fine sand / Sandstone	-
-	R13NQ	l			1:::	70.2-74.8' - very dark gray and light	-
-	5 ft	100	0		1:::	<ul> <li>gray, soft to hard, medium bedding, fine sand to medium sand, fresh</li> </ul>	-
-	102%				1:::	L modulu o modulu sana, nesin	-
					†		
					1		



PROJECT NUMBER:	BORING NUMBER:					
338884	BPA-19	SHEET	5	OF	5	

#### **ROCK CORE LOG**

ORIENTATION: Vertical

PROJECT: PEC COLA, New Hill, NC LOCATION: (NAD 27) (687070.7 N, 2012705.5 E)

DRILLING CONTRACTOR: D. Hedges, S&ME ELEVATION: 261.4 ft MSL (NGVD 29)

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel WATER LEVELS: 9.6 ft bgs START: 7/11/06 14:09 END: 7/13/06 14:25 LOGGER: LH/EM DISCONTINUITIES LITHOLOGY COMMENTS CORE RUN, LENGTH, AND RECOVERY (%) FRACTURES PER FOOT DESCRIPTION DEPTH AND ELEVATION BELOW SURFACE (ft) ROCK TYPE, COLOR. SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SYMBOLIC MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS RQD(%) DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC. CHARACTERISTICS 71.6-74.8' - medium sand to coarse sand, alternates with fine to medium grained bed At 73.7': R-Scale = R3 0 74.6 R14: 13:59-14:14 75 74.8-75.0' - Contact between siltstone and Siltstone 3 186.4 SC-3 collected sandstone, 60 deg, rough, undulating, tightly At 74.8' - dark reddish brown, trace 75.1-76.1 healed, sharp, some mixing of materials greenish gray and reddish black 75.0-75.1' - Fracture zone (3), horizontal, mottling, soft, fresh 0 rough, undulating 74.8-78.4' - very soft 74.8-76.8' - gravel sized white clasts R14NQ 76.8' - Fracture, horizontal, rough, undulating 5 ft 92 3 98% 77.25' - Fracture, horizontal, rough, planar 77.6' - Fracture, horizontal, rough, planar 2 77.7' - Fracture, horizontal, rough, planar 78.0' - Fracture, horizontal, rough, planar At 78.6': R-Scale = R3-R4 0 At 81.2': R-Scale = R3-R4 79.6 R15: 14:19-14:25 79.6-82.1' - very soft to soft 80 0  $181.\overline{4}$ First water level = 9.6' bgs taken on 7/13/06; second R15NQ water level = 3.2' bgs taken 2.5 ft 96 0 96% on 7/14/06 R-scale performed after 0 82.1 drilling on stored samples Bottom of Boring at 82.1 ft bgs on 7/13/06 14:25 85 176.4 90  $171.\overline{4}$ 



PROJECT NUMBER: BORING NUMBER: 338884 BPA-20

# **SOIL BORING LOG**

SHEET 1 OF 3

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686985.3 N, 2012742.1 E)

ELEVATION: 261.5 ft MSL (NGVD 29)

DRILLING CONTRACTOR: L. Morrison/D. Hedges, S&ME

DRILLING EQUIPMENT AND METHOD: CME-550, 3-5/8 Tricone Bit, 24 Split Spoon and 140 lb. Automatic Hammer ORIENTATION: Vertical

WATER	I EV/ELG		200			atic Hamme		n.20	ORIENTATION : Vertical  LOGGER : LH
			RADE (ft)		START : 7/8/06 13:42  SOIL DESCRIPTION	END : 7/1		0.20	COMMENTS
[ [	INTERV		(11)	STANDARD PENETRATION			106		<del> </del>
	II TI LICO		ERY (in)	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COL	OR,	LICI	(=	DEPTH OF CASING, DRILLING RATE,
		REGOV	#TYPE	6"-6"-6"	MOISTURE CONTENT, RELATIVE DENSIT CONSISTENCY, SOIL STRUCTURE, MINERA		SYMBOLIC LOG	(TSF)	DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
261.5	0.0			(N)	Topsoil		<u>7, 1,7.</u> S	Ь	
201.5	0.0				- 0.0-0.5'	_			-
<b>I</b> ⊣		20.4	SS1SS	3-4-9-21					-
-				(13)	\ 0.5-0.9' - reddish brown, mottled dark reddish g \ medium stiff, trace roots	ray, dry,			-
-	2.0				Clay (CL)				PT-1 collected
-	2.5				\(\(\)0.9-1.7' - dark reddish gray, dry, stiff\(\)  Clay (CL)				2.0-4.0'
					2.5-4.3' - dark reddish gray and reddish brown,	mottled -			Offset: 10.2' N37W of BPA-20 Lab Results USCS: CL
-		21.6	SS2SS		light greenish gray, moist, hard	-		4.5+	
<b>I</b> ⊢				(33)		-			-
	4.5					-			-
5 256.5	5.0				→ Clayey Sand (SC)		7777		PT-2 collected
-					\5.0-5.1' - dark reddish gray, moist, stiff				5.0-7.0'
		15.6	SS3SS	4-4-8-35	\ Clay (CL)	mottled /-			Offset: 10.2' N37W of BPA-20 Lab Results USCS: Sandy CL
-	7.0			(12)	\light greenish gray, moist, hard				· -
	7.0				Clay (CL) 5.7-6.3' - reddish brown, mottled reddish black	and -	1		-
	7.5	0.0	00400		yellow, dry to moist, stiff		///		Soil sampling completed at 14:20 on
-	8.2	8.0	SS4SS	40-50/2 (50/2")	Clay (CL)  7.5-8.2' - reddish brown, mottled light greenish	arav drv /			7/8/06
-				(30/2)	\to moist, hard		1		-
-					Begin Rock Coring at 8.2 ft bgs See the next sheet for the rock core log	-	1		-
10					dec the flext sheet for the foot core log	-	1		-
251.5						_	1		_
-						-	1		-
-						-	1		-
-						-	1		-
-						-	1		-
-						-	1		-
-						-	1		-
-						-	1		-
						-	1		-
15						-	1		-
246.5							1		
-						-	1		-
-						-	1		-
-						-	1		-
						-	1		-
-						-	1		-
						-	1		-
-						-	1		-
-						-	1		-
20						-	1		-

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PROJECT NUMBER:

338884

BPA-20

SHEET 2 OF 3

# **ROCK CORE LOG**

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686985.3 N, 2012742.1 E)

ELEVATION: 261.5 ft MSL (NGVD 29) DRILLING CONTRACTOR: L. Morrison/D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	ER LEVELS : 5.3 ft bgs		S	START : 7/8/06 13:4	2	END: 7/11/06 10:20	LOGGER : LH
	- (%			DISCONTINUITIES	ŋ	LITHOLOGY	COMMENTS
QZ €	AND % %		T KES	DESCRIPTION	O LC	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
-	8.2 R1NQ 1.4 ft 111% 9.6	0	0	8.7' - Fracture, horizontal, rough, planar 9.3' - Fracture, horizontal, rough, planar	× × × × × × × ×	Siltstone At 8.2' - dark reddish brown, mottled reddish black and greenish gray, soft 8.2-8.5' - clay seam, firm to stiff	Rock coring began at 17:05 _ on 7/10/06 R1: 17:10-17:16 on _ 07/10/06
10_ 251.5_	9.0		××× 10+	9.8' - Fracture, 15 deg, smooth, planar — 10.0-10.1' - Fracture zone, horizontal, rough,	× × × × × ×	8.2-13.2' - highly weathered 8.2-9.6' - very soft, laminated bedding	At 8.2'-8.4': PP: 2.0 tsf At 9.0': R-Scale = R1 R2: 17:28-17:44
-			1	planar 10.2' - Fracture, horizontal, smooth, planar 10.3-10.4' - Fracture zone, horizontal, rough, planar	× × × × × ×	- -	-
-	R2NQ 5 ft 100%	49	2	10.4-10.5' - Fracture, 45 deg, rough, planar	× × × × × ×	- - 12.2-12.3' - clay seam, soft, friable	]
-			0	11.9' - Fracture, horizontal, smooth, planar 12.3' - Fracture, horizontal, rough, undulating, soft, friable material	× ×   × ×   × ×	material 13.2-13.5' - very soft to soft 13.2-17.0' - slightly weathered	- At 13.5': R-Scale = R3-R4
- 15	14.6		0	- 44.71 Functions having a that a constant a least	× × × × × ×	- - 14.6-16.0' - soft	- R3: 08:47-08:57 on
246.5			1	14.7' - Fracture, horizontal, smooth, planar     .      15.6' - Fracture, horizontal, rough, undulating	× × × × × ×		07/11/06
_	R3NQ		2	16.45' - Fracture, horizontal, smooth, planar	× ×   × ×   × ×	-	-
_	5 ft 100%	49	0		× × × × × ×	17.0-17.1' - light yellowish brown mottle 17.0-21.0' - highly weathered	-
_			0		× × × × × ×	17.1-19.6' - clay seam, stiff - -	SC-1 collected 18.4-19.0' – At 18.4': PP: 2.9 tsf
20 241.5	19.6		0	- -	× × × × × ×	- 19.6-21.0' - very soft, laminated bedding	At 18.9': PP: 4.5 tsf R4: 09:03-09:12 and 09:20- 09:23
241.5			3	21.0' - Fracture, horizontal, rough, planar	× × × × × ×	19.6-20.3' - clay seam, soft 19.6-19.9' - trace medium sand 21.0-24.6' - fresh	At 19.8': PP: 3.0 tsf –
-	R4NQ 5 ft	71	0	21.4' - Fracture, horizontal, rough, planar 21.5' - Fracture, horizontal, rough, planar	× × × × × ×	- -	-
-	101%		0		× × × × × ×	- - 23.1-24.0' - trace medium sand	-
-	24.6		0	<u>.</u>	× × × × × ×	24.2-24.6' - very soft, laminated	At 23.6': R-Scale = R3-R4
25_ 236.5	24.6		9	24.8-25.0' - Fractures (7), horizontal, rough, — planar	× ×   × ×   × ×	bedding  24.6-33.8' - slightly weathered 24.8-25.2' - very soft, laminated	R5: 09:27-09:40
			3	25.1-25.2' - Fractures (2), horizontal, rough, planar 25.7' - Fracture, horizontal, rough, planar	× × × × × ×	bedding 25.7-26.0' - very soft, laminated bedding	- - At 26.3': R-Scale = R3-R4 -
-	R5NQ 5 ft 102%	65	8	25.8' - Fracture, horizontal, rough, planar 25.9' - Fracture, horizontal, rough, planar 26.7-26.9' - Fracture, horizontal, rough, planar 27.0' - Fracture, horizontal, rough, planar 27.1' - Fracture, 30 deg, rough, planar	× × × × × × × ×	26.6-27.1' - very soft, laminated bedding 27.4-28.1' - very soft, laminated bedding	-
				2. 5.1	^ *	-	

2BB-130 Rev. 1



PROJECT NUMBER:

338884

BPA-20

SHEET 3 OF 3

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686985.3 N, 2012742.1 E)

ELEVATION: 261.5 ft MSL (NGVD 29)

DRILLING CONTRACTOR: L. Morrison/D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				THOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS : 5.	3 ft bo	ļS	START : 7/8/06 13:	<u>42</u>	END : 7/11/06 10:20	LOGGER : LH
	_ (9			DISCONTINUITIES	ပ္ခ	LITHOLOGY	COMMENTS
oz €	7. × 0. × 0. ×		SI.	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	CIZE AND DEDTIL OF CACING
ME _ 링	RUI H, / IER	(%) _Q	黑인	DEDTIL TYPE OPIENTATION POLICINIESS	<b>1</b> 💥	MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
T S O A	RE I	٥	ZCT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	₩ W	WEATHERING, HARDNESS, AND ROCK MASS	SMOOTHNESS, CAVING ROD
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q	FRACTURES PER FOOT	THICKNESS, SURFACE STAINING, AND TIGHTNESS	S	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
			0	27.4-27.5' - Fracture (3), horizontal, rough,	- × ;	×	
				planar	× >	<b>T</b>	1
-			2	29.0' - Fracture, 20 deg, rough, planar	× ;	<b>;</b>	1
_	29.6			29.5' - Fracture, rough, undulating, parabolic	- × ;	29.4-29.6' - very soft, laminated	-
30 <u> </u>			1	shaped –	$\frac{1}{x}$	bedding	R6: 09:45-09:54
231.5			'	29.8' - Fracture, horizontal, rough, planar	× >	<u></u>	_
					× ;		
			0		<b>1</b> × ?		1
-	R6NQ				1× ;	31.4-32.6' - very soft, laminated	-
-	5 ft	81	0		- x	_ bedding	-
_	101%				- <b> </b> × >	4	At 32.3': R-Scale = R2
_					_ × ;	1	_
			0		××	33.2-34.6' - very soft, laminated	
					7× >	bedding	1
_			5	33.8-34.2' - Fracture (4), horizontal, rough, planar	- × ;	33.8-35.8' - moderately weathered	1
-	34.6			34.4' - Fracture, horizontal, rough	-  × 3	<del>}</del>	-
35 <u> </u>			10+	34.7-35.0' - Fracture (6), horizontal, rough, —	-  × >	34.7-37.4' - very soft, laminated	R7: 09:59-10:08
220.5			101	planar	× ;	bedding	_
				35.3' - Fracture, 30 deg, rough, undulating 35.5-35.6' - Fracture zone, horizontal, rough,	× ;	> 3- 35.8-39.6' - slightly weathered	
			3	undulating	×××	35.9-36.1' - white clasts	1
-	R7NQ			35.7' - Fracture, 30 deg, rough, undulating	7× >	- co.o co.r write diacte	1
-	5 ft	76	0	35.8' - Fracture, 30 deg, rough, undulating	- × ;	<b>}</b> -	At 37.0': R-Scale = R3-R4
_	100%			36.3' - Fracture, horizontal, rough, planar	- × ;	<b>}</b>	<u> </u>
_					_ × ;	1	At 40.0': R-Scale = R2
			0		× ;		At 40.3' PP: 0.75 tsf
					××	5	R8: 10:16-10:20
_			0		7× >	00.0.44.01	First water level = 5.25' bgs
	39.6				- × ;	2 39.2-41.2' - very soft, laminated bedding	taken 7/11/06 at 13:58; -
40 <u> </u>	R8NQ		2	40.0' - Fracture, horizontal, rough, undulating	× ;	x 39.6-41.2' - highly weathered	second water level = 5.5' bgs taken 7/12/06 at 12:10
	1.6 ft	0	_	40.0 - Fractine, horizontal, rough, undulating 40.2-40.4' - Clay seam, horizontal, rough,	- <b> </b> × >	<b>.</b>	bgs taken // 12/00 at 12.10
	97%		0	undulating, with fractures at top, very soft	_ × ;	1 400 4401 1 2	
	41.2				- X	40.9-41.0' - clay seam, very soft,	R-scale performed after
					1	Bottom of Boring at 41.2 ft bgs on	\drilling on stored samples
-					1	7/11/06 10:20	1
-					1	F	1
-					4	<b>-</b>	-
_					1	L	]
1 7					1	Γ	1
AE -					1	<b>†</b>	1
45 <u> </u>				_	1	<b></b>	- 1
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						I	ı

2BB-131 Rev. 1



PROJECT NUMBER: BORING NUMBER: BPA-21

# **SOIL BORING LOG**

SHEET 1 OF 6

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687645.7 N, 2011704.8 E)

ELEVATION: 261.5 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

DRILLING EQUIPMENT AND METHOD: CME-750, 3-5/8 Tricone Bit, 24" Split Spoon and 140 lb. Automatic Hammer ORIENTATION: Vertical

DRILLIN	IG EQUII	PMENT	AND MET	HOD: CME-750	3-5/8 Tricone Bit, 24" Split Spoon and 140 lb. Automatic Hamn	ner		ORIENTATION : Vertical		
WATER	LEVELS	: 7.8 ft k	ogs		START : 7/20/2006 END : 7/2	21/06	11:00			
DEPTH E	BELOW EX	(ISTING C	GRADE (ft)	STANDARD	SOIL DESCRIPTION	(7)		COMMENTS		
	INTERV	AL (ft)		PENETRATION TEST RESULTS		SYMBOLIC LOG				
		RECOV	ERY (in)	12011120210	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR	12	ιĒ	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND		
			#TYPE	6"-6"-6"-6"	CONSISTENCY, SOIL STRUCTURE, MINERALOGY	MB	(TSF)	INSTRUMENTATION		
				(N)		Š	윤			
261.5	0.0				Sandy Silt (ML) 0.0-0.9' - very dark brown to light brown, loose, grades	4		_		
l _		11.0	SS1SS	3-3-3-4	$_{ackslash}$ from dark to light, black specks in light brown material at $_{ar{ar{ar{ar{ar{ar{ar{ar{ar{ar$	Щ	Į.	_		
_		11.0	00.00	(6)	bottom	]	1.5	_		
l _	2.0							_		
l _								PT-1 collected 2.0-4.0'		
l _	2.5				Sandy Silt (ML) 2.5-4.0' - light brown, very loose, black fine grains at	]		2.0-4.0		
l _		18.0	SS2SS	2-2-2-4	3.0', organic roots					
		10.0	33233	(4)		1111	0.75			
-	4.5			'		Π				
5						1				
256.5	5.0				Sandy Silt (ML)	1	1	PT-2 collected		
-	1			0.4.5.7	5.0-6.7' - light brown, loose, very fine to fine grained	1111		5.0-7.0'		
-	1	20.0	SS3SS	3-4-5-7 (9)		1111	3.0	-		
-	7.0			(0)		₩	1	-		
-						1		-		
-	7.5				Sandy Silt (ML)	†Ш	1	-		
-	1				7.5-8.9' - light brown, loose, very fine to fine grained	1111	1	-		
-		17.0	SS4SS	6-7-13-33 (20)	<b>Sandy Silt (ML)</b> 8.0-8.5' - light and dark brown, medium stiff, fine	₩	1.5- 3.5	-		
-	9.5			(20)	∏\grained [[	₹'''	3.5	PT-3 collected		
10	9.5				Sandy Silt (ML) 8.5-9.2' - dark brown, medium stiff, fine grained	1		9.0-11.0' -		
251.5	10.0				Sandy Silt (ML)	1ш	ı	Offset: 1.9' S41W of BPA-21 Lab Results USCS: CL		
-					10.0-10.8' - very dark brown, trace mottling, hard, fine to medium grained, mica fragments	1		-		
-	1	8.5	SS5SS	41-50/2.5	medium grained, mica fragments	1	4.5	-		
-	400			(50/2.5")		┨		-		
-	12.0					┨		-		
-	12.5				_ Sandy Silt (ML)	+	1	-		
-					\ 12.5-12.8' - black and very dark brown, hard, mica	$\top$		-		
-		4.0	SS6SS	50/4	fragments	1	3.5	-		
-				(50/4")		-		-		
	14.5					-		-		
15 <u> </u>	15.0				Sandy Silt (ML)	+	1			
270.5	10.0				15.0-15.9' - very dark brown, trace mottling, hard, fine	4		-		
-		11.0	SS7SS	32-50/5	grained, mica fragments, black layers at 15.67' and 15.92'	╫	3.5	-		
-				(50/5")	10.02	-	3.3	-		
-	17.0					1		-		
-	17.5				Cond. Cili /MI )	<b>-</b>	1	-		
_	17.5				Sandy Silt (ML) 17.5-18.3' - dark brown, trace mottling, hard, fine to	4		-		
l -		8.0	SS8SS	12-20-50/2	medium grained, mica fragments	╂Ш	1.	-		
_		5.0		(70/8")		1	1.5- 3.0			
_	19.5					1		Soil sampling completed at 11:00 on 7/20/06		
20_						$\perp$		25,50		
							1			



PROJECT NUMBER:	BORING NUMBER:				
338884	BPA-21	SHEET	2	OF	6

#### **SOIL BORING LOG**

 PROJECT : PEC COLA, New Hill, NC
 LOCATION : (NAD 27) (687645.7 N, 2011704.8 E)

 ELEVATION : 261.5 ft MSL (NGVD 29)
 DRILLING CONTRACTOR : K. Canuel, S&ME

DRILLING EQUIPMENT AND METHOD: CME-750, 3-5/8 Tricone Bit. 24" Split Spoon and 140 lb. Automatic Hammer ORIENTATION: Vertical

DRILLIN	DRILLING EQUIPMENT AND METHOD: CME-750, 3-5/8 Tricone Bit, 24" Split Spoon and 140 lb. Automatic Hammer ORIENTATION: Vertical									
WATER	LEVELS	: 7.8 ft b	gs		START: 7/20/2006 END	: 7/2°	1/06	11:00	) LOGGER : MJ	
DEPTH E	BELOW EX	(ISTING G	RADE (ft)	STANDARD	SOIL DESCRIPTION		(D		COMMENTS	
	INTERV	AL (ft)		STANDARD PENETRATION TEST RESULTS			SYMBOLIC LOG			
		RECOVE	ERY (in)	TEGT REGGETS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR		딜	Œ	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND	
			#TYPE	6"-6"-6"	CONSISTENCY, SOIL STRUCTURE, MINERALOGY	,	MB(	PP (TSF)	INSTRUMENTATION	
				(N)				dd		
241.5	20.0 F	3.0	SS9SS	F0/2	Silty Sand (SM) 20.0-20.3' - light brown, very dense, fine to medium	F	111:			
	20.3			50/3 (50/3")	\grained, sandy silt at top of sample, mica fragments					
-					Begin Rock Coring at 20.3 ft bgs		1			
_					See the next sheet for the rock core log	-	1			
-						-	1			
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231.5						_	1			
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PROJECT NUMBER:

338884

BPA-21

SHEET 3 OF 6

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687645.7 N, 2011704.8 E)

ELEVATION: 261.5 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, HQ Double Barrel ORIENTATION : Vertical

CORING	EQUIFIVIEIN	I AIN	D IVIE	HOD : CME-750, HQ Double Barrel					ORIENTATION : Vertical
WATER	LEVELS: 7.	8 ft bo	ıs	START : 7/20/2006	_	_	END : 7/21/06 11:00		LOGGER : MJ
	(%			DISCONTINUITIES	ő	L	LITHOLOGY		COMMENTS
92 €	ZAZ ZAZ	_	ES T	DESCRIPTION	] 5		ROCK TYPE, COLOR,		SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (#)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	SYMBOLIC LOG	1	MINERALOGY, TEXTURE, WEATHERING, HARDNESS,		FLUID LOSS, CORING RATE AND
무선임병	N N N N N N N N N N N N N N N N N N N	Ø	ZAC ER F	PLANARITY, INFILLING MATERIAL AND	¥₩		AND ROCK MASS		SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
		œ	田田	THICKNESS, SURFACE STAINING, AND TIGHTNESS		L	CHARACTERISTICS		
-	^{20.3} R1NQ		1		×	1	Siltstone 20.3-24.3' - dark reddish brown,		Rock coring began at 11:35 – on 7/20/06
-	1.3 ft	0			- × :	╊	mottled greenish gray and black, very		-
-	21.6		$\bowtie$		- × :	1	soft, highly weathered		R1: 11:35-11:45 on
_			0		- × :	1	20.6' - clay seam, 0.01' thick		07/20/06 -
_					- × :	1			R2: 11:52-12:05
_			0		×				_
					×				
_			0		××	1			_
-	R2NQ 5.5 ft	0			- X	Ł	24.21 play seems 0.051 thick	_	-
	100%	U	0		<b>-</b>  ::::	┢`	24.2' - clay seam, 0.05' thick  Sandstone		-
25 <u> </u>				-	-  : : : ×	+	24.3-25.1' - light reddish brown, fine	_	_
			0		- ×	₽	sand to medium sand, highly	/-	-
-					_[:::	L۱	weathered, mica fragments 24.8' - black bands	/ _	_
_					×	1	Siltstone	$\prod$	_
_	27.1		1	26.8' - Fracture, smooth	×	1\	25.1-25.6' - dark reddish brown,		_
				27.2' - Fracture, smooth, undulating	· · ·	$\Box$	mottled greenish gray and black, highly weathered		R3: 12:10-12:30
-			2	, ,	1:::		Sandstone	11	_
-				27.8' - Fracture, 50 deg, smooth, undulating	<b>†∷</b> ∶	H١	25.6-26.1' - light reddish brown,		-
-			1		<b>-</b>  ::::	F'	mottled greenish gray, highly	1	-
-	Dano			28.8' - Fracture, 40 deg, smooth, undulating	- : : : ×	Ł	weathered, mica fragments  Siltstone	۱,	-
-	R3NQ 4.9 ft	61	0		- x	$\left  - \right $	26.1-27.1' - dark reddish brown,	Ш	At 29.5': R-Scale = R3-R4
30	104%			_	-  ×	Ш	mottled throughout, highly weathered	1	——————————————————————————————————————
231.5					×		26.1' - clay seam, 0.2' thick  Sandstone	1	_
_			0		×	Ł	At 27.1' - light reddish brown, mottled	l	
					×	1	greenish gray and black, soft, slightly		At 30.9': R-Scale = R3
-	32.0		1		×	1	weathered, mica fragments 27.3-27.5' - mottling		_
-	02.0		XXX	32.1' - Fractures, multiple, at top of run	×	1	28.5' - mottling		R4: 12:35-12:55
-			10+	oz ractares, manapie, actop errain	- × ×	1	Siltstone		-
-			$\vdash$		- × :	1	At 29.1' - dark reddish brown, mottled		-
-			1		- ×	1	pink and black, slightly weathered, fine grained, mica fragments		-
-	D410				-[:::	F	31.5' - mottled greenish gray and pink	Γ	-
-	R4NQ 5 ft	82	1	04.51.5	4:::	F	33.5' - clay seam, 0.1' thick, very soft, with rock fragment		_
35	90%	-		34.5' - Fracture, 70 deg, rough	_[:::	L	- Sandstone		
226.5				35.2' - Fracture, rough	]:::	L	At 33.7' - pinkish gray, fine sand to		SC-1 collected 35.2-36.35' -
					:::	ſ	coarse sand, gray, white and black grains, alternating pinkish gray and		33.2-30.33
_			1		1:::	r	reddish brown		_
I -	37.0		$\otimes\!\!\otimes$	36.3' - Fracture, 20 deg, rough	1:::	r	33.7-37.2' - slightly weathered		_
-	31.0				<b>-</b>  ∷:	F	34.8-34.9' - reddish brown band with gray and white coarse grains (0.15'		R5: 13:11-13:32
-			2	37.4' - Fracture, horizontal, smooth, undulating		F	thick)		-
-					4:::	F	35.2-35.7' - reddish brown, trace		-
-			0		<b>-</b>  ::::	F	greenish gray mottling, fine sand to medium sand, white and gray grains		-
I -					<u> </u>  :::	L	(0.02' thick)		At 38.9': R-Scale = R3-R4
	R5NQ		0		]:::	L	35.7-36.5' - some white and gray		At 38.9 : K-30ale = K3-K4
40	5.2 ft 104%	92	"		×	ħ	grains, 0.02' thick	Γ	1
221.5	10-70			40.0' - Fracture, smooth, undulating	×	$\Box$	-		
						1			
						L			



PROJECT NUMBER:

338884

BPA-21

SHEET 4 OF 6

# **ROCK CORE LOG**

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687645.7 N, 2011704.8 E)

ELEVATION: 261.5 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, HQ Double Barrel

WATER	LEVELS: 7.	8 ft bo	ıs	START : 7/20/2006		END : 7/21/06 11:00	LOGGER : MJ
	(9)			DISCONTINUITIES	ŋ	LITHOLOGY	COMMENTS
QZ €	AND ≪AND		ËS	DESCRIPTION	3 LO	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
ATIC ATIC	J.H.	Q D (%)	TION I	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	Ĭ	MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	A D	FRACTURES PER FOOT	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	AND ROCK MASS CHARACTERISTICS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
	034	ш	1	40.1' - Fracture, 40 deg, smooth, undulating,	- × ;	3-\ 36.5-37.2' - pinkish gray, fine sand to	_
_				multiple fractures along one long fracture	- × :	coarse sand	
_			1	40.3' - Fracture, 35 deg, rough	x = 1	37.2-39.6' - fresh 37.2-38.2' - reddish brown, mottled,	_
_	42.2				- ×	fine sand	_
_			<b>*</b>		- × :	38.2-39.0' - greenish gray 39.0-39.6' - fine sand to medium sand,	R6: 13:43-14:05
_			U		- × :	0.05' thick inclusions Siltstone	-
_			0		- x	At 39.6' - reddish brown, mottling	At 43.1': R-Scale = R3-R4
-				43.7-44.5' - Microfractures	- ×	throughout, laminated bedding, fresh 39.8-40.5' - reddish gray clasts	-
	R6NQ 4.9 ft	100	0		- ×	41.0-42.1' - 0.03' pinkish gray	-
45 <u> </u>	100%			-	- × :	inclusions 41.3' - 0.03' pinkish gray inclusions	-
-			0		$-\frac{1}{x}$	41.4' - 0.03' pinkish gray inclusions 41.6' - 0.03' pinkish gray inclusions	-
-					- × :	41.8' - 0.03' pinkish gray inclusions	-
-			0		-  × :	41.9' - 0.03' pinkish gray inclusions 42.1-42.8' - laminated bedding,	1
-	47.1			47.1' - Fracture, at top of run	1× :	transitions to more siltstone, pinkish	R7: 08:15-08:30 on
-			1		× ;	<ul><li>gray clasts throughout</li><li>42.8-43.7' - pinkish gray clasts</li></ul>	07/21/06
-					- × :	43.7-44.5' - grains become coarse, fine to medium grains	At 47.8': R-Scale = R3 -
_			0		× :	44.5-45.0' - grains become coarser,	1
-	R7NQ				Tx :	more pinkish gray clasts 45.0-45.9' - 0.05' thick pinkish gray	1
50	5 ft 100%	97	0		× :	clast	At 49.8': R-Scale = R3 —
211.5	,				× :	45.9-46.5' - 0.05' thick pinkish gray	At 49.0 . K-Scale - KS
_			0		lx :	46.5-47.0' - greenish gray mottling inclusions, more clasts speckled	
_			0		_ × :	throughout, fine to medium grains	
_	52.1		U		X	47.0-47.4' - 0.05' thick pinkish gray	_
_			0		× :	47.4-48.0' - 0.02-0.06' thick greenish	R8: 08:37-08:52
-					- <del>                                    </del>	gray clasts ├\ 50.6-51.2' - large greenish gray mottle ┌	-
-			0		- × :	inside core, with fine grains and trace medium grains	-
-				54.41. Frankrica (0) 05 day and 40 day	- × :	51.2-52.9' - grains become more	-
	R8NQ	94	2	54.1' - Fractures (2), 35 deg and 40 deg, smooth, undulating, contact between siltstone	-		-
55 <u> </u>	5.4 ft 100%	94		and sandstone	<del> </del> ∷:	52.9-53.4' - pinkish gray, mottled, fine	-
-			0		- ∷:		-
-					-	53.4-54.1' - reddish brown, mottling	-
-			0		1:::	throughout, fresh, very fine grained  Sandstone	1
_	57.5				1	At 54.1' - pinkish gray, fine sand to	At 56.9': R-Scale = R4
-	-		0		1:::	<ul><li>medium sand, fresh</li><li>55.0' - fine sand, 0.03' thick gray</li></ul>	R9: 09:05-09:20
					]:::	band, 150 degree angle 55.2' - rust colored band	1
			0		]:::	56.5' - rust colored band	SC-2 collected
-	R9NQ				×	56.9' - rust colored band 57.2' - 0.01' thick gray band	58.6-59.6'
60	4.6 ft	100	1	59.8' - Fracture, horizontal, rough –	× :	△ 58.6' - 0.01' thick rust bands 30 angle	_]
201.5	100%				+	degree	



PROJECT NUMBER:

338884

BPA-21

SHEET 5 OF 6

# **ROCK CORE LOG**

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687645.7 N, 2011704.8 E)

ELEVATION: 261.5 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, HQ Double Barrel

CORING EQUIPMENT AND INETHOD : CINE-730, FIQ DOUBLE BATTE! ORIENTATI									
WATER	LEVELS: 7.	8 ft bo	js	START : 7/20/2006			END: 7/21/06 11:00	LOGGER : MJ	
				DISCONTINUITIES	(ŋ	Γ	LITHOLOGY	COMMENTS	
o ₹	CORE RUN, LENGTH, AND RECOVERY (%)		ί	DESCRIPTION	SYMBOLIC LOG	Г	ROCK TYPE, COLOR,		
EVATION EVATION ELOW JRFACE (ft	CN T, A	(%	FRACTURES PER FOOT		음		MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND	
EPTH AN EVATIO ELOW JRFACE	GTF	Q D (%)	F.C.	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	BO		WEATHERING, HARDNESS,	SMOOTHNESS, CAVING ROD	
SUR	S S S S S S S S S S S S S S S S S S S	a	ERA ER	THICKNESS, SURFACE STAINING, AND TIGHTNESS	λ×		AND ROCK MASS CHARACTERISTICS	DROPS, TEST RESULTS, ETC.	
	016	ш		, , , , , , , , , , , , , , , , , , ,	1	╁			
-			0		7:::		58.9' - 0.03' thick rust clast 59.1' - very fine sand to fine sand,	_	
-					1:::	·	transitions to siltstone; white, pink,	-	
-			1		- ∷:	: -	gray grains	-	
l _	62.1		'		_ ∷:	L	Siltstone	At 61.6': R-Scale = R3-R4	
				62.2' - Fracture, horizontal, smooth	1:::		59.1-59.9' - dark reddish brown, fine	R10: 09:25-09:40	
			1		7∷:	:[	sand 59.4-59.9' - mottling and gray clasts	_	
-				62.8' - Fracture, horizontal and 40 deg,	<b>∃∷</b> ∷	╌	Sandstone	-	
-			0	smooth, undulating	-1:::	-	At 59.9' - pinkish gray, fine sand to	_	
_					_ ∷::	Ŀ	coarse sand, white, gray, pink, and	_	
	R10NQ				:::	1	rust colored grains 61.0-61.7' - rust specks are clustered		
65	5.4 ft		1	64.4' - Fracture, horizontal, smooth, undulating	7:::		61.7-61.9' - white specks are clustered		
196.5	100%			_	<b>†∷</b> ∶	╌	62.5-64.3' - gray, pink, rust colored	At 64.8': R-Scale = R3-R4 —	
-			0		-1:∷	ŀ	grains	-	
_					4:::	Ŀ	64.3-66.1' - reddish brown, mottled	_	
				66.3' - Fracture, horizontal, smooth, undulating	1:::		throughout, sandstone with silt 66.1-66.3' - fine sand		
			1	66.5 - Fracture, nonzontal, smooth, undulating	7∷:	1	66.3-67.5' - sandstone with silt; gray,	_	
-					<b>∃</b> ∷:	<u>.</u>	pink, rust grains	-	
-	67.5		0		- :::	-		R11: 09:50-10:05	
_			0		_ ∷:	L	67.7' - 0.01' thick rust colored band,	R11: 09:50-10:05	
						1	140 degrees		
-					7:::		68.6' - 0.05' greenish gray clast	_	
-			0		<b>∃∷</b> ∶	╌		_	
-	DAANO				4:::	-	69.1-69.2' - rust colored mottling clustered	-	
70	R11NQ 5 ft	100	0	_	4:::	L	-		
191.5	104%				:::	1	70.2-70.5' - rust colored mottling		
					7:::	: [	clustered		
-			0			₽	70.7' - soft, grains become coarser	_	
-					- ∷:	⊱	71.3' - white inclusion	_	
_			0		4:::	L		At 71.7': R-Scale = R4	
	72.5						72.1-76.1' - coarse sand, pink, white,	R12: 10:10-10:30	
_			$\times\!\!\times\!\!\times$		7∷:	:[	gray, rust colored grains		
-			0		1∷:	1	72.4' - coarse grains, mostly pink,	-	
-					-1∷:	ŀ	white, gray 73.0' - 0.01' thick inclusions	-	
1 -			0		_ ∷ :	L	73.7' - 0.02' thick greenish gray	Run R12NQ RQD of 100%	
					:::	1	mottling inclusion	includes extra recovery from	
75	R12NQ				7:::	Γ	73.9-74.4' - rust colored mottling	previous run.	
186.5	5 ft	100	0	_	<b>†∷</b> ∶	╌	-		
-	96%				-1:∷	1		-	
-			0		4: ::	1		_	
			_		_ X :		Siltstone		
			1		× :	1	At 76.1' - reddish brown, green	At 76.4': R-Scale = R3-R4	
-	77.5		•		- ×	1	mottling throughout, soft, fine sand, fresh	R13: 10:40-11:00	
-	77.5		XXX		- × ;	X-		-	
-			2		- ×	<b>X</b>	77.7' - greenish gray clasts	_	
			_	78.2' - Fracture, rough, undulating		$\pm$	77.8' - greenish gray clasts \78.0' - greenish gray clasts	1	
				78.4' - Fracture, rough, undulating	- × :	T	\\\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	At 78.7': R-Scale = R5	
-			0	79.0' - Fracture, 30 deg, smooth, undulating	- × :	**	78.2-78.4' - sandstone band, pinkish	First water level = 7.8' bgs	
-				3	- ×	<b>}</b> -	gray, pink white, fine to medium	taken 7/21/06 at 18:30;	
80	R13NQ 5.2 ft		0	_	× :		grained	second water level = 7.6'	
181.5	J.∠ Il	90	$\dashv$		× :	1		bgs taken 7/22/06 at 17:06	
					1				
	i l	1	ı					ı	



PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-21	SHEET 6 OF 6

#### **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687645.7 N, 2011704.8 E)

ELEVATION: 261.5 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, HQ Double Barrel ORIENTATION : Vertical

CORING	EQUIPMEN	II AN	DIVIE	THOD : CME-750, HQ Double Barrel				ORIENTATION : Vertical
WATER	LEVELS: 7.	8 ft bo	ļS	START : 7/20/2006		_	END: 7/21/06 11:00	LOGGER : MJ
1	(%			DISCONTINUITIES	စ္တ	L	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)		FRACTURES PER FOOT	DESCRIPTION	SYMBOLIC LOG		ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
ATIC V ACE	TH,	R Q D (%)	150 100 100 100 100 100 100 100 100 100	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	٦ ا		MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND
LEV EN	ORE	αD	SAC ER F	PLANARITY. INFILLING MATERIAL AND	/WB		AND ROCK MASS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
2 2 2 2 2		ď	##	THICKNESS, SURFACE STAINING, AND TIGHTNESS			CHARACTERISTICS	
-	100%			-	× ;	*	Siltstone At 78.4' - dark reddish brown, soft,	-
-			0	-	××	*	dark round mottling	SC-3 collected
-				-	××	*	78.7' - dark round mottling	80.9-82.0' _ R-scale performed after
-			0	-	× ;	*	78.9' - dark round mottling 79.2' - mottling	drilling on stored samples
_	82.7			-	× ;	*	80.1' - dark mottling	
_				-	<u> </u>	T	80.4' - dark mottling 80.7' - mottling	_
_				_	ļ	Ľ	81.2' - mottling	_
				_		L	81.4' - mottling	
						Г	82.3' - mottling	
85					Ī	Γ	Bottom of Boring at 82.7 ft bgs on 7/21/06 11:00	1
176.5				_	1		-	
1 -				-	1	r		
-				-	1	F		-
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PROJECT NUMBER:

338884

BPA-22

# **SOIL BORING LOG**

SHEET 1 OF 6

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687755.6 N, 2011728.0 E)

ELEVATION: 262.1 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

DRILLING EQUIPMENT AND METHOD: CME-550, 2-15/16 Tricone Bit, 24" Split Spoon, and 140 lb. Automatic Hammer ORIENTATION: Vertical

DRILLIN	IG EQUIF	PMENT A	AND MET	HOD : CME-550	, 2-15/16 Tricone Bit, 24" Split Spoon, and 140 lb. Automatic Hammer ORIENTATION: Vertical
WATER	LEVELS	: 8.4 ft b	ogs		START : 5/18/06 15:00 END : 5/22/06 11:15 LOGGER : JS
DEPTH B	ELOW EX	(ISTING G	GRADE (ft)	STANDARD	SOIL DESCRIPTION 0 COMMENTS
	INTERV	AL (ft)		PENETRATION TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY
		RECOVI	ERY (in)		SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY  OPEN DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
			#TYPE	6"-6"-6"-6"	CONSISTENCY, SOIL STRUCTURE, MINERALOGY
				(N)	
262.1 - - -	2.0	12.0	SS1SS	3-2-4-5 (6)	Sandy Silt (ML)  0.0-0.4' - brown, moist, loose, low plasticity, 25% very fine to medium sand  Clay (CL)  0.4-1.0' - red, moist, low plasticity, slow dilatancy, color increasing in intensity with depth
-	2.0				lincleasing in intensity with depth
- - -	2.5 4.5	14.0	SS2SS	3-7-16-21 (23)	Fat Clay (CH)  2.5-2.9' - reddish brown, mottled white, moist, stiff, medium to high plasticity, no dilatancy  Lean Clay (CL)  2.9-3.7' - reddish brown, mottled purple, black, white, moist, very stiff, medium plasticity, slow dilatancy
5					
257.1 - -	5.0 7.0	16.0	SS3SS	8-10-12-20 (22)	Lean Clay (CL) 5.0-6.3' - reddish brown, mottled purple, black, white, moist, very stiff, medium plasticity, slow to no dilatancy, similar to above, scattered black staining with white lenses (irregularly shaped)  PT-1 collected 5.0-7.0'
-	7.0				
- - -	7.5	22.0	SS4SS	24-26-42- 50/4.5	Silt With Sand (ML) 7.5-8.7' - reddish brown, heavily mottled, low plasticity, rapid dilatancy, with white lenses, 0.5' thick, black staining, 15-20% very fine sand, micaceous, more sand
-	9.5			(68)	\with depth
10 -	9.5				Sandy Silt (ML)  8.7-9.3' - light gray, mottled yellow and red, moist,
10 252.1	10.0				\dense, low plasticity, 30% very fine to fine sand, mica
-		21.0	SS5SS	20-28-36-50/5 (64)	Silt With Sand (ML) 10.0-11.8' - reddish brown, mottled white, moist, hard, low plasticity, slow to rapid dilatancy, similar to above, 15% very fine sand, mica particles
-	12.0				-
- - -	12.5 14.5	13.0	SS6SS	12-21-30-27 (51)	Clay (CL) 12.5-13.6' - brown, mottled white, light red, moist, hard, low to medium plasticity, slow to rapid dilatancy, 15% very fine sand and scattered medium sand, abundant mica
15					<b>1    </b>
247.1 - -	15.0	5.0	SS7SS	50/5 (50/5")	Clay (CL)  15.0-15.3' - reddish brown, mottled white, moist, hard, low to medium plasticity, slow to rapid dilatancy, trace very fine to fine sand, abundant mica
I -	17.0				
					1   1
- - -	17.5	4.0	SS8SS	16-50/4 (50/4")	Clay (CL) 17.5-18.6' - reddish brown, mottled white, some yellow, black, moist, hard, low to medium plasticity, slow to rapid dilatancy, scattered medium sand, less mottled in last 2
-	19.5				Soil sampling completed at 09:50 on 5/19/06
20_					5.55
1					



PROJECT NUMBER:	BORING NUMBER:
338884	BPA-22

#### **SOIL BORING LOG**

SHEET 2 OF 6

 PROJECT : PEC COLA, New Hill, NC
 LOCATION : (NAD 27) (687755.6 N, 2011728.0 E)

 ELEVATION : 262.1 ft MSL (NGVD 29)
 DRILLING CONTRACTOR : R. Norwood, S&ME

DRILLIN	DRILLING EQUIPMENT AND METHOD: CME-550, 2-15/16 Tricone Bit, 24" Split Spoon, and 140 lb. Automatic Hammer ORIENTATION: Vertical								
WATER	LEVELS	: 8.4 ft b	gs		START : 5/18/06 15:00 END : 5/2	22/06	11:1	5 LOGGER : JS	
DEPTH E	BELOW EX	(ISTING G	RADE (ft)	STANDARD	SOIL DESCRIPTION	ن ا		COMMENTS	
	INTERVA	AL (ft)		STANDARD PENETRATION TEST RESULTS		SYMBOLIC LOG			
		RECOVE	ERY (in)		SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR	١ĕ	ιũ	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND	
			#TYPE	6"-6"-6"	CONSISTENCY, SOIL STRUCTURE, MINERALOGY	МВ	(TSF)	INSTRUMENTATION	
				(N)		Š	ద		
242.1	20.0	1.5	SS9SS,	50/1.5	Clay (CL)	1	1	_	
	20.2			(50/1.5")	20.0-20.2' - reddish brown, mottled white, some yellow, black, moist, hard, low to medium plasticity, slow to				
					rapid dilatancy	1			
-	1				20.0-20.3' - clay seam  Begin Rock Coring at 20.3 ft bgs	1		1	
-					See the next sheet for the rock core log	1		1	
-	1					1		1	
-	1					1		1	
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PROJECT NUMBER:

338884

BPA-22

SHEET 3 OF 6

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687755.6 N, 2011728.0 E)

ELEVATION: 262.1 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				THOD : CIVIE-330, INQ DOUBLE BATTEL			ORIENTATION : Vertical
WATER	LEVELS: 8.	4 ft bo	S	START : 5/18/06 15 DISCONTINUITIES	:00	END : 5/22/06 11:15 LITHOLOGY	LOGGER : JS COMMENTS
	CORE RUN, LENGTH, AND RECOVERY (%)		<i>(</i> 0		.0G		COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	tUN, H, AN ERY	(%	FRACTURES PER FOOT	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING,
YAT SFA(	ZE F IGTH COVI	(%) □	CTL RF0	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	ИВО	WEATHERING, HARDNESS, AND ROCK MASS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
	SHIR	RQ	X.F.	THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYI	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
_	20.3		1		× ×	- Siltstone	Rock coring began at 10:10 -
-					× ×	20.3-21.0' - dark reddish brown,  mottled, very soft, fine sand, highly	on 5/19/06 R1: 10:30-10:45
-			0		1:::	- \weathered, clayey matrix	-
-					× ×	Sandstone 21.0-21.9' - brown, mottled, very soft,	1 -
-	R1NQ 4.7 ft	52*	1		× ×	- ∖fine sand to medium sand, highly	-
-	91%			23.0' - Fracture, 5 deg, smooth, undulating,	- × ×	weathered, highly weathered Siltstone	-
-			2	possible black staining	_ × × ×.×	At 21.9' - reddish brown, mottled, very	-
-					┨∷	Soft, highly weathered 22.4-23.7' - dark reddish brown,	-
-			0 ₩₩		-	mottled green, very soft to soft,	-
25_ 237.1	25.0			<del>-</del>	-	moderately weathered Sandstone	R2: 10:55-11:07
-			0		1:::	At 23.7' - reddish brown, some	-
-					-	<ul> <li>mottling, soft, thin to medium bedding, fine sand to medium sand,</li> </ul>	-
-			0		<b>∤∷</b> ∷	multicolored grains, some clay around	-
-	R2NQ				-	grains 23.7-28.8' - moderately weathered	-
-	5 ft 104%	90*	1		<b>-</b>  ∷∷	25.0-28.4' - mottled, changes colors	=
-	104 76				-	throughout core 25.0-26.7' - dark reddish gray to dark	-
-			1		<b> </b> :::	gray, becomes greenish gray, by	-
-					<b>∤∷</b> ∶	26.7', dark green mottling to 2" size 25.0-25.7' - fine sand to medium sand	-
	20.0		1		1:::	- 25.7-28.4' - soft to hard, becomes	-
30 <u> </u>	30.0		XXX	29.9' - Fracture, 30 deg, smooth, undulating,	× ×	coarse grained, a lot of clay around grains in coarse material, some in finer	R3: 11:15-11:33
-			0	black staining on surface 30.0-31.3' - Fine microfracture pattern	××	grained material 28.4-28.8' - clay seam	-
-				•	××	28.8-29.9' - dark greenish gray, some	SC-1 collected
-			2	31.3' - Fracture, horizontal, smooth, undulating 31.6' - Fracture, horizontal, smooth, stepped	×	green and black mottling, fine sand, slightly weathered	30.2-31.0'
-	R3NQ			51.5 - Fracture, Horizontal, Smooth, Stepped	× ×   × ×	Siltstone	-
-	5 ft 94%	90	0		×××	At 29.9' - dark reddish brown, mottled	-
-	3470			20.01	× ×	_ yellow, black, 30% green mottling, very soft, fine grained	-
-			1	33.2' - Fracture, horizontal, smooth, stepped	××	29.9-44.0' - slightly weathered 30.0-31.3' - 5-10% green mottling	-
-					× ×	32.4-33.0' - soft, some very fine sand	-
35	35.0		_0		× × × ×	-	-
227.1	33.0		(X,X,X	— 35.1' - Fracture, horizontal, smooth, undulating	Îx x	35.0' - soft	R4: 11:40-12:00
-			4	35.2' - Fracture, horizontal, smooth, undulating		-	-
-				35.4' - Fracture, horizontal, smooth, undulating 35.6' - Fracture, horizontal, smooth, undulating	× × × × × × × ×	-	-
-			0		××	-	-
-	R4NQ				× ×	-	-
-	5 ft 96%	72	0		× × × ×	-	-
-	30 /0			20 Ol. Fanchure hadinarital according worth 19	$\mathbf{I} \times \mathbf{x}$	-	
-			1	38.2' - Fracture, horizontal, smooth, undulating	× × × ×	-	
-					× ×	-	
40	40.0		10+	39.6-40.0' - Fracture zone	-  × ×	<del> </del>	-
222.1	40.0		XXX		× ×	40.0-41.0' - soft	R5: 13:43-13:56
					<u> </u>		



PROJECT NUMBER:

338884

BPA-22

SHEET 4 OF 6

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687755.6 N, 2011728.0 E)

ELEVATION: 262.1 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

CORING EQUIPMENT AND METHOD : CME-330, INQ DOUBLE BAITE!									
WATER LEVELS : 8.4 ft bgs				START : 5/18/06 15	:00	END : 5/22/06 11:15	LOGGER : JS		
	(%			DISCONTINUITIES	ρ	LITHOLOGY	COMMENTS		
ON E	N, AND RY (°		ZES )T	DESCRIPTION		ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,		
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.		
-			4		- × :	-	-		
-				40.7-40.9' - Fracture zone, bedrock pieces	- × :	+	-		
-			3	41.2' - Fracture, horizontal, rough, undulating	- ×	}	-		
-	R5NQ			41.9' - Fracture, 10 deg, rough, undulating	- × :	- 41.8-42.3' - soft	-		
-	5 ft	56	0		- x	-	-		
-	100%			42.1' Fracture herizontal rough stepped	- × :	+	-		
-			6	43.1' - Fracture, horizontal, rough, stepped 43.3-43.5' - Fracture zone, horizontal, smooth,	- × ;	42 6 45 01 fower groop mettles	-		
-				undulating	- × :	43.6-45.0' - fewer green mottles 44.0-45.4' - highly weathered	-		
- 45	45.0		10+		- × :	44.3' - clay seam, 0.1' thick clay	-		
45 <u> </u>	45.0			_	- ×	infilling 45.0-45.4' - fewer green mottles	R6: 14:05-14:25		
-			10+	45.4' - Contact between siltstones, 60 deg,	-  × ;	45.0-45.4' - clay seam 45.4-47.9' - green mottling, fresh,	-		
-				smooth, stepped	-  × ;	abundant mica particles, coarsens	-		
-			1	46.4' - Fracture, 30 deg, smooth, undulating	- × :	- with depth	-		
-	R6NQ				Tx i	-	-		
-	5 ft 94%	88	0		-X		-		
-	0170				1	Sandstone	1 -		
-			0		<b>†</b> ∷:	L At 47.9' - dark reddish brown to gray, trace greenish gray mottling, soft,	-		
-					1:::	laminated to medium bedding, very fine sand to fine sand, fresh, faint	-		
50	50.0		0 >>>>		1:::	convoluted laminae in last 0.5'	-		
212.1	00.0			<del>-</del>	<b>1∷</b> ∶	50.0' - more convoluted laminae,	R7: 14:50-15:04		
_			0		1:::	<ul> <li>scattered red brown silt inclusions in irregular shapes and bands,</li> </ul>	<u> </u>		
-					<b>1</b> ∷∶	discontinuous bedding generally at	-		
_		00	0		1:::	<ul> <li>150 degrees, becomes lighter colored and more gray with depth</li> </ul>	-		
_	R7NQ				<b>-</b>  ::::	[	-		
-	5 ft 99%	99	0	52.6' - Contact between siltstone and	<b> </b>  :::	52.4-52.6' - reddish brown siltstone swirled in with sandstone	-		
_				sandstone, horizontal, smooth, stepped	1:::	52.6-53.4' - gray, soft to hard, fine	-		
-			0		1:::	sand to medium sand, multicolored grains, mottling around some grains,	-		
_					1:::	10-15% scattered coarse grains	· ·		
55	55.0		0		]:::	53.4-53.7' - medium sand to coarse sand, mottling around grains	]		
207.1			0	_	]::::	53.7-53.8' - dark gray, very fine sand	R8: No time recorded		
			0		]::::	to fine sand 53.8-54.2' - fine sand to medium sand,			
			0		]:::	finer grained than 52.6-53.4' 54.2-54.3' - light gray, very fine sand	SC-2 collected 55.0-56.1'		
					]::::	_ to fine sand	30.0-00.1		
_	R8NQ 5 ft	84	2		<u> </u>	54.3-55.0' - medium sand to coarse sand, mottling around grains	_		
_	95%	٠.		57.6' - Fracture, 10 deg, smooth, undulating	<u></u>	55.0' - soft to hard, 10% coarse grains			
-			1	57.9' - Fracture, 10 deg and 30 deg, rough, undulating, in silt lens	<b>_</b>  :::	scattered throughout, 5% scattered silt inclusions to coarse sands size	-		
_				58.8' - Fracture, 80 deg, rough, undulating	4:::	56.7-57.6' - mottled, several hairline	_		
_			0		<b>.</b> :::	silt seams, dark gray mottling 57.6-57.9' - mixed siltstone and	_		
	60.0		XX		4:::	sandstone			
202.1				1	+		R9: 15:27-15:39		

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PROJECT NUMBER:

338884

BPA-22

SHEET 5 OF 6

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687755.6 N, 2011728.0 E)

ELEVATION: 262.1 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				,				
WATER	LEVELS: 8.4	4 ft bo	ıs	START : 5/18/06 15	:00	END: 5/22/06 11:15		LOGGER : JS
	_			DISCONTINUITIES	(D	LITHOLOGY	- 1	COMMENTS
_ €	CORE RUN, LENGTH, AND RECOVERY (%)		S	DESCRIPTION	SYMBOLIC LOG		T	
EPTH AND EVATION ELOW JRFACE (ft)	N A Y	(9)	FRACTURES PER FOOT	BEGGIAII FIGH	닉일	ROCK TYPE, COLOR, MINERALOGY, TEXTURE,	- 1	SIZE AND DEPTH OF CASING,
EPTH AN EVATION ELOW JRFACE	#FE	Q D (%)	ĔĞ	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	l i	WEATHERING, HARDNESS,	- 1	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
E 한 의 분	N N N N N N N N N N N N N N N N N N N	g	AN I	PLANARITY, INFILLING MATERIAL AND	ξ	AND ROCK MASS	- 1	DROPS, TEST RESULTS, ETC.
	S H E	ď	田田	THICKNESS, SURFACE STAINING, AND TIGHTNESS	Ś	CHARACTERISTICS		,, -
_			1	60.3' - Fracture, horizontal, rough, planar		- Siltstone		_
_						57.9-58.0' - dark reddish brown,	Ħ	_
						mottled greenish gray, soft, fresh	П	
_			0		1:::1	Sandstone 58.0-60.8' - gray, soft to hard, very fine	П	
-	R9NQ				∃∷∷I	sand to fine sand, fresh, pink mottling	П	-
-	5 ft	100	0		<b>- ∷:</b>	- 58.4' - 10% coarse grains scattered	П	_
_	102%				J∷l	throughout, 5% scattered silt	П	
						inclusions to coarse sands size		
-			0		<b>†∷:</b>	- 58.5' - rhomboidal shaped feature,		-
-					- :::	yellow and red with white; hard 60.7' - light gray, medium sand to	۱ I	_
_			0		_[:::]	- coarse sand	- 1	_
65	65.0				::: <b> </b>	Siltstone		
197.1			W	_	<b>⊺∷:</b>	60.8-60.9' - dark reddish brown, soft to		R10: 09:20-09:36 on
-			0		<b>∃∷∷</b> ∤	hard, fresh		05/22/2006 -
_					4:::1	Sandstone	- 1	_
			0			At 60.9' - light reddish brown, hard,	- 1	
			"		ו∷ו	fine sand to medium sand, fresh 60.9-64.7' - banded in finer and	- 1	
_	R10NQ				d∷:I	coarser grained beds, trace silt	- 1	-
-	5 ft	98	0		- :::	inclusions	- 1	<del>-</del>
_	100%				_I∷:I	_ 64.7-65.0' - soft to hard	- 1	
						65.0-66.4' - pinkish gray	- 1	
_			1		1∷:	- 65.0-67.4' - fine to medium grained	- 1	_
-					-∤∷⊹l	_ with some coarse sand grains ¬ 67.4-68.7' - medium grained with 25%	- 1	_
l -			0		$\times \times \times$	coarse grained material in bands	П	_
70	70.0				$\times$ $\times$	67.8-69.2' - pinkish gray	П	
192.1				69.9' - Fracture, 15 deg, smooth, undulating,	$\begin{array}{c} \times \times \\ \times \end{array}$	68.7-69.2' - more coarse sized		R11: 09:49-10:02
-			0	not as loose fit	- <u>  ×.                                    </u>	material, to 1/4 size, some silt	$\mathbf{A}$	-
_					-l∷:I	inclusions	H	_
			2		յ∷։լ	Siltstone	П	<u>_</u>
					]∷:[	At 69.2' - dark reddish brown, mottled trace greenish gray, soft, fresh, fine	П	
-	R11NQ			72.1' - Fracture, 5 deg, rough, planar, in	<b>†∷</b>	grained		_
_	5 ft	98	0	siltstone seam, tight	-l∷:I	69.8-70.0' - trace very fine sand	' I	_
_	100%			72.3' - Fracture, 10 deg, rough, undulating,	_ե∷:Լ	_  70.5-71.0' - siltstone and sandstone	- 1	_
				loose fit		beds alternating	- 1	
I -			0		1:::1	Sandstone	- 1	_
-					-H∷⊹I	71.0-74.3' - very dark gray, mottled reddish with multicolored grains, soft	- 1	_
l –			0		0.0	to hard, medium sand, fresh, generally	П	_
75_	75.0		l		$\mathbb{Q}$	beds on 0-10 degrees, remainder on		
187.1				_	,00	20-30 degrees		R12: 10:27-10:39
-			0		70,0	71.0-71.6 - fine sand to medium sand	$\  \ $	<del>-</del>
-			$\vdash$		- 1111	71.6-72.8' - fine grained, up to 20%	П	SC 3 collected
I _			1	76.3' - Fracture, horizontal, rough, undulating,	× × × ×	medium grained, laminae siltstone lenses, some irregularly shaped	П	SC-3 collected 76.3-77.2'
			'	in fine grained material	x x	72.8' - becomes lighter colored, gray	Ш	10.5-11.2
_	R12NQ			•	<b>1</b> :::I	to dark gray with greenish tint		
-	5 ft	99	0		-  ∷  -	72.9-73.3' - medium to coarse	$\  \ $	-
_	99%				ا∷∷إ	grained, trace fine gravel	П	_
						73.3-74.3' - fine grained, fine to		
I -			0		1: ::I	medium grained, and medium grained, convoluted laminae to thin		<del>-</del>
-					<del> </del> ∷	_ grained, convoluted laminae to thin bedding		<del>-</del>
-			0		<b>-</b>  ∷:	-		_
	80.0		$\bowtie$	_	∐∷∷լ		l	
182.1					4:::[		Ц	R13: 10:50-11:08
I			1 1		1 1		- 1	



PROJECT NUMBER:	BORING NUMBER:					
338884	BPA-22	SHEET	6	OF	6	

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687755.6 N, 2011728.0 E)

ELEVATION: 262.1 ft MSL (NGVD 29)

DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

WATER LEVELS IS 48 holes  DISCONTINUITES  DISC	CORINC	EQUIPMEN	II AN	DIVIE	THOD : CME-550, NQ Double Barrel					ORIENTATION : Vertical
DESCRIPTION DEPTH TYPE CRUCK NOT THE MARKET NAME AND THE MARKET NA	WATER	LEVELS: 8.	4 ft bo	IS		:00	_		_	
PISON 2  RESIDENCE SERVING AND		<u>(%</u>				SG	L	LITHOLOGY	_	COMMENTS
R13NO  Sit   100   0  101%   0   0  85   0   0   0  85   0   0   0  85   0   0   0  177.1   1   1   1   1   1   1   1   1   1	DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, ANI RECOVERY (	R Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	SYMBOLIC LO		MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS		FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
R13NO Sit 100 0 101% 101% 100 0 101% 100 101% 100 101% 100 100	-					1:::	t	Conglomerate	Н	_
bgs laken 5/23/06 at 18:00    Telephoron   T	- - -	5 ft				- X X	-	hard, coarse sand to fine gravel, fresh 74.3-75.0' - grades from sandstone to conglomerate  Sandstone 75.8-76.2' - very dark gray, soft to hard, fine sand, fresh, banded with		taken 5/22/06 at 11:29; - second water level = 7.6' _
85   Solution   Soluti	-			0	-	× ; × ; × ;	× × ×	Siltstone 76.2-76.9' - black, mottled faint vellow		_
Sandstone A 76 9 - dark reddish gray, soft to hard, fine sand, fresh, faint red and light gray banding, flesh, faint red and light gray banding back laminae bets, abundant mea particles 77, 3-90.7 - reddish gray to pale red, heavy pink and red mottling, medium grained with some bets fine rand other coarse, 10% fine grained sand, 30% coarse grained sand, anniated silt (dark gray) seams at bother of 58 80, 782.9° dark gray, lighter and darker bands, beds on 20-30 degree angle, some yellow and red mottling 80,781.1° - fine to medium grained with black silt tenses laminated black silt tenses, laminae 81,1-82.2° - fine to medium grained graine		85.0		0	-	××	× ×	and lighter gray, stained yellow-orange, very soft to soft, fresh,		
	177.T							mottling  Sandstone  At 76.9' - dark reddish gray, soft to hard, fine sand, fresh, faint red and light gray banding, black laminae beds, abundant mica particles  77.3-80.7' - reddish gray to pale red, heavy pink and red mottling, medium grained with some beds finer and other coarse, 10% fine grained sand, 30% coarse grained sand, laminated silt (dark gray) seams at bottom 0.65' 80.7-82.9' - dark gray, lighter and darker bands, beds on 20-30 degree angle, some yellow and red mottling 80.7-81.1' - fine to medium grained with black silt lenses  81.1-82.2' - fine to medium grained with lenses of medium to coarse grained sand, some laminated black silt lenses, laminae  82.2-82.9' - fine to medium grained, finer than previous, trace 1/8 silt inclusions  Siltstone  82.9-85.0' - dark reddish brown, very soft to soft, fresh, fine grained  Bottom of Boring at 85.0 ft bgs on		
							_		_	

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PROJECT NUMBER:	BORING NUMBER:				
338884	BPA-23	SHEET	1	OF	8

#### **SOIL BORING LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687694.4 N, 2011792.5 E)

ELEVATION: 259.7 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

DRILLING EQUIPMENT AND METHOD: CME-550, Tricone Bit, 24" Split Spoon, and 140 lb. Automatic Hammer ORIENTATION: Vertical

WATER				TIOD : ONIL GOO	, Tricone Bit, 24" Split Spoon, and 140 lb. Automa START: 6/9/2006	END : 6/1	9/06 -	11:00	ORIENTATION : Vertical  LOGGER : MJ/JS/JF/DT	
			RADE (ft)	STANDARD	SOIL DESCRIPTION				COMMENTS	
	INTERV		, ,	PENETRATION		Log		1		
			ERY (in)	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR				DEPTH OF CASING, DRILLING RATE,	
			#TYPE	6"-6"-6" (N)	CONSISTENCY, SOIL STRUCTURE, MINE		SYMBOLIC LOG	PP (TSF)	DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION	
259.7 - - - -	2.0	14.4	SS1SS	2-3-4-7 (7)	Silty Sand (SM) 0.0-1.2' - brownish yellow, moist, medium sti black specks	iff to stiff, - - -				
_	2.5				Sandy Clay (CL)				PT-1 collected	
- -	4.5	6.0	SS2SS	10-35-50 (85)	2.5-3.0' - brown, dark brown, hard				2.0-4.0'	
5						-			_	
254.7 - - -	5.0 7.0	15.0	SS3SS	5-8-20-50 (28)	Silty Sand (SM)  5.0-5.4' - very dark brown, fine to medium gr brown, black, and white grains, coarsens wit Sandy Clay (CL)  5.4-6.3' - light brown, very stiff, fine grained	rained, h depth		2.0	PT-2 collected 5.5-7.5' Offset: 3.5' S44E of BPA-23 Lab Results USCS: SC-SM & SC	
-	7.5 9.5	11.0	SS4SS	42-50/5 (50/5")	Sandy Clay (CL) 7.5-7.7' - light brown, very stiff, fine grained Silt (ML) 7.7-8.1' - brown, some mica particles, some Silt (ML) 8.1-8.4' - brown, some mica particles, some banded with greenish gray mottling	<u> </u>			Lab Results 0303. 30-3W & 30	
10 249.7 - - -	10.0	5.0	SS5SS	50/5 (50/5")	Clay (CL) 10.0-10.2' - reddish brown, mica Sandy Silt (ML) 10.2-10.4' - reddish brown, mica fragments Clay (CL) 10.4-10.8' - reddish brown, hard, mica				Soil sampling completed at 16:20 on	
- - -	12.5 \12.8 <i>[</i>	3.0	SS6SS.	50/3 (50/3")	Clay (CL) 12.5-12.8' - reddish brown, hard, mica Begin Rock Coring at 12.8 ft bgs See the next sheet for the rock core log			1.5- 2.0	6/9/06	
15						- - - - - - - - -				
20							$\vdash$			



PROJECT NUMBER:

338884

BPA-23

SHEET 2 OF 8

# **ROCK CORE LOG**

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687694.4 N, 2011792.5 E)

ELEVATION: 259.7 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER.	LEVELS : 5.	3 ft bc	ıs	START : 6/9/2006	END: 6/19/06 11:00 LOGGER: MJ/JS/JF/					
	(%)			DISCONTINUITIES	G	LITHOLOGY	COMMENTS			
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.			
-	12.8 R1NQ 1.2 ft 14.0	0	1		× × × × × × × ×	Siltstone     At 12.8' - reddish brown, mottled     greenish gray in streaks, very soft to     soft, fine grained	Rock coring began at 08:15 – on 6/15/06 R1: No time recorded on 06/15/06 –			
15 244.7			0	_	× × × × × ×	12.8' - clay seam, 0.05' thick 12.8-28.0' - highly weathered to completely weathered	R2: No time recorded			
244.7	Barra		1	15.6' - Fracture, 70 deg, smooth, undulating, black staining	× × × × × ×	14.0' - dark reddish brown, mottled purple and becomes yellow in clayey zones	At 12.8-21.1': R-Scale = R0- R1 -			
-	R2NQ 5 ft 102%	0	0	black stall ling	× × × × × ×	15.0-15.6' - clay and rock - 16.0-18.2' - clay and rock -	-			
-			1	17.3' - Fracture, 70 deg, smooth, undulating, black and yellow staining (may be in rock)	× × × × × ×	-	SC-1 collected 16.0-17.1' –			
-	19.0		4	18.2' - Fractures (2), horizontal and 40 deg, smooth, undulating, (at contact with clayey seam)	× × × × × ×	-	- R3: 08:54-09:15			
20 239.7			8	18.8' ⁻ Fractures (2), 60 deg and 60 deg, rough, undulating 19.5-19.7' - Fractures (8), horizontal and 10 —	× ×   × ×	- 19.3-19.8' - very fine sand 				
-	R3NQ		10+	deg, black stains	× × × × × × × ×	20.8-20.9' - clay seam, bedrock	- SC-2 collected			
-	5 ft 100%	0	0 10+		× × × × × ×	21.0-21.1' - clay seam - -	21.8-23.0' - At 21.1-23.0': R-Scale = R0- R1			
-					× × × × × × × ×	- - 22.8-23.4' - very fine sand	- At 23.0-25.0': R-Scale = R0-			
-	24.0		10+	23.5' - Fracture, 5 deg, in weak rock 23.7-24.3' - Fracture, 5 deg, 1/2-1 clay seams		-	R1 - R4: Finished at 09:25			
25_ 234.7			1	and very soft rock 24.0' - Fracture, horizontal	× × × × × × × ×	 25.0-25.5' - clay seam	- At 25.0-26.0': R-Scale = R2			
-	R4NQ		10+	25.3' - Fracture, 20 deg, smooth, undulating 25.6' - Fracture, 20 deg, smooth, undulating	× ×   × ×   × ×	25.6-27.0' - soft, harder than above, very fine sand	]			
-	5 ft 97%	20	20	20	20	0		× × × × × ×	- 27.0-27.6' - very soft, clay seams,	
-			10+	20.2.20.71 Frankriga (2) hard-ordel are "	-	mixed with rock 27.6-29.0' - few green mottles, up to 35% fine sand	- At 28.0': R-Scale = R2			
-	29.0		3 28.3-28.7' - Fractures (3), horizontal, smooth, undulating, some black and yellow staining		× × × × × × × ×	28.0-39.0' - slightly weathered	R5: Finished at 10:10			
30_ 229.7			0	- -	× ×   × ×	-  30.0-30.5' - mottled greenish gray	]			
-	R5NQ	7,	0		× × × × × ×	30.5-32.1' - mottled greenish gray and purple, soft, up to 40% very fine sand	At 30.5': R-Scale = R3-R4  Driller Remarks: Expect lost			
-	5 ft 92%	71	10+		× × × × × ×	31.6-32.1' - clay seam 32.1-33.1' - very soft to soft, 5-15%	recovery in clayey seam, very fast drilling in this section			
			U		××	very fine sand				

2BB-145 Rev. 1



PROJECT NUMBER:

338884

BPA-23

SHEET 3 OF 8

# **ROCK CORE LOG**

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687694.4 N, 2011792.5 E)

ELEVATION: 259.7 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	LEVELS : 5.	3 ft bo	S	START : 6/9/2006	006 END : 6/19/06 11:00		LOGGER : MJ/JS/JF/DT	
	(%)			DISCONTINUITIES	စ္ခ	LITHOLOGY	COMMENTS	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.	
- - -	34.0		2	33.1' - Fracture, 45 deg, smooth, undulating, black and orange staining 33.3' - Fracture, 45 deg, partly open to <0.5 mm 34.0-34.3' - Fracture zone, vertical, rough,	× × × × × × × ×	33.1-34.0' - becomes coarser with depth, up to 40% very fine sand 33.6-35.3' - mottled purple	Logged as if clayey seam is lost (assuming full recovery); At 32.0': R-Scale = R2 R6: 10:20-10:38 At 34.5' R-Scale = R3-R4	
35 224.7 - - - -	R6NQ 5 ft 100%	84	0	undulating	× × × × × × × × × × × × × × × × × × ×	36.2-36.5' - very dark gray, mottled dark green and yellow, soft 36.5-37.4' - soft, very fine to fine sandy lenses		
- -	39.0		5	37.8' - Fracture, horizontal, rough, undulating, some small bedrock fragments and some clay	× × × × ×	37.4-39.0' - very dark gray, mottled green, yellow, trace to 10% very fine sand, grades to sandstone	- - -	
40			0	_		Sandstone 39.0-40.3' - dark gray with white and gray grains, soft to hard, slightly weathered, fine to medium sand, most	R7: 11:00-11:19  At 39.5': R-Scale = R4	
-	R7NQ 5 ft	76*	10+ 3	40.2' - Fractures (2), 10 deg 40.3' - Fractures (2), 30 deg and 40 deg, smooth, undulating 40.5' - Fractures (2), horizontal, smooth, undulating	× × × × ×	bedding on 20 degree angle Siltstone At 40.3' - very dark gray, mottled green, very soft, fine sand, moderately	At 40.5': R-Scale = R1	
- - -	102%		1	41.1' - Fracture, 10 deg, slickensided, undulating, green staining 41.3' - Fracture, horizontal, rough, stepped 41.8' - Fracture, horizontal, rough, stepped 42.0-42.1' - Fractures (2), horizontal and 20 deg, smooth, undulating	-  <del>\hat{\hat{\hat{\hat{\hat{\hat{\hat{</del>	weathered 40.5-41.1' - mottled green, soft, clay seams 40.9-41.1' - clay seam 41.1-42.1' - mottled green 42.0-42.1' - fresh Sandstone		
45214.7	11.0		5	44.6-44.9' - Fractures (5), horizontal, to 5 deg, smooth, undulating 45.1' - Fracture, 20 deg, smooth, undulating	× × × × ×	42.1-44.7' - dark reddish brown to very dark gray, mottled green, soft to hard, fresh, coarsens with depth, gradational contact with siltstone below	R8: 11:32-11:59	
-	R8NQ 5 ft 99%	88	0	-	× × × × × ×	At 44.7' - dark reddish brown, mottled green, very soft to soft, fresh, some medium to coarse sand 45.1-45.5' - mottled green, very fine	At 45.5': R-Scale = R4	
-			0		× × ×	sand, irregularly shaped siltstone clasts 45.5-49.4' - up to 40% very fine sand	- At 48.0': R-Scale = R3-R4	
-	49.0		0 ~~~ 0		× × × × ×	49.4-50.9' - fine sand, coarsens with	R9: 13:02-13:24	
50	DONO		0	_	× × × × ×	depth, up to 60% fine white and black sand  50.9-54.8' - mottled green and purple,		
-	R9NQ 5 ft 96%	89	2		× × × × × ×	up to 10% very fine grained sand	SC-3 collected 51.1-52.2' -	
					×	*	01.1-02.2	

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PROJECT NUMBER:

338884

BPA-23

SHEET 4 OF 8

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687694.4 N, 2011792.5 E)

ELEVATION: 259.7 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

COMING	LQUIFIVILIN	II AN	DIME	THOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS: 5.	3 ft bo	S	START : 6/9/2006		END : 6/19/06 11:00	LOGGER : MJ/JS/JF/DT
	_ (©			DISCONTINUITIES	ŏ	LITHOLOGY	COMMENTS
QN (#)	AND 3, 3, 3, 3, 3,	_	ZES T	DESCRIPTION	O LC	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
- - - - 55	54.0		1	52.7-53.2' - Fracture, vertical, rough, undulating, 0.03' relief, very tight fit 53.3' - Fractures (2), horizontal, rough, undulating	× > × > × > × > × > × > × > × > × > × >	-	At 52.5': R-Scale = R4
204.7	R10NQ		2	tight — 55.4' - Fracture, <5 deg, rough, undulating, tight	× > × > × > × >	— 54.8-56.2' - pinkish gray clasts, <0.03' diameter, fine grained	_
	4.5 ft 100%		1	55.8' - Fracture, <5 deg, rough, undulating 56.2' - Fracture, <5 deg, rough, undulating	× > × > × > × >	56.2-59.6' - very fine to fine sand	At 56.0': R-Scale = R4
_			2	57.3' - Fracture, <5 deg, rough, undulating 57.7' - Fracture, smooth, undulating, v-notch	× > × > × >	_	_
-	58.5		0	break 30v50 tight	× > × > × > × >	-	R11: 08:55-09:25
60_ 199.7			1	59.8' - Fracture, 40 deg, rough, undulating, tight	× > ×.> · · · × >	Sandstone 59.6-60.1' - dark reddish brown,	At 59.5': R-Scale = R4
_	R11NQ 5 ft   100%	85	3	60.1-60.6' - Fractures (3), <5 deg and 75-80 deg, rough, undulating, tight 60.6' - Fracture, <5 deg, rough, undulating,	× > × > × >	mottled blue-green, soft, fresh, fine to medium grained  Siltstone	-
_			1	tight	× > × > × >	At 60.1' - dark reddish brown, trace     blue-green mottling, very soft to soft,     fresh, fine grained	-
_	63.5		0	63.1' - Fracture, <5 deg, rough, undulating,	× > × > × > × >		At 63.0': R-Scale = R4
_			1	tight	× > × > × > × >	-	R12: 09:40-10:00 At 63.5': R-Scale = R5
65 <u> </u>	R12NQ		0	_	× > × > × >	_	_
-	5 ft 100%	83	0		× > × > × > × >	_ _ 66.2-67.0' - light pinkish gray clasts	- -
_			0		× > × > × > × >	- 67.5-68.8' - dark purple mottles	At 67.0': R-Scale = R4
-	68.5		1	67.9-69.0' - Fracture, >80 deg, rough, undulating	× > × > × > × >		R13: 10:20-11:15
70			1	_	× > × > × >	69.4-70.0' - light pinkish gray clasts	
189. <del>7</del> 	R13NQ 5 ft	100	4		× > × > × > × >		At 70.0': R-Scale = R4  At 70.5': R-Scale = R4
-	100%		0		× > × > × > × >	-	-
_					x >	_	-

2BB-147 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BPA-23

SHEET 5 OF 8

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687694.4 N, 2011792.5 E)

ELEVATION: 259.7 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				THOD . CIVIE-550, NQ DOUBLE BAITEI		ORIENTATION : Vertical
WATER	LEVELS: 5.	3 ft bg	IS	START : 6/9/2006	_	END : 6/19/06 11:00 LOGGER : MJ/JS/JF/DT
	. (%			DISCONTINUITIES	ق	US LITHOLOGY COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	ABOLIC LO	ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS  ROCK TYPE, COLOR, SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
	8 - 8 - 8 - 8 - 8 - 8 - 8 - 8 - 8 - 8 -	RG	Ж. Б.	THICKNESS, SURFACE STAINING, AND TIGHTNESS	S	AND ROCK WASS DROPS, TEST RESULTS, ETC.
-	73.5		0		× × ×	× × 1
-			0		×××××××××××××××××××××××××××××××××××××××	× * <del>-</del> × *
75 <u>7</u>			0	_	×××××××××××××××××××××××××××××××××××××××	<ul> <li>× × 74.5-76.4' - with thin light blue to</li> <li>× × purple mottles, gradational contact to</li> <li>At 75.0': R-Scale = R4</li> </ul>
-	R14NQ 5 ft 100%	100	0		×××××××××××××××××××××××××××××××××××××××	× × ×
-	100%		0		<u>*</u> ::	Sandstone  At 76.4' - reddish gray, soft, fresh, very fine to fine, some rip up clasts
-			0			76.5-78.5' - interbedded siltstone lenses (4) 0.1 to 0.2' thick, dark reddish brown to blue-gray  At 78.0': R-Scale = R4
-	78.5		0			78.5-82.8' - multicolored–black/white, R15: 12:00-12:30
80_ 179.7			0	_		coarse sand, trace rip up clasts, quartzitic
-	R15NQ 5 ft	100	0			
-	100%		0		<u> </u> ::	At 81.0': R-Scale = R4
-			0			82.8-82.9' - laminated dark gray
-	83.5		0			siltstone lens, 20 degree bedding 82.9-83.5' - fine sand to medium sand 83.5-84.7' - light reddish brown, soft to hard, medium sand to coarse sand, feldspathic, 20 degree bedding at
85 174.7 _	R16NQ 4.3 ft		0	– 85.4' - Contact between siltstone and		bottom 84.7-85.4' - pinkish white, hard,  The medium sand to coarse sand,
-	100%		0	sandstone, sharp	× × × ×	X X Siltstone X 85.4-97.5' - very dusky red to dark X SC-4 collected
-	87.8		0		××××	very soft to soft, fresh, fine grained  85.6-86.8
-			0		× × × ×	× ×L × ×l
90	_		0		× × × ×	× × × × ·
169.7	R17NQ 5 ft 100%		0	-	× × ×	× ×— × × × ×— × ×
-			0		××××	× × × At 91.0': R-Scale = R3 × × ×
-	92.8		0		× × ×	× ×



PROJECT NUMBER:

338884

BPA-23

SHEET 6 OF 8

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687694.4 N, 2011792.5 E)

ELEVATION: 259.7 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				HOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS : 5.	3 ft bo	gs	START : 6/9/2006 DISCONTINUITIES	_	END : 6/19/06 11:00	LOGGER : MJ/JS/JF/DT COMMENTS
	_8		l 1		98	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
95 164.7	R18NQ 1.2 ft 94.0 100% R19NQ 5 ft 100%	100	0 0 0		- x x x x x x x x x x x x x x x x x x x	94.0-97.5' - very dark gray, soft, 25 degree bedding planes, laminated, very fine grained with trace very fine to fine sand	R18: 13:40-13:55 At 93.0': R-Scale = R3  R19: 14:00-14:15
- -	00.0		0	97.4' - Fracture, 25 deg, smooth, planar, very tight slickensided surfaces on MB's (upper portion) 97.5' - Fracture, 25 deg, smooth, planar, very		Sandstone  - At 97.5' - very dark gray, soft, fresh, fine 98.2-99.0' - medium sand to coarse	At 97.5': R-Scale = R5
100 159.7	99.0		0	tight —	<u></u>	sand Conglomerate 99.0-99.2' - very dark gray, hard, fresh Sandstone	R20: 14:20-14:45 At 99.5': R-Scale = R5
-	R20NQ 5 ft	94	2		-   : : : : : : : : : : : : : : : : : :	At 99.2' - very dark gray with black, gray and white, hard, fine sand, fresh,     up to 20% medium grained, some     banding	- - -
- - -	100%		1	101.9' - Contact between sandstones, sharp contact at 20 deg 102.4' - Fracture, 20 deg, smooth, planar, in gray lens, thin clay coating over ~1/2 of surface	- : : : : - : : : : - : : : :	101.6' - very thin black thread like lens, scattered siltstone clasts 101.9-104.4' - dark reddish gray with gray, white, black, and pink grains, medium sand, abundant red mottling, trace coarse sand to 0.0002' 102.4' - fine grained lens at fracture,	At 102.5': R-Scale = R4
- 105_ 154.7	104.0		0	103.8' - Fracture, horizontal, rough, undulating 104.3' - Contact between sandstones, 20 deg, sharp	- : : : : : : : : : : : : : : : : : : :	0.03' thick 102.9-103.0' - soft to hard 103.8-103.9' - soft to hard Siltstone 104.3-104.4' - very dark gray, very soft	R21: 14:50-15:10  At 104.5': R-Scale = R3-R4
- -	R21NQ 5 ft 98%	94	0	horizontal, sharp	- : : : : : : : : : : : : : : : : : : :	to soft, laminated bedding, fresh, very fine grained, laminations are gray and black  Siltstone  104.4-105.1' - dusky red, mottled	SC-5 collected 106.4-107.4' -
-	109.0		0	108.3' - Fracture, horizontal, rough, undulating 108.4' - Fracture, horizontal, rough, undulating	- :::: - :::: - ::::	- green, soft, fresh, very fine to fine grained, banded with gray and black thready lenses - Sandstone 105.1-111.6' - dusky red, hard, very	- - -
110 149.7 -	R22NQ		0	_	- : : : : : : : : : : : : : : : : : : :	fine sand to fine sand, subrounded to subangular, poorly sorted, fresh, 25% medium grained 105.1-106.1' - siltstone lens - 108.2-109.0' - siltstone lenses 109.0-109.1' - siltstone lens	R22: 15:15-15:27 At 109.5': R-Scale = R5 SC-6 collected 112.15-113.15'
- -	5 ft 101%	100	0		- × × × × × × × × × × × × × × × × × × ×	111.4-111.6' - contact zone, material mixed, irregularly shaped contact	At 112.0': R-Scale = R2
<u></u>							



PROJECT NUMBER:

338884

BPA-23

SHEET 7 OF 8

# **ROCK CORE LOG**

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687694.4 N, 2011792.5 E)

ELEVATION: 259.7 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD: CME-550, NQ Double Barrel

				THOD . CIVIE-550, INQ DOUBLE BAITEI				ORIENTATION : Vertical
WATER	LEVELS: 5.	3 ft bo	S	START : 6/9/2006		_	END : 6/19/06 11:00	LOGGER : MJ/JS/JF/DT
	(6)	L		DISCONTINUITIES	O	L	LITHOLOGY	COMMENTS
oz €	CORE RUN, LENGTH, AND RECOVERY (%)		S	DESCRIPTION	SYMBOLIC LOG	Γ	ROCK TYPE, COLOR,	
EPTH AND EVATION ELOW JRFACE (ft)	YUN 4, A ER'	(%	FRACTURES PER FOOT		일	ı	MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
EPTH AN EVATION ELOW JRFACE	RE F GTI	Q D (%)	FC	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	BO	ı	WEATHERING, HARDNESS, AND ROCK MASS	SMOOTHNESS, CAVING ROD
SUR	SON	a Q	AR	THICKNESS, SURFACE STAINING, AND TIGHTNESS	ξ	ı	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
	014					╁	Siltstone	
_				-	× ×	<u>+</u>	At 111.6' - dark reddish brown, faintly	-
-			0	-	× :	1	mottled yellow-green and purple, very	-
_	114.0			-	×	**	soft to soft, fresh, very fine grained	Boo 45 04 40 00
			6	111 11 Fractive 20 day areasth standard	×	1	114.0-115.3' - heavily mottled green,	R23: 15:34-16:00
115			0	114.4' - Fracture, 20 deg, smooth, stepped, with 0.02' relief	× :	$\mathbf{T}$	yellow, red, fine fractures throughout	At 114.5': R-Scale = R2
144.7				114.8-115.2' - Fractures (5), horizontal, to 10	×	*	_	
-			2	deg, smooth to rough, undulating, several	×	<b>X</b> -	115.3-116.0' - begin picking up very	At 115.5': R-Scale = R4
_				hairline fractures	×	Ł	fine sand, coarsens with depth,	At 115.5 . R-Scale - R4
	R23NQ			115.3' - Fracture, horizontal, smooth, stepped,	[:::	1	gradational contact Sandstone	
_	5 ft 90%	84	0	0.02' relief 115.5' - Fracture, 20 deg, hairline	[∷:	1	116.0-117.7' - dark reddish brown,	1
-	30 /0			110.0 - 1100.016, 20 069, 1101111116	1:::	ŀ	mottled green and yellow, fresh,	-
_			0	-	1:::	F	interbedded sandstone and siltstone,	_
				_	×	t	sandstone is very fine to fine grained,	1
]			0		×	7	hard, siltstone is soft, laminated to thin	
_	440.0		$\times\!\!\times\!\!\times$	-	×	*	bedding, gradational contacts	-
-	119.0			-	×	+	Siltstone At 117.7' - dark reddish brown, mottled	R24: 08:43-09:13 on
_			0	_	×	1	green and yellow, soft, fresh, fine	06/19/06 -
120			ľ	119.7' - Contact between siltstone and	×	X	grained, little sand	At 119.5': R-Scale = R3
139.7				sandstone, horizontal, sharp contact	1× :		_ •	
-			0	-	×	*	120.5-123.0' - mottled bluish gray,	-
_				-	×	**	bioturbation	
	R24NQ	100	0		×	X		At 121.0': R-Scale = R3
	5 ft 100%	100	U	_	× :	T		_
-	10070			-	×	*		-
-			0	-	×	<u>*</u>		-
_					× :			_
					×	X		
_	124.0		0	-	×	<b>X</b> T		_
-	124.0			-	× :	+	124.0-124.9' - mottled dark purple,	R25: 09:17-09:40
_			0	-	×	4	bioturbation	At 124.0': R-Scale = R3
125					×	X		
134.7					×	Ж		
_			0	-	×	1	125.3-129.3' - 30% fine sand,	<u>-</u>
-	DOENO			-	×	<b>X</b> -	micaceous, feldspar	At 126 0': P Socia = B4
_	R25NQ 5 ft	98	0	_	×	<b>L</b>		At 126.0': R-Scale = R4
	98%	50			×			
_				-	×	*		1
-			0	-	×	+		
_				-	×	1		
			0		× :	X		
1 7	129.0				×	X[		]
-	0.0		XXX	-	× :	<u>*</u>		R26: 09:52-10:14
-			0	-	×	1	129.3-130.3' - mottled bluish gray,	At 129.0': R-Scale = R3 -
130_				_	×	<b>X</b>	_ bioturbation	_
129.7					×	K	130.3-130.7' - bluish gray, very fine to	
]			1	130.5' - Fracture, 40 deg, slickensided,	X :	1	fine grained	At 130.5': R-Scale = R3-R4
-	R26NQ	l		undulating, loose	×	*	130.7-131.5' - micaceous	-
-	5 ft	100	0	-	×	<b>*</b>		
	101%			_	×	$\mathbb{L}$	131.5-134.5' - mottled bluish gray, 30% fine to coarse sand, micaceous,	
]					×	Ä	feldspar	
			0	-	×	*		-
					1	ı		
					L	L		

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PROJECT NUMBER:	BORING NUMBER:				
338884	BPA-23	SHEET	8 OF	8	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687694.4 N, 2011792.5 E)

ELEVATION: 259.7 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION: Vertical WATER LEVELS: 5.3 ft bgs START: 6/9/2006 END: 6/19/06 11:00 LOGGER : MJ/JS/JF/DT DISCONTINUITIES LITHOLOGY COMMENTS CORE RUN, LENGTH, AND RECOVERY (%) LOG DEPTH AND ELEVATION BELOW SURFACE (#) FRACTURES PER FOOT DESCRIPTION ROCK TYPE, COLOR. SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD SYMBOLIC MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS RQD(%) DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS DROPS, TEST RESULTS, ETC. CHARACTERISTICS SC-7 collected 0 132.7-134.0' 134.0 R27: 10:40-11:00 0 134.5-135.9' - mottled bluish gray, 135 20% fine sand, micaceous 124.7 At 135.0': R-Scale = R3-R4 0 At 136.5': R-Scale = R3 Sandstone At 139.0': R-Scale = R4 R27NQ 135.9-136.0' - light bluish gray, soft, 0 5 ft 98% 98 fresh, feldspar, micaceous, fine to medium sand First water level = 5.3' bgs Siltstone 0 taken 6/19/06 at 16:10; 136.0-138.2' - dark reddish brown, second water level = 4.7 mottled bluish gray, soft, fresh, very bgs taken 6/20/06 at 09:10 fine to fine grained 137.2-138.2' - 25% fine to medium 0 R-scale performed after 139.0 drilling on stored samples sand Sandstone 138.2-139.0' - light bluish gray, soft, 140 fresh, fine to medium grained, 119.7 micaceous, feldspar Bottom of Boring at 139.0 ft bgs on 6/19/06 11:00 145 114.7 150 109.7



PROJECT NUMBER:

338884

BPA-24

# **SOIL BORING LOG**

SHEET 1 OF 5

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687599.0 N, 2011809.7 E)

ELEVATION: 259.0 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

DRILLING EQUIPMENT AND METHOD: CME-550, Tricone Bit, 24" Split Spoon, and 140 lb. Automatic Hammer ORIENTATION: Vertical

DRILLIN	IG EQUI	PMENT	AND MET	THOD : CME-550	Tricone Bit, 24" Split Spoon, and 140 lb. Automatic Hammer			ORIENTATION : Vertical			
WATER	LEVELS	S: 7.6 ft l	ogs		START : 6/7/06 09:30 END : 6/8	3/06 13	- <del>i</del>				
DEPTH E	BELOW EX	KISTING C	SRADE (ft)	STANDARD	SOIL DESCRIPTION	(C)		COMMENTS			
	INTERV	AL (ft)		PENETRATION TEST RESULTS		SYMBOLIC LOG					
		RECOV	ERY (in)	TEGT NEGGETG	SOIL NAME, USCS GROUP SYMBOL, COLOR,		Œ	DEPTH OF CASING, DRILLING RATE,			
			#TYPE	6"-6"-6"-6"	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	MBC	(TSF)	DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION			
			#···· =	(N)	,	S	ద				
259.0	0.0				Lean Sandy Clay (CL)						
-					0.0-0.8' - brown, moist to wet, medium stiff, low to medium plasticity, slow dilatancy, up to 25% fine sand,	1///					
-		18.0	SS1SS	2-2-9-42 (11)	rootlets	1///	0.5	-			
-	2.0			(11)	Silt Clay (CL)	1///		-			
-	2.0				\ \ 0.8-1.5' - pale brown, dark reddish brown mottling, moist, very stiff, low plasticity, rapid dilatancy	1					
-	2.5				Fat Clay (CH)	111		-			
-					\ 2.5-2.8' - brown, moist, stiff, medium to high plasticity,	+					
-		11.0	SS2SS		\slow to no dilatancy	┨	<0.5	-			
-				(50")	Sandy Silt (ML) 2.8-3.4' - pale yellow, dry to moist, hard, low plasticity,	4					
-	4.5				rapid dilatancy, up to 10% very fine sand	4		-			
5	<i>E</i> ^				0 1 0% (41)	1,,,		_			
254.0	5.0				Sandy Silt (ML) 5.0-6.3' - brown, black, yellow and pale orange mottling.	4					
_		15.0	SS3SS	32-42-50/3	dry to moist, hard, low to medium plasticity, 15-20%	4111		_			
_		10.0		(92/9")	very fine sand	╁╨					
	7.0							PT-1 collected 2.0-4.0'			
						1		2.0-4.0			
-	7.5				Sandy Silt (ML)	ТШ					
-					7.5-7.8' - brown, black, yellow and pale orange mottling, dry to moist, hard, low to medium plasticity, 15-20%	1					
-		4.0	SS4SS	50/4 (50/4")	very fine sand	1					
-	9.5			(30/4 )		1		PT-2 collected			
10 -	9.5					┨		9.0-11.3'			
10 <u> </u>	10.0				Lean Clay (CL)	1///		Offset: 3.8' N44W of BPA-24 Lab Results USCS: Sandy CL			
-					10.0-11.1 - reddish brown, black and whitish mottling,	<b>-</b>		-			
-		13.0	SS5SS		dry to moist, hard, low to medium plasticity, slow dilatancy	<b>-</b>  ///		-			
-				(71)		4		-			
-	12.0					4		Sail agreeting agreetant at 11.50 an			
- ا	40.5	0.5	00000		= 0 1 0"(/M)	<u> </u>		Soil sampling completed at 11:50 on 6/7/06			
_	12.5 12.6	0.5	SS6SS/	50/0.5	Sandy Silt (ML) 12.5-12.6' - gray to pinkish gray, brown mottling, dry to	1					
l _				(50/0.5")	moist, hard, very soft, fine sand to medium sand, some	_		_			
_					silt, medium grained particles are white, some mica some quartz; some black mottling	J					
					Begin Rock Coring at 12.6 ft bgs						
15					See the next sheet for the rock core log	1					
244.0					_	1		_			
_						1		-			
-						1		-			
-						1					
-						1		-			
-						┨					
-						-		-			
-						4		-			
-						-					
_						1					
20											
1											



PROJECT NUMBER:

338884

BORING NUMBER:

BPA-24

SHEET 2 OF 5

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687599.0 N, 2011809.7 E)

ELEVATION: 259.0 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

COMING	3 EQUITIVIEN	II AN	D ME	THOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS: 7.	6 ft bo	ıs	START : 6/7/06 09:	30	END: 6/8/06 13:51	LOGGER : JS
	· ·			DISCONTINUITIES	ני	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
-	12.6 R1NQ 2.3 ft	100	1	13.0' - Fracture, 30 deg, smooth, undulating		Sandstone At 12.6' - dark reddish brown, some mottling, very soft, laminated to medium bedding, fine sand to medium	Rock coring began at 12:00 on 6/7/06
15 244.0	104%		1 0 1	14.4' - Fracture, 30 deg, rough, planar —		sand, slightly weathered  14.9-16.3' - few black laminae siltstone lenses	At 13.6': R-Scale = R3  R2: No time recorded
- - - -	R2NQ 5 ft 98%	95*	1 1 0	15.5' - Fracture, 20 deg, smooth, stepped, some black stains, 0.02' relief  16.9' - Fracture, horizontal, rough, undulating, <0.01' relief  17.8' - Fracture, horizontal, smooth, undulating		15.9-16.3' - soft, 15-20% coarse sand 16.3-17.1' - brown, soft to hard, fine sand to coarse sand, subangular, poorly sorted, multi-colored clasts-white, black, pink, purple, and yellow 17.1-19.7' - brown, soft to hard, laminated to thin bedding, fine sand to coarse sand, well sorted, 0-20 degree bedding	At 15.9': R-Scale = R3
20 239.0 -	19.9		10+ 10+	19.8-19.9' - Fracture zone, bedrock pieces to gravel sized, clay 20.1-20.5' - Fracture zone, horizontal and 70 deg, smooth, undulating, little relief; 70 deg	<b>///</b>	Fat Clay (CH) 19.7-19.9' - moderately weathered, clay lens and bedrock pieces Sandstone & Siltstone 19.9-20.8' - brown, very soft to soft,	At 19.65-23.6': R-Scale = R0-R1 R3: 14:02-14:13 -
- - - -	R3NQ 5 ft 100%	52*	2 0	fracture has 0.03' white fat clay infilling	× × × × × × × × × × × × × × × ×	laminated to thin bedding, fine sand to coarse sand, moderately weathered, well sorted     Clay (CL)	SC-1 collected 22.65-23.6'
25_ 234.0 -	24.9		10+	24.9-25.2' - Fracture zone, clay, friable material [—]	× × × × × × × × × × × ×	22.4-40.5' - moderately weathered  24.9-51.0' - dark reddish brown, trace mottling 25.5-25.7' - clay and clay-like rock 25.7-26.0' - clay and clay-like rock	R4: 14:22-14:36 At 24.9-26.7': R-Scale = R0- R1
-	R4NQ 5 ft 100%	20*	2	26.6' - Fracture, horizontal, smooth, undulating, in 1/4-1/2 clay seam 27.3' - Fracture, horizontal, smooth, undulating, in 1/4-1/2 clay seam	× × × × × × × ×	26.6-27.3' - very soft to soft, more coarse silt  27.5-27.9' - clay and clay-like rock	- At 27.5': PP: 2.5 tsf
30	29.9		10+	28.6-28.9' - Fractures (2), horizontal, coarse gravel sized bedrock pieces, some clay 29.0' - Fracture, horizontal, smooth to rough, undulating, <0.01 relief	× × × × × × × × × × × × × × × × × × ×	28.3-28.6' - 1/2" thick clay/clay-like rock seams, 2     29.1-29.9' - trace green mottling, very soft to soft, very fine grained, 40% coarse silt or very fine sand, many	
229.0 - - -			0	29.2-30.0 - Fracture zone, 80 deg and horizontal, very tight fit, hairline fractures 30.6' - Fracture, 70 deg, 0.0002' hard white infilling, tightly healed	× × × × × × × × × × × × × × × × × × ×	coarse silt or very tine sand, many hairline fractures  31.1-32.8' - rounded, 5-10% black coarse sand	R5: 14:55-15:09 At 30.0': R-Scale = R3
	R5NQ 5 ft	92*	2				_

2BB-153 Rev. 1



PROJECT NUMBER:

338884

BPA-24

SHEET 3 OF 5

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687599.0 N, 2011809.7 E)

ELEVATION: 259.0 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				HOD : CME-550, NQ Double Barrel		END 0/0/00 40 54	ORIENTATION : Vertical
WATER	LEVELS: 7.	6 ft bg	ļs_	START : 6/7/06 09: DISCONTINUITIES	30	END : 6/8/06 13:51 LITHOLOGY	LOGGER : JS  COMMENTS
- □	(%) Q		· ·		90.		COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	(%	FRACTURES PER FOOT	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING,
VAT VAT OW FAC	RE R GTP SOVE	R Q D (%)	F.C.	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	1BOI	WEATHERING, HARDNESS, AND ROCK MASS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
SEE	COF	A Q	FRA	THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYN	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
	103%			32.6' - Fracture, horizontal, rough, undulating,	_ × ×	_ 32.8-32.9' - clay seam	At 32.5-33.0': R-Scale = R0-
_			1	bedrock fragments, coarse sand sized 32.9' - Fracture, horizontal, rough, stepped,	]x x	33.1-33.2' - clay/clay-like rock seam	R1 -
-			'	0.03' relief	$\times \times$	33.2-39.9' - faint white, brown and	-
_			0	33.2' - Fracture, 5 deg, smooth, undulating	-  × × × ×	gray mottling, very soft to soft	At 34.0': PP = 2.5 tsf
35	34.9				× ×	-	-
224.0			XXX	_	× ×	_	R6: 15:45-16:08
-			NA	35.5' - Fracture, horizontal, smooth, stepped	-  × ×	_	_
-				35.8-36.0' - Fracture zone (2), horizontal, smooth, undulating	-  × ×	-	-
-			NA	36.4-36.7' - Fracture, horizontal, smooth,	-  × ×	-	At 36.3-37.65': R-Scale =
-	R6NQ			undulating 36.8' - Fracture, 60 deg, undulating, <0.0002'	- × × × ×	37.0-37.2' - clay seam and bedrock	R0-R1 _
-	5 ft 104%	38*	NA	white infilling, tightly healed	× ×	- fragments	-
-	10170				$+\hat{\times}\hat{\times}$	_ 37.4-37.7' - clay and clay-like rock seam, friable	-
-			NA		-  × ×	-	-
-			$\vdash \vdash$	20.4.20.01 Freeting age beginning to	$+\hat{\times}\hat{\times}$	38.7-38.8' - clay and bedrock flakes 39.0-39.1' - clay and bedrock flakes	A+ 20 4 20 Ch D 0 l - D0
_	20.0		10+	39.1-39.9' - Fracture zone, horizontal, few clay seams to 1/4-1/2 thick	- × ×	-	At 39.1-39.6': R-Scale = R0-
40 <u> </u>	39.9		XXX	<del>-</del>	-  × ×	39.9-41.1' - heavy green, purple, and	R7: 08:40-09:00 on 06/8/06 —
_			5	40.3-40.5' - Fractures (4), horizontal, smooth to	× × × ×	vellow mottling, very soft to soft,	-
_				rough, stepped to undulating, up to 0.03' relief, small bedrock fragments	- × ×	multiple clay seams 40.3-40.5' - likely site of breaks	-
_			0	41.0' - Fracture, horizontal, smooth, undulating	- × × - × ×	_ 40.5-53.0' - fresh	-
_	R7NQ				× ×	41.1' - fine to medium grained, becoming coarser with depth, coarser	At 41.65': R-Scale = R3-R4
_	5 ft	98*	1	42.1' - Fracture, horizontal, smooth, undulating	-  × × -  × × -  × ×	_ silt	-
_	101%				× ×	<ul> <li>42.8' - green and purple mottling, soft,</li> </ul>	-
_			0		× ×	40-50% coarse silt and up to 20% fine to medium white sand grains	-
_					_ × ×	- throughout	At 43.9': R-Scale = R3-R4
_			1	44.4' - Fracture, 70 deg, undulating, lift 0.0003'	- × × × ×	-	At 45.9 : N-Scale = N5-N4
45	44.9			wide	$\times \times$	44.9-46.5' - 30-40% coarse silt/very	R8: 09:04-09:20 —
214.0			8	44.9-45.1' - Fracture, 60 deg, smooth,	]× ×	_ fine sand	No. 09.04-09.20
_				undulating 45.3' - Fracture, 60 deg, smooth to rough,	]××	_	_
_			0	undulating, 0.01' relief	× ×   × ×	_	SC-2 collected -
	<b>D</b> 01.5				$]\hat{x}\hat{x}$	46.5-46.9' - green mottling, soft	46.3-47.35'
	R8NQ 5 ft	94	0 <b> </b>		$\begin{bmatrix} \hat{x} & \hat{x} \\ \hat{x} & \hat{x} \end{bmatrix}$	_	
]	98%		$\coprod$				
			0		$\begin{array}{c} \times		At 48.3': R-Scale = R3-R4 -
			$oxedsymbol{oxedsymbol{oxed}}$		$\begin{array}{c} 1 \times \times \\ \times \end{array}$		71 40.3 . N-30ale - K3-K4 -
			1	49.3' - Fracture, horizontal, rough, undulating	× ×   × ×	-	_
50	49.9			+0.0 - i racidie, nonzoniai, rough, unudialing	X X	-	
209.0			0	<del>-</del>	× ×	<del>-</del>	R9: 09:27-09:44 —
-			$\lfloor \rfloor$		-  × × × ×	-	At 50.7': R-Scale = R3-R4
-					1××	51.0-53.0' - dark reddish gray, sand	
-			1	51.5' - Fracture, horizontal, smooth, undulating	1x x	<ul> <li>content varies in irregular bands, over several inches, 60% very fine to</li> </ul>	-
-	R9NQ	00		to stepped, 0.01' relief	- x x	medium sand and 40% silt	-
_	5 ft	88	0		– × ×	_	-
			<b> </b>				
			ш				

2BB-154 Rev. 1



BORING NUMBER: PROJECT NUMBER: 338884

**BPA-24** 

SHEET 4 OF 5

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (687599.0 N, 2011809.7 E)

ELEVATION: 259.0 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION: Vertical

WATER	LEVELS: 7.0	6 ft bg	ıs	START : 6/7/06 09:	30	END : 6/8/06 13:51	LOGGER : JS
	(%)			DISCONTINUITIES	ő	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
00EPTHAND 204 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	R10NQ F100% 54.9 R10NQ 5 ft 100% 59.9 R12NQ 64.9	79	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	PLANARITY, INFILLING MATERIAL AND	SINBONIC XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
70 189.0 -	69.9		0	<del>-</del>	× : : : : : : : : : : : : : : : : : : :	69.9-74.5' - fine grained	R13: 13:16-13:30 -
- -	R13NQ 5 ft	100	0		- × : - × : - × :	×- ×- ×-	At 71.5': R-Scale = R3-R4

2BB-155 Rev. 1



PROJECT NUMBER:	BORING NUMBER:				
338884	BPA-24	SHEET	5	OF	5

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687599.0 N, 2011809.7 E)

ELEVATION: 259.0 ft MSL (NGVD 29)

DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD: CME-550, NQ Double Barrel ORIENTATION: Vertical WATER LEVELS: 7.6 ft bgs START: 6/7/06 09:30 END: 6/8/06 13:51 LOGGER: JS DISCONTINUITIES LITHOLOGY COMMENTS CORE RUN, LENGTH, AND RECOVERY (%) DEPTH AND ELEVATION BELOW SURFACE (#) FRACTURES PER FOOT DESCRIPTION ROCK TYPE, COLOR, SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD SYMBOLIC MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS RQD(%) DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS DROPS, TEST RESULTS, ETC. CHARACTERISTICS 100% First water level = 7.6' bgs taken 6/8/06 at 15:40; second water level = 5.9' 0 bgs taken 6/9/06 at 14:25 0 74.9 75 74.9-79.9' - scattered medium grained sand in last 0.5' R14: 13:37-13:51 184.0 0 At 75.9': R-Scale = R3-R4 0 R14NQ SC-3 collected 5 ft 0 96 76.9-77.9' 96% 0 At 78.4': R-Scale = R3-R4 R-scale performed after 0 drilling on stored samples 79.9 80 Bottom of Boring at 79.9 ft bgs on 179.0 6/8/06 13:51 85  $174.\overline{0}$ 90 169.0



PROJECT NUMBER: BORING NUMBER: 338884 **BPA-25** SHEET 1 OF 11

# **SOIL BORING LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (687725.1 N, 2011875.8 E)

ELEVATION: 266.4 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

DRILLIN	G EQUIF	PMENT A	AND MET	THOD : CME-550	, Tricone Bit, 24" Split Spoon, 140 lb. Automatic Hammer		ORIENTATION : Vertical
WATER	LEVELS	s : 17.7 ft	bgs		START : 4/28/06 14:15 END : 5/	/3/06 1	1:05 LOGGER : JS/JF
DEPTH B	ELOW EX	KISTING C	RADE (ft)	STANDARD	SOIL DESCRIPTION	U	COMMENTS
	INTERV	AL (ft)		PENETRATION TEST RESULTS		13	
		RECOVI	ERY (in)		SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR	S E	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND
			#TYPE	6"-6"-6"	CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	INSTRUMENTATION
266.4	0.0			(N)	Lean Clay (CL)	ν ///	
200.4	0.0				0.0-1.1' - yellow, mottled, moist, medium stiff, medium		-
1 -		13.0	SS1SS		plasticity, 15% scattered fine sand, becomes red	_{///	-
1 -				(6)		4	-
1 -	2.0					4	-
1 -	2.5				Lean Clay (CL)	-	-
-	2.0				2.5-3.2' - reddish yellow, heavily mottled with multiple	-1//	-
-		15.0	SS2SS		colors, moist, medium stiff to stiff, low to medium		-
-				(25)	Fat Clay (CH)	H	-
-	4.5				\\3.2-3.5' - heavily mottled white and red, moist, stiff, high	14	Drilling became hard at 4.5'
5 261.4					plasticity, no dilátancy, laminated  Clay (CL)	Ц	
201.4					3.5-3.8' - weak red, moist, stiff to hard, fine sand and	4	Driller missed sample at 5'. Rock likely at 5' +
-					mica particles, weathered bedrock in shoe	4	-
1 4						4	_
1 4						4	0-11
4	7.5	4.5	00000		= 01 (01)		Soil sampling completed at 15:00 on 4/28/06
1 4	7.6	1.5	(SS3SS)	50/1.5	Clay (CL) 7.5-7.6' - reddish brown, hard	Д	
	8.0			(50/1.5")	Begin Rock Coring at 8.0 ft bgs		_
					See the next sheet for the rock core log	4	_
						_	_
10						_	_
256.4							_
							_
							_
							_
1 4							_
						1	_
							_
15					_		_
251.4						_	
						1	
						1	
1 7						1	]
1 7						1	]
1						1	]
1						1	1
1						1	1
20						1	1



PROJECT NUMBER:

338884

BORING NUMBER:

BPA-25

SHEET 2 OF 11

# **ROCK CORE LOG**

ORIENTATION : Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687725.1 N, 2011875.8 E)

ELEVATION: 266.4 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, HQ Double Barrel, water with EZ mud

WATER	ATER LEVELS : 17.7 ft bgs		ogs	START : 4/28/06 14:15		END: 5/3/06 11:05	LOGGER : JS/JF	
	(%)			DISCONTINUITIES	٥	LITHOLOGY	COMMENTS	
gz €	ZAN QN OS)		ES	DESCRIPTION	SLO	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND	
EPT URF	ORE	σ	RAC ER F	PLANARITÝ, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	ΥMB	AND ROCK MASS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.	
		ď	ᇤᆸ	THICKNESS, SON ACE STAINING, AND HOTTINESS	. ن ن	CHARACTERISTICS	14500	
_	8.0		1	O.E. Freeting FO descent and detine	<b>.</b> :::	Sandstone - 8.0-13.3' - light gray, very soft, fine	Rock coring began at 15:30 on 4/28/06	
_				8.5' - Fracture, 50 deg, smooth, undulating	<b>∃</b> ∷:	sand to medium sand, highly	R1: 15:30-15:55	
_			1		]:::	weathered to completely weathered, - multicolored grains	_	
10			ı.	9.7' - Fracture, horizontal, smooth, planar	<u>]</u> :::			
256.4			0	·	]:::		_	
l _					J∷:		_	
			10.	11.0-11.2' - Fracture zone, horizontal and 70	]:::			
	R1HQ	0	10+	deg, loose sand and clay 11.8' - Fracture, horizontal, rough, undulating,	]:::			
-	8 ft 87%	U		loose sand and clay	7:::			
-			2	12.6 and 13.0' - Fractures (2), 0-10 deg,	7:::	_	_	
-				smooth, undulating, loose sand and clay	1	- Claystone	GS-1 collected	
_			1		E	13.3-16.0' - red, pink, greenish white,	13.3-13.7'	
-					1	very soft, highly weathered to	-	
15			1		E	completely weathered, fine grained 13.3-13.7' - fat clay (CH), white and	_	
251.4				_		red brown, heavily mottled, highly	_	
-	40.0		$\bowtie$		1	_ plastic 14.2-14.4' - clay seam, highly plastic,	-	
-	16.0		$\sim$	40.01.0.1.1.1.1.11.11.11.11	×. >	laminated /	R2: 16:07-16:45	
-			1	16.2' - Contact between siltstone and sandstone, horizontal, smooth, undulating	<b>∃</b> ∷:	Siltstone 16.0-16.2' - dark reddish brown, very	_	
-				17.0' - Fracture, 30 deg, smooth, stepped, tight	<b>∃</b> ∷:	soft, highly weathered to completely	-	
-			1	fit, sand on joint	<b>∃∷</b> ∷	weathered, with mica particles, fine grained	-	
-					- × >	Sandstone	1 -	
-			1	18.5' - Fracture, horizontal, smooth,	$-\frac{1}{x}$	16.2-17.9' - brown, mottled red, white,	-	
-				undulating, loose fit	- × >	black, very soft, highly weathered to completely weathered, fine sand,	-	
			0		-   × ;	_ abundant silt/clay	_	
20 <u> </u>					-\x ;	<b>Siltstone</b> At 17.9' - brown to yellow brown,	_	
-	R2HQ		10+	20.2' - Fracture, 60 deg, rough, planar, black stains, tight fit	- × >	<ul> <li>multicolored mottling, very soft to soft,</li> </ul>	_	
-	10 ft	0		20.8-20.9' - Fracture zone, horizontal and 50	- × ×	highly weathered to completely weathered, fine grained, varying	_	
_	100%		0	deg, rough, undulating, loose fit, loose sand and clay	- × >	- amounts of fine sand, some in bands	_	
_				and day	- ÷ :	-	_	
_			2		<b>-</b>  \$ ₹	_	_	
_				22.6' - Fracture, 60 deg, rough, stepped, tight fit	- (x )	_	_	
-			0	22.9' - Fracture, 40 deg, smooth, undulating,	× >	-	_	
_				orange stains, loose fit	- × >	-		
-			1	24.1' - Fracture, horizontal, smooth, undulating, loose fit	_ × >	<u> </u>	SC-1 collected 24.4-25.3' -	
25				undulating, 100se iit –	_  <u> </u>	_		
241.4			0		× ?	-	_	
-	26.0				]× 3	-	= 10.55 15.15	
-			0		×	-	R3: 16:55-17:10 and 17:15- 17:30 -	
-			سًا		× ×	26.6-28.9' - dusky red		
I -			10+			_	_	
					× >		_	



PROJECT NUMBER: BORING NUMBER:

338884 BPA-25

SHEET 3 OF 11

#### **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687725.1 N, 2011875.8 E)

ELEVATION: 266.4 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

46.7' - Joint, 50 deg, smooth, undulating, tight

0

CORING EQUIPMENT AND METHOD : CME-550, HQ Double Barrel, water with EZ mud ORIENTATION: Vertical WATER LEVELS: 17.7 ft bgs START: 4/28/06 14:15 END: 5/3/06 11:05 LOGGER: JS/JF DISCONTINUITIES LITHOLOGY COMMENTS 90 CORE RUN, LENGTH, AND RECOVERY (%) FRACTURES PER FOOT **DESCRIPTION** DEPTH AND ELEVATION BELOW SURFACE (ft) ROCK TYPE, COLOR. SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND <u>0</u> MINERALOGY, TEXTURE RQD(%) DEPTH, TYPE, ORIENTATION, ROUGHNESS, WEATHERING, HARDNESS, SMOOTHNESS, CAVING ROD PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS AND ROCK MASS DROPS, TEST RESULTS, ETC. CHARACTERISTICS 27.7-27.9' - Fracture zone, smooth, undulating, 10+ 28.3-28.9' - clay seams 28.5-28.9' - slightly weathered 28.9' - Fracture, 40 deg, smooth, undulating, Sandstone loose 0 At 28.9' - dark reddish brown, green 30 mottling, soft to hard, slightly  $236\overline{4}$ weathered, fair amount of silt, fine 1 R3HQ 29.7-33.3' - weak red, hard, less silt 75 30.8' - Fracture, 50 deg, smooth, stepped, tight 10 ft 0 32.2 and 32.4' - Fractures (2), 70 deg and 30 2 deg, smooth, undulating, loose fit 2 33.3' - Fracture, horizontal, smooth, stepped, 33.3-36.0' - dark gray loose fit 33.9' - Fracture, horizontal, smooth, 3 undulating, loose fit 34.3-34.9' - hard to very hard, medium 34.2 and 34.3' - Fractures (2), 20 deg, smooth, sand to coarse sand 35 231.4 stepped, loose fit 34.9-36.0' - fine to medium sand 34.9 and 35.6' - Fractures (2), horizontal, rough, planar, loose fit 36.0 36.0-38.0' - Microfractures Siltstone R4: 17:35-18:50 0 36.0-38.0' - dusky red, mottled red/yellow, soft, slightly weathered, fine grained 37.1' - Fracture, 10 deg, smooth, stepped, tight 2 37.6' - Fracture, horizontal, rough, undulating, Sandstone tiaht fit 38.0-40.7' - dark reddish gray, hard, 1 38.0' - Fracture, 10 deg, smooth, undulating slightly weathered, fine to medium sand, some coarse sand 39.1' - Fracture, 10 deg, rough to smooth, 3 stepped, tight fit 40 39.7' - Fracture, 20 deg, smooth, stepped, tight 226.4 10+ 39.9' - Fracture, horizontal, smooth, stepped, R4HQ Siltstone loose fit 10 ft 71 40.1-40.6' - Fracture zone, rough, fine to At 40.7' - very dark gray, very soft, 96% 1 slightly weathered, slightly weathered coarse gravel size 41.8' - Fracture, 10 deg, smooth, planar 41.8-42.2' - clay seam 41.8-42.7' - highly weathered 42.2-42.7' - Fracture zone, coarse sand to fine 10+ gravel-sized bedrock Siltstone At 42.7' - dusky red, soft, fresh, some 0 fine sand 0 45  $221.\overline{4}$ 0 46.0 46.0-46.7' - dark reddish brown, R5: 08:36-09:39 3 mottled green

46.7-47.7' - dark reddish brown, fine

sand to medium sand, fresh, some

Sandstone

coarse grains



PROJECT NUMBER: BORING NUMBER: 338884 **BPA-25** SHEET 4 OF 11

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (687725.1 N, 2011875.8 E)

ELEVATION: 266.4 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING	EQUIPMEN	ORIENTATION : Vertical					
WATER	LEVELS : 17	7.7 ft b	ogs	START : 4/28/06 14	:15	END: 5/3/06 11:05	LOGGER : JS/JF
				DISCONTINUITIES	ט	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
50 216.4 -	R5HQ 10 ft 94%	84	2 0 10+	48.3' - Fracture, horizontal, smooth, undulating, tight fit 48.4' - Fracture, 60 deg, smooth, undulating, loose fit  50.3' - Fracture, horizontal, smooth, undulating, loose fit 50.4-51.0' - Fracture zone 51.0' - Fracture, 60 deg, smooth, undulating	× × × × × × × × × × × × × × × × × × ×	Siltstone  At 47.7' - dark reddish brown, mottled green  47.7-49.8' - fresh  48.9-49.6' - scattered coarse sand  49.8-51.0' - highly weathered  50.4-51.0' - mottled gray, very soft  51.0-56.0' - green and gray mottling, soft to hard, fresh	- -  -
- - - - - 55			0 1 0	51.2' - Fracture, horizontal, smooth, planar  53.4' - Fracture, 10 deg, smooth, undulating	× × × × × × × × × × × × × × × × × × ×	- Soil to hard, fresh	SC-2 collected 53.35-54.65' -
211.4	56.0		1 10+	56.3' - Fracture, horizontal, rough, planar  57.7-58.4' - Fracture zone, mostly horizontal	× × × × × × × × × × × × × × × × × × ×	56.0-57.7' - mottled green, yellow, gray, soft to hard, fresh  57.1-57.7' - fine sand  57.7-58.4' - very soft, highly	R6: 10:00-10:26 and 10:30- 10:40 - -
60 206.4	R6HQ 10 ft	85	10+	59.1' - Fracture, horizontal, smooth, stepped  60.2' - Fracture, horizontal, smooth, planar, tight fit	× × × × × × × × × × × × × × × × × × ×	weathered 58.4-59.4' - soft, fresh  59.4-67.1' - dusky red, mottled black and green, fresh, very fine sand increasing with depth, soft to hard	- - - - -
- - - -	100%		0 0 10+	63.0-63.4' - Fracture zone, smooth to rough, stepped, main fracture at 70 deg 63.8' - Fracture, horizontal, smooth, planar	× × × × × × × × × × × × × × × × × × ×	- - - -	- - - - -
65	66.0		0 0	64.4' - Fracture, horizontal, smooth, planar —	× × × × × × × × × × × × × × × × × × ×	- - - - -	R7: 11:08-11:52 - - - -
					1		



PROJECT NUMBER:

338884

BPA-25

SHEET 5 OF 11

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687725.1 N, 2011875.8 E)

ELEVATION: 266.4 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, HQ Double Barrel, water with EZ mud ORIENTATION : Vertical

				THOD : CME-550, HQ Double Barrel, water with EZ m		END 5/9/99 11 95	ORIENTATION : Vertical
WATER	LEVELS : 17	′.7 ft t	ogs	START : 4/28/06 14 DISCONTINUITIES		END : 5/3/06 11:05 LITHOLOGY	LOGGER : JS/JF  COMMENTS
oz €	Q%)		ω	DESCRIPTION	LOG		OOWNIVILIATO
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHINESS, CAVING ROD DROPS, TEST RESULTS, ETC.
-			0			Sandstone  67.1-70.2' - dark gray, multicolored mottling, hard, fine sand, fresh	-
70			0			_	-
196.4	R7HQ	0.4	4	70.2-70.7' - Fractures (4), horizontal, smooth, undulating, loose fit	× × × ×	Siltstone 70.2-71.6' - dusky red, heavily	
_	10 ft 97%	84	2	71.0-71.4' - Fractures (2), horizontal and 10 deg, smooth, undulating, loose fit	-  × × -  × × -  × ×	mottled, soft to very soft, slightly weathered Sandstone	
_			0			71.6-73.0' - hard, slightly weathered, fine sands	-
-			3	73.2' - Fractures (2), horizontal and 5 deg, smooth, undulating, loose fit 73.6' - Fracture, horizontal, smooth,	× × × × × ×	Siltstone  - At 73.0' - dusky red, heavily mottled, less with depth, very soft to soft	
75 <u> </u>			2	undulating, loose fit 74.2' - Fracture, horizontal, smooth, stepped, loose fit -	× × × × × ×	73.0-74.2' - slightly weathered - 74.2-76.2' - fresh	_
191.4	76.0		0		× ×   × ×   × ×	- -	
-			0			Sandstone 76.2-77.0' - black, hard, fresh, fine sand	R8: 12:05-12:35 and 13:00- 13:20
-			1	77.3' - Fracture, horizontal, rough, planar	- × × - × × - × ×	Siltstone 77.0-81.4' - dark reddish brown, trace green mottling, very soft to soft, fresh,	
-			0		- × × - × × - × ×	increasing fine sand with depth	
80_ 186.4			1	79.5' - Fracture, 40 deg, smooth, stepped, loose fit	× ×   × ×   × ×	- 	-
-	R8HQ 10 ft 100%	100	0	80.6' - Fracture, horizontal, smooth, planar, tight fit	× × × × - × ×	- -	
-	100%		0		- <del>                                    </del>	Sandstone  81.4-84.0' - gray, multicolored mottling, hard, fine sand to medium	
-			0		-[:::  -[:::	sand, fresh	
-			0			Siltstone	
85_ 181.4			0	-	× × × × × ×	At 84.0' - dusky red to dark reddish brown, mottled gray, green, black, fresh, sand varies throughout     84.0-86.0' - soft	_
_	86.0		0		- × × - × × × ×	- 86.0-96.0' - soft to hard	R9: 13:25-13:50 and 13:53- 14:12
_			0		× × × × × × × ×	- -	14.12
					l [×] ×		

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PROJECT NUMBER:	BORING NUMBER:			
338884	<b>ΒΡΔ-25</b>	SHEET	6 OF 1	11

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687725.1 N, 2011875.8 E)

ELEVATION: 266.4 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, HQ Double Barrel, water with EZ mud

ORIENTATION : Vertical

		. ,	D IVIL	THOD : CME-550, HQ Double Barrel, water with EZ m	uu		ORIENTATION : Vertical
WATER	LEVELS: 17	.7 ft b	gs	START : 4/28/06 14	:15	END : 5/3/06 11:05	LOGGER : JS/JF
	(%			DISCONTINUITIES	g	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (#)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
- 90 176.4 - - -	R9HQ 10 ft 99%	99	0 0 0 0	- 90.6' - Fracture, horizontal, smooth, planar	- × × × × × × × × × × × × × × × × × × ×	90.2-91.5' - scattered white medium sand	SC-3 collected 93.0-94.1'
- 95 171.4 - - - -	96.0		0 0 0	- 98.0-99.0' - Horizontal joints, very soft		96.0-102.0' - mottled green, soft to very soft, scattered coarse sand	R10: 08:30-09:10 on 5/1/06
100 166.4 - -	R10HQ 10 ft 100%	100	1 0 1 2	98.4' - Fracture, 10 deg, smooth, undulating, loose fit  100.0-102.0' - Horizontal joints, very soft 100.5' - Fracture, horizontal, smooth, undulating, loose fit  101.6' - Fracture, 10 deg, smooth, undulating, loose fit 102.3' - Fracture, horizontal, smooth, stepped	- x x x x x x x x x x x x x x x x x x x	Sandstone At 102.0' - dark reddish gray, mottled	-
- - 105 161.4 - -	106.0		0 0 0 0	102.9' - Fracture, 20 deg, smooth, stepped		red and green, hard, fine sand to medium sand, fresh, scattered white medium sand	R11: 09:33-09:48 and 09:51-10:10



PROJECT NUMBER:	BORING NUMBER:				
338884	BPA-25	SHEET	7	OF	11

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687725.1 N, 2011875.8 E)

ELEVATION: 266.4 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, HQ Double Barrel, water with EZ mud

ORIENTATION : Vertical

WATER	LEVELS: 17	.7 ft b	ogs	START : 4/28/06 14	:15	END: 5/3/06 11:05	LOGGER : JS/JF
				DISCONTINUITIES		LITHOLOGY	COMMENTS
9z (£	N, AND ≪ (%		ES	DESCRIPTION	3.00	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERAL.OGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
- - 110 156.4	B11H0		0 0	_		107.8-112.9' - pinkish gray, hard to - very hard, medium sand to coarse sand, multicolored grains -	- - - -
- - - -	10 ft   99 99%	99%		110.6' - Fracture, horizontal, smooth, stepped, loose fit		- - - - 112.9' - fine to medium sand, banded	SC-4 collected 109.7-110.6' -
- - 115 151.4	440.0		0 0	-	= : · · · · · · · · · · · · · · · · · ·	- - - 115.1' - medium sand to coarse sand	- - - -
- - - -	116.0		0			- - -	R12: 10:20-10:52 and 11:10-11:39 -
120 146.4 -	R12HQ 10 ft 97%	97	1 0 0	118.4 and 119.9' - Fractures (2), horizontal, smooth to rough, planar  119.7-120.7' - Microfractures 119.9' - Fracture, horizontal, smooth to rough, planar 120.7' - Fracture, horizontal, smooth, planar	× × × × × × × × × × × × × × × × × × ×	Siltstone At 118.3' - dark reddish brown, mottled green, very soft to soft, fresh  119.7-120.7' - heavily mottled	- - - - - -
125 141.4	126.0		1 0 0	122.4' - Fracture, horizontal, smooth, planar  123.4' - Fracture, 60 deg, partial fracture over 1/4 of core	X	123.1' - soft to hard, fine sand	-
-			0		× × × × × × × × × × × × × × × × × × ×	126.0' - soft 	R13: 11:55-12:17 and 12:22-12:45 - - -

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PROJECT NUMBER:

338884

BORING NUMBER:

BPA-25

SHEET 8 OF 11

#### **ROCK CORE LOG**

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687725.1 N, 2011875.8 E)

ELEVATION: 266.4 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, HQ Double Barrel, water with EZ mud

WATER	LEVELS : 17	7.7 ft b	ogs_	START : 4/28/06 14	:15	END : 5/3/06 11:05	LOGGER : JS/JF
				DISCONTINUITIES	П	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
	8.25	α.	0	THICKNESS, SURFACE STAINING, AND TIGHTNESS	× × ×	CHARACTERISTICS  128.4' - grading to sandstone	-
130 <u> </u>			1	129.3' - Fracture, 30 deg, smooth, undulating –	× × × × ×	X- X 129.9' - grayer	Rig begins to chatter at 129.0' bgs -
-	R13HC - 10 ft - 98%	    97.5	97.5	130.3' - Fracture, 20 deg, smooth, undulating, loose fit 130.8' - Fracture, 10 deg, smooth, planar, loose fit		Sandstone At 130.3' - very dark gray, soft to hard, very fine sand to fine sand, fresh, laminated, 30 deg beds	- - -
-			1	131.2' - Fracture, 5 deg, smooth to rough, undulating, tight fit 132.0' - Fracture, 20 deg, smooth, undulating, loose fit	-	- - -	-
-			2	133.1' - Fracture, 10 deg, smooth, stepped, loose fit 133.9' - Fracture, 10 deg, smooth to rough,		133.9-136.0' - gray, hard to very hard,	- - -
135 <u></u> 131.4			1	stepped, loose fit 134.6' - Fracture, 5 deg, rough, undulating, loose fit, in fine grained band 135.4' - Fracture, 15 deg, rough, undulating,		medium sand to coarse sand, multicolored grains  135.4' - siltstone clasts	- -
-	136.0		0	loose fit	-	136.0-138.6' - reddish gray, hard to very hard, medium sand to coarse sand, multicolored grains, siltstone	R14: 13:28-13:50
-	D44110		0			clasts	- - -
-	R14HQ 5.1 ft 100%		1	138.6' - Fracture, horizontal, smooth, undulating	× × × ×	Siltstone 138.6-142.7' - dark reddish brown, mottled green, soft to hard, fresh, very	Pull 5' core at 14:10 due to
140 <u> </u>			0	-	× × × × ×	fine to fine sand throughout	rig chatter - 
-	141.1		0		× × × × ×	* * * * * *	R15: 14:15-14:49
-	R15HQ		1	142.7' - Contact between siltstone and sandstone, 10 deg, rough, undulating, loose fit	×   ×.   : :	Sandstone 142.7-144.5' - very dark gray, hard to	SC-5 collected
-	4.9 ft 100%	96	2	144.5' - Contact between siltstone and	:: :: :: ×	very hard, medium sand to coarse sand, fresh, multicolored grains	141.4-142.4'
145 <u> </u>	146.0		0	sandstone, horizontal, smooth, undulating, — loose fit 144.6' - Fracture, horizontal, smooth, stepped, tight fit	× × × × ×	At 144.5 - dark reddish brown, mottled green and dark gray, very soft to soft 144.5-146.0' - fresh	
-			6	146.0-149.0' - Fracture zone, horizontal, smooth, stepped	× × × × × ×	146.0-149.0' - moderately weathered to highly weathered	R16: 16:00-16:48 and 16:57-17:30 -
_			5		×	* *	-

2BB-164 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BPA-25

SHEET 9 OF 11

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687725.1 N, 2011875.8 E)

ELEVATION: 266.4 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, HQ Double Barrel, water with EZ mud ORIENTATION : Vertical

	. = . / = . 0 . 4 =				ud	END 5/0/00 11 05	ORIENTATION : Vertical
WATER	LEVELS : 17	./ ft b	ogs	START : 4/28/06 14 DISCONTINUITIES	Т	END : 5/3/06 11:05 LITHOLOGY	LOGGER : JS/JF  COMMENTS
oz €	Q.(%)		S	DESCRIPTION	- 69		COMMENTO
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
			7		× × ×	-	-
150			3		× × × ×	149.0-159.7' - fresh At 149.4' - soft, very fine to fine sand	Driller's Remark: Rig chatter continuous - having to run at lower speed
116.4	R16HQ		1	– 150.6' - Fracture, horizontal, smooth, planar	××××	in varying amounts	to full at lower speed
-	10 ft 95%	69*	0		- × × ×	-	
-			1	152.5' - Fracture, horizontal, smooth, planar	× × × ×	*- *- *-	-
			1		× × × ×	-	
155			1	153.9' - Fracture, 10 deg, smooth, undulating 154.6' - Fracture, horizontal, smooth,	×××××××××××××××××××××××××××××××××××××××	**************************************	-
111.4	156.0		1	undulating —  155.5' - Fracture, rough to smooth, stepped, loose fit	×××××		
			0		×××××××××××××××××××××××××××××××××××××××		R17: 14:40-15:20 on 05/02/06
_			0		×××××××××××××××××××××××××××××××××××××××	- -	-
-			1	158.4' - Fracture, <5 deg, smooth, undulating	× × × ×	-	
160 106.4			0	_	- × - × - : :	Sandstone 159.7-161.0' - very dusky red, soft,	-
-	R17HQ 10 ft 100%	97	1	160.6' - Fracture, <5 deg, rough, undulating	: : : : :	fine sand, fresh Siltstone	-
	100 /0		1	161.5' - Fracture, <5 deg, smooth, undulating	× × × ×	- 161.0-165.2' - dark reddish brown, mottled blue-green, soft, fresh	
			1	162.5' - Fracture, 10 deg, rough, undulating	× × × ×	-	
			4	163.7-164.4' - Fractures (5), <5 deg, smooth to rough, undulating	× × × × ×		
165_ 101.4_			0	_	- × - × - ∷	Sandstone	-
	166.0		0			At 165.2' - very dusky red, fine sand to medium sand, fresh, fining upwards	R18: 16:45-17:30
-			1	167.3' - Fracture, <5 deg, rough, planar		- -	



PROJECT NUMBER:	BORING NUMBER:		
338884	RPΔ-25	CHEET	10 OF 11

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687725.1 N, 2011875.8 E)

ELEVATION: 266.4 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, HQ Double Barrel, water with EZ mud

ORIENTATION : Vertical

WATER	EVELS: 17.7 ft bgs		gs	START : 4/28/06 14:15		END: 5/3/06 11:05	LOGGER : JS/JF	
	(9)			DISCONTINUITIES	Ŋ	LITHOLOGY	COMMENTS	
QZ €	AND ≪₹		ES T	DESCRIPTION	J C C	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.	
-			1	168.4' - Fracture, <5 deg, smooth, planar		-	SC-6 collected 168.9-170.0' -	
170 96.4			1	170.0-170.7' - Fractures (2), <5 deg, rough,	<u> </u>	- 170.0-171.0' - multicolored fine to	-	
-	 R18HQ 10 ft   100%	98	98	1	undulating		medium sand  171.0-172.0' - very dusky red, hard,	-
	100 /6		0			fine sand  172.0-176.8' - hard, multicolored grains, medium to coarse sand	-	
			1	173.2' - Fracture, <5 deg, rough, undulating		grains, medium to coarse sand	]	
-			1	174.4' - Fracture, 15 deg, rough, undulating	- - - - - -	- -		
175 91.4	176.0		2		-	 - 175.5' - quartz grains, <0.1'		
-	170.0		1	175.8' - Fracture, <5 deg, rough, undulating  176.8' - Fracture, 30 deg, rough, undulating	× × × × × ×	Siltstone  At 176.8' - dark reddish brown, soft, fresh	R19: No time recorded	
-			2	177.6' - Fracture, <5 deg, rough, undulating 177.9-179.9' - Fractures (4), <5 deg, rough,	× × × × × × × ×	- -	-	
-			1	undulating	× ×   × ×   × ×	- 178.7-179.5' - inclusions	_	
180 86.4	R19HQ		2	- -	× × × × × ×	- 	-	
	9.1 ft 101%	91.5	0		× × × × × ×	<del>-</del> - -	]	
-			1	182.2-183.1' - Fractures (2), <5 deg, smooth,	× × × × × ×	- -	-	
-			1	planar	× × × × × × × ×	- -	-	
- 185	185.1		1	184.7' - Fracture, <5 deg, rough, undulating	× × × × × ×	- -	-	
81.4	100.1		0		<del>*.*</del>    	Sandstone At 185.1' - very dusky red, soft to hard, fresh, fine sand	- -	
			0	187.0' - Fracture, <5 deg, rough to smooth,		186.6' - siltstone lens 0.15' thick	R20: 07:50-08:35 on 05/03/06 -	
-	R20HQ		0	planar		-		



PROJECT NUMBER:

338884

BPA-25 SHEET 11 OF 11

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687725.1 N, 2011875.8 E)

ELEVATION: 266.4 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, HQ Double Barrel, water with EZ mud

ORIENTATION : Vertical

WATER	LEVELS: 17	.7 ft b	gs	START : 4/28/06 14	1:15		END: 5/3/06 11:05	LOGGER : JS/JF
				DISCONTINUITIES	Т	Т	LITHOLOGY	COMMENTS
Qz €	Ž VAND (%) \;		ES	DESCRIPTION			ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS,		SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND
EPT LEV ELO	SORE	o D	RAC ER F	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS		Ϋ́	AND ROCK MASS CHARACTERISTICS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
ошшо	5.9 ft	100	шп		۱.	<i>n</i>	187.7-188.8' - multicolored fine to	-
-	96%		1		4	∷⊦	medium sand, soft to hard	-
_				188.8' - Fracture, <5 deg, rough, undulating	4	∷⊦	188.8-194.3' - medium to coarse sand	Water pressure lost at
_			0		4:	∷⊦		191.0' bgs -
190 <u> </u>				_	4:	∷⊦	_	_
-			0		4:	∷⊦		-
_	191.0		XXX		1:	∷⊦		R21: 08:45-09:10
_			0		1:	∷⊦		-
-					1:	∷⊦		-
-			1		- :	∷⊦		-
-	R21HQ			192.8' - Fracture, <5 deg, smooth, undulating	4:	∷⊦		-
-	5 ft	100	0		1:	∷⊦		-
-	100%				1	-		-
-			1	194.3 and 195.5' - Fractures (2), <5 deg,	1	∷⊦	194.3-196.6' - fine to medium sand	-
195 <u> </u>				rough, undulating	1	∷⊦	_	-
_	400.0		1		4:	∷⊦		-
-	196.0				1:	∷⊦		R22: 09:20-10:05
-			5	196.6-197.0' - Fractures (4), <5 deg, rough,	- <del> </del> :	×	Siltstone	
_				undulating	- × × ×	×	196.6-206.0' - dark reddish brown,	-
_			0		٦×	×	mottled blue-green, soft, fresh	-
_	R22HQ				- × ×	×		-
_	5 ft 100%	88	1	400 = 1 = 4 = 4 = 4	∃× ×	×		-
_	100%			198.7' - Fracture, <5 deg, smooth, planar	- ×	×		-
200 -			0		- ×	×		-
200 <u> </u>				_	⊢× ×	×	_	-
-	201.0		0		-l× ×	×		-
-	201.0				− × ×	×		R23: 10:20-11:05
-			1		₹×	X		-
-				201.9-203.2' - Fractures (3), <5 deg, rough,	-×	×		
-			1	undulating	- ×	×		SC-7 collected
-	R23HQ				− × ×	×		203.9-204.9'
-	5 ft 100%	100	2		- × - × - × - ×	<b>}</b>		First water level = 17.7' bgs
-	10070			203.9' - Fracture, <5 deg, rough, undulating	1×	X		taken 5/4/06 at 16:35; second water level = 16.8'
205			1		1× ×	×		bgs taken 5/5/06 at 10:20
61.4				204.9' - Fracture, <5 deg, rough, undulating -	⊢× ×	X	_	R-scale not performed on
-	206.0		2	205.3' - Fracture, <5 deg, smooth, planar	×××	3		rock core samples
-				205.9' - Fracture, <5 deg, rough, undulating	Ť	7	Bottom of Boring at 206.0 ft bgs on	
					1	Ī	5/3/06 11:05	
					1			1
					1	Ī		1
					T	T		

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PROJECT NUMBER: BORING NUMBER: BPA-26

# **SOIL BORING LOG**

SHEET 1 OF 5

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687898.8 N, 2011865.2 E)

ELEVATION: 252.3 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

DRILLING EQUIPMENT AND METHOD: CME-550, Tricone Bit, 24" Split Spoon, and 140 lb. Automatic Hammer ORIENTATION: Vertical

WATER				TIOD : OIVIE-000	START : 6/1/06 13:16 END : 6/6/06 10:00 LOGGER : JS
			RADE (ft)		SOIL DESCRIPTION COMMENTS
	INTERV		(11)	STANDARD PENETRATION	
	III LICO		ERY (in)	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR DRILLING FLUID LOSS, TESTS, AND
			#TYPE	6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY
252.3 - - - -	2.0	19.0	SS1SS	2-1-1-1 (2)	Silty Sand (SM)  0.0-0.6' - brown, moist, very loose, very fine to medium grained, scattered organics and black staining  Silty Sand (SM)  0.6-1.6' - brown, moist to wet, very loose, very fine to medium grained, low plasticity, very rapid dilatancy, scattered orange staining
- - - -	2.5 4.5	23.0	SS2SS	0-0-0-1 (0)	Fat Clay W/ Sand (CH)  2.5-4.4' - light yellowish brown, wet, very soft, high plasticity, no dilatancy, heavy orange staining, scattered organics, 20-25% very fine to medium sand, becomes finer with depth
5247.3 - - - -	5.0 7.0	17.0	SS3SS	3-3-4-4 (7)	Fat Clay W/ Sand (CH) 5.0-6.9' - light yellowish brown, moist, stiff, high plasticity, heavy orange staining (>50%), 10-15% very fine to medium sand  ST-1 collected 5.0-7.0'
_	7.5				
- - -	7.5 9.5	14.0	SS4SS	3-3-4-13 (7)	Fat Clay (CH) 7.5-7.9' - dark yellowish brown, moist, stiff, medium to high plasticity, slow to no dilatancy, 15% very fine to medium sand Clay (CL)
10	9.5				\(\setminus 7.9-8.7' - dark reddish brown, moist, stiff, low to medium \) \(\setminus 1.5' - \) \(\setminus 1.
242.3 - - - -	10.0	11.0	SS5SS	13-16-21-26 (37)	1/2 sand lens, black staining, stiffer with depth Clay (CL) 10.0-10.9' - reddish brown, mottled black and light green, stiff, low to medium plasticity  PT-2 collected 9.0-11.0' Offset: 2.6' N50E of BPA-26 Lab Results USCS: CL w/Sand
- - -	12.5 14.5	9.0	SS6SS	35-50/3 (50/3")	Clay (CL)  12.5-13.4' - reddish brown, mottled black and light green, stiff, low to medium plasticity
15 237.3 - - - - -	15.0 _15.3 /	2.0	<u>SS7SS</u>	50/3 (50/3")	Clay (CL) 15.0-15.3' - reddish brown, heavy white mottling, stiff,   - low to medium plasticity Begin Rock Coring at 15.3 ft bgs See the next sheet for the rock core log
- - - 20					



PROJECT NUMBER:

338884

BPA-26

SHEET 2 OF 5

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687898.8 N, 2011865.2 E)

ELEVATION: 252.3 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				THOD : CME-550, NQ Double Barrel				ORIENTATION : Vertical
WATER	LEVELS : 2.	0 ft bo	js –	START : 6/1/06 13:	16 1	END : 6/6/06 10:00	_	LOGGER : JS
	<u>%</u>			DISCONTINUITIES	ဗ္ဗ	LITHOLOGY	4	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	<u></u>	FRACTURES PER FOOT	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE,	١	SIZE AND DEPTH OF CASING,
ATI VE	E RI STH OVE	%) _	FOC	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	BOL	WEATHERING, HARDNESS,	١	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
SEE.	SOR RECENT	R Q D (%)	-RA(	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	N/S	AND ROCK MASS CHARACTERISTICS	١	DROPS, TEST RESULTS, ETC.
	15.3				×,,,	-∖ Siltstone	$\forall$	Rock coring began at 15:58 -
			10+	15.6' - Contact between siltstone and		15.3-15.4' - dusky red, mottled dark	П	on 6/1/06
				sandstone, horizontal, clay seam (15.4-15.6') 15.9' - Fracture, 60 deg, undulating, partial		green and yellow, very soft, highly weathered, fine grained	П	R1: 15:58-16:12 on
_			10+	fracture		Clay (CL)		- At 15.9': R-Scale = R3
_	R1NQ			16.1' - Fracture, horizontal, smooth,	$\times$ $\times$	15.4-15.6' - dusky red, mottled heavy	П	At 16.1-19.4': R-scale = R0
_	4.7 ft	0	0	undulating, contact with clay zone 16.9' - Fracture, horizontal, clay seam	× ×	whitish-green, highly weathered Sandstone	$\  \ $	-
-	105%			,	× ×	15.6-16.1' - dusky red, heavy green,		-
-			10+		$\overset{\times}{\overset{\times}{\circ}}$	black, and rust colored mottling, soft, very fine sand, highly weathered, 40%		<del>-</del>
_				18.9-19.1' - Fracture zone, 30 deg and 30 deg,	<del>××</del>	silt	П	_
-			10+	several rock pieces, clay-like	<b>-</b>  ×	Clay (CL)		At 19.4-20.0': R-Scale = R2
20 <u> </u>	20.0		$\times\!\!\times\!\!\times$	_	×	16.1-16.9' - dark reddish brown, whitish-green mottling, very soft,		R2: 16:32-16:47
			0		$\stackrel{\times}{\times} \stackrel{\times}{\times}$	highly weathered, very fine grained,		At 20.0-22.6': R-scale = R0
-				21.0' - Fracture, horizontal, in clay-like material	××	clay-like bedrock		-
_			1	21.0 - Fracture, Honzontal, in day-like material	× ×   × ×	Siltstone 16.9-18.9' - light greenish gray,		-
_				21.9' - Fracture, 20 deg, smooth, stepped,	$1 \times 1$	mottled yellow, black, and dark	١	_
_	R2NQ 5 ft	0	1	bedrock chunks-medium to coarse sand	l× ×	reddish brown, very soft, highly weathered, fine grained, more lithified	١	_
_	92%		·	22.5' - Fracture, 20 deg, smooth, undulating	××	with depth	١	At 22.6-23.3': R-Scale = R1
_			1		× ×   × ×	Siltstone	١	_
			'	23.8' - Fracture, 30 deg, smooth, undulating,	^ * *	At 18.9' - dark reddish gray, mottled heavy green, white, purple, and	١	_
			1	rock is very soft	$\times$	yellow, very fine grained, very soft	١	
25	25.0		$\bowtie$	24.4' - Fracture, 10 deg, smooth, undulating and stepped —	× × × ×	18.9-25.0' - highly weathered — 19.6-20.0' - very soft to soft	١	
227.3			_	and stepped —	];	20.0-22.6' - reddish brown, mottled	١	R3: 08:40-08:48 on 6/02/06
			0		× ×	very heavy green, yellow, and purple 22.6-25.0' - dark reddish brown,	١	At 25.5': R-Scale = R3-R4
_					1×	mottled green and purple	١	<del>-</del>
_			0		1×	25.0-25.7' - dusky red, mottled green	١	-
-	R3NQ			27.2-27.4' - Fracture, 20 deg and 70 deg,	1×	and purple, fine grained 25.0-33.3' - slightly weathered	١	SC-1 collected
-	5 ft 93%	90	3	smooth to rough, undulating, 0.05' thick clay	× ×	25.7-26.4' - scattered medium sand,	١	26.2-27.2'
-	93%			seam, some rock pieces	1× ×	_ 10-15%	١	-
-			0		$\stackrel{\times}{\times}\stackrel{\times}{\times}$	28.4-30.0' - 30% very fine to medium	١	-
-					*	sand		-
			0		<u>*</u>	-		-
30 <u> </u>	30.0		$\bowtie$	_	×	 30.0-35.0' - green mottling, 50% very		R4: 09:00-09:08
			0		*	fine sand with trace medium sand		
-					$\times$ $\times$	-		_
-			0	,	×	_		_
_					^	_		At 31.6': R-Scale = R3-R4
_	R4NQ 5 ft	92	5		IŶŶ	_		_
_	103%	- <u>-</u>	Ľ		$\begin{bmatrix} \hat{x} & \hat{x} \\ \hat{x} & \hat{x} \end{bmatrix}$	_		_
_			0	33.3-33.5' - Fracture, horizontal, smooth,	IX XI	- 33.3-33.8' - highly weathered		_
			L	undulating, 0.05' thick clay infilling	$\times$	- 33.8-35.0' - slightly weathered		
			0	33.6-33.8' - Fracture zone, horizontal and 50 deg, several bedrock pieces, clay and bedrock	× ×   × ×   × ×	- Signay wednered		At 34.2': R-Scale = R4
35	35.0			fragments, in zone of breakage	××			
217.3			XXX	·	:::	T	Д	
			L					

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PROJECT NUMBER:

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BPA-26

SHEET 3 OF 5

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687898.8 N, 2011865.2 E)

ELEVATION: 252.3 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

	EQUIFIVIEN				ORIENTATION : Vertical				
WATER	LEVELS: 2.	0 ft bg	S	START : 6/1/06 13:	16	_	END: 6/6/06 10:00		LOGGER : JS
	<u> </u>			DISCONTINUITIES	(J		LITHOLOGY		COMMENTS
oz €	CORE RUN, LENGTH, AND RECOVERY (%)		S	DESCRIPTION	SYMBOLIC LOG	Γ	ROCK TYPE, COLOR,		
₹ <u>6</u> 8	L A C A	(%	볿C		┫ :		MINERALOGY, TEXTURE,		SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
F S S F	GTE S	D (%)	ES.	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	1 8		WEATHERING, HARDNESS,	Ι.	SMOOTHNESS, CAVING ROD
DEPTH AND ELEVATION BELOW SURFACE (ft)		a Q	FRACTURES PER FOOT	THICKNESS, SURFACE STAINING, AND TIGHTNESS	≥		AND ROCK MASS CHARACTERISTICS		DROPS, TEST RESULTS, ETC.
	014		_		+	+	Sandstone	Ь	5: No time recorded _
_			5	35.6' - Fracture, horizontal, rough, undulating	1∷	:	35.0-36.9' - gray to dark gray, slightly	1	S. NO time recorded =
-				35.7' - Fracture, 30 deg, smooth, planar, gravel	<b>∃∷</b>	: -	weathered, lighter gray and darker		-
-			10+	sized fragments	-1::	: -	gray banding throughout on 0-20	Δ,	t 36.5-36.9': PP: 4.0 tsf
_					- ×	:	degree bedding planes, thin bedding 35.5-36.1' - rust colored mottling, very	-  ^'	
	R5NQ	0.5	_ <b>_</b>		××	X	soft, fine sand		
-	5 ft 100%	85	0		×	Ŧ	\36.5-36.9' - clay-like material		_
-	10070				⊢× ×	*	Siltstone		-
-			0		- ×.	<u>;</u> }_	36.9-38.6' - dark reddish brown, faint	4	-
_					_ ∷	: -	green mottling, very soft to soft, slightly weathered, fine grained, 20%	At	.t 38.8': R-Scale = R3-R4
			1		::		signity weathered, line grained, 20% sand/coarse silt		
40	40.0		'		] <del>×</del>	Æ	Sandstone	1	
212.3	.010		-	39.8' - Fracture, horizontal, smooth to rough, — undulating	×	1	38.6-39.7' - very dark gray, mottled		t 39.9-40.0': PP: 4.5 tsf —
-			10+	40.0' - Microfractures	-×	*	darker gray and rust, soft, slightly	IR	:6: Finished at 09:58
-				40.7' - Fracture, 25 deg, smooth, undulating,	- × × ×	<u>X</u> _	weathered, fine grained, gradational contact over 0.1' with siltstone below		
l _			0	0.02' relief	×	X	Siltstone		C-2 collected 2.6-43.5' -
			ľ		×	Ŕ	39.7-39.8' - very dark gray to very dark	74	2.0-43.5
-	R6NQ				××	*	greenish gray, very soft, slightly		1
-	5 ft	86	0		⊢× ×	*	weathered, fine grained		†
-	100%				- × ×	X-	Siltstone		-
_			0		×	3	At 39.8' - dark reddish brown, green mottling, very soft		_
			ĭ		×	×	39.8-41.2' - slightly weathered		
					××	X	40.0-40.6' - mottled dark gray and		1
45 -	45.0		0		××	*	green, very soft		- 1
45 <u></u> 207.3	45.0			_	-{¥.	¥	40.2-40.4' - clay seam, coarse sand sized fragments of bedrock	┨╻	.7: 10:04-10:14
			0		4::	: -	40.6-43.7' - trace green mottling, soft,	Ι'`	-
_					_::	:[	fine grained, 15% white medium sand	Δ	t 45.8': R-Scale = R3-R4
					::	1	throughout; 20% of sand/ coarse silt	( )	1 40.0 : 1 Codic 1 10 1 14
_			0		1::	: -	41.2-45.0' - fresh 43.7-43.9' - sandy lens; 50% medium		1
_	R7NQ				Ⅎ∷	╬	grained sand		-
_	5 ft	100	0		-1::	: -	44.1-45.0' - becomes coarser with		-
_	102%				<u> </u> ::	:[	depth; grading into sandstone/siltstone	At	t 47.7': R-Scale = R3
			_ <b>_</b>		::	:	mix; silt varies from 40-60% very fine to fine sand		
-			0		1::	:[	Sandstone		1
-					†։։	: -	At 45.0' - gray, soft to hard, fine sand		
-			0			: -	to medium sand, fresh, multi-colored		-
50	50.0			50.0.00 Ol Missafasatawa	<b>-</b>  ∷	: -	grains: white pink, gray, and black;	_	JO. 40-22 40:47
202.3			0	50.0-60.0' - Microfractures	_ ∷	:[	contacts at 0 degrees 45.0-46.1' - rusty mottling at top,	IR	8: 10:33-10:47
						1	scattered coarse sand sized clasts		
I -					×	×	46.1-46.1' - medium to coarse lens	1	1
-			1		- × ×	*	46.1-46.2' - dark brown colored silty		-
-	DONO			51.9' - Fracture, horizontal, smooth, undulating	- ×	<u></u>	lens 46.2-46.5' - medium sand to coarse		-
I -	R8NQ 5 ft	100	0	2.13	×	1	sand	1	
	100%				×	X	46.5-47.0' - irregular shaped dark	A	t 52.5': R-Scale = R3
_					××	*	brown bands approximately 0.05-0.1'		1
-			0		×	*	thick 47.0-47.4' - up to 10% coarse sand		1
-					- ×	}	sized clasts; interfingered silty lenses		=
-			0		××.	1	47.4-47.8' - dark brown colored silty	4	=
55	55.0			<u> </u>	×	×	lens	1	
197.3					×	×		+	
						⊥			



PROJECT NUMBER:

338884

BPA-26

SHEET 4 OF 5

# **ROCK CORE LOG**

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687898.8 N, 2011865.2 E)

ELEVATION: 252.3 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

				HOD : CIVIE-330, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS : 2.	0 ft bo	IS	START : 6/1/06 13:	16	END : 6/6/06 10:00	LOGGER : JS
	_ (9			DISCONTINUITIES	Ō	LITHOLOGY	COMMENTS
Qz €	CORE RUN, LENGTH, AND RECOVERY (%)		ES	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	CIZE AND DEDTIL OF CACING
DEPTH AND ELEVATION BELOW SURFACE (ft)	RUI 'H, / /ER	(%) 🛭	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	<b>1</b> \	MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
FYS	RE COO	Q	ACJ R F(	PLANARITY, INFILLING MATERIAL AND	MB(	WEATHERING, HARDNESS, AND ROCK MASS	SMOOTHNESS, CAVING ROD
吊급띪S	Sin	A O	氏띰	THICKNESS, SURFACE STAINING, AND TIGHTNESS	S	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
_			0		XX	47.8-49.7' - medium sand to coarse	R9: 10:51-11:06 _
_					Jŝ ŝ	sand, coarser with depth; last 0.3' has	_
			<u>,</u>		× ×	up to 50% coarse sand and fine gravel 49.7-50.0' - rust colored mottling, very	
			0		× >	fine sand to fine sand, contact at 150	_
-	R9NQ					degrees	-
-	5 ft	100	0			50.0-51.1' - very fine sand to fine sand, fresh	-
_	100%				- × ×		-
_			0			grained clasts; siltstone clasts of same	_
			Ŭ		× >	size	_
					× ×	50.9-51.0'	At 59.0': R-Scale = R3
60	60.0		1	59.6' - Fracture, horizontal, smooth, to rough,	×	A Siltstone At 51.1' - dark reddish brown, mottled	-
192.3	00.0			planar		green and purple, soft, fresh, fine	R10: Finished at 11:30
_			1	CO CL Franking FO days assesst and dating	× >	grained	-
_				60.6' - Fracture, 50 deg, smooth, undulating, 0.01' relief, hairline fractures 0.05' away	x	53.1-54.5' - becomes coarser; contact	_
l _			0	0.01 Teller, Halfillie fractures 0.00 away	× >	medium white sand, increases with	_
			'		× >	depth up to 30% very fine sand/coarse	
-	R10NQ				× >	silt	-
-	5 ft	90	0			Sandstone 54.5-54.8' - fresh, fine grained,	-
-	100%				×	greenish-gray, sandstone lens,	-
_			0		-1ê 3	irregular shaped and mixed with	-
_					lŝ ŝ	siltstone at top; undulating contact at	At 63.8': R-Scale = R3
			2		××	bottom (0.03' relief) Siltstone	7 11 3010 1 11 30010 1 10
65	65.0			64.5' - Fracture, horizontal and 50 deg,	\ \ \ \ \	At 54.8' - dark reddish brown, mottled	
187.3	00.0			compound fractures, 0.03' relief, small bedrock — fragments	× >	green and purple, soft, fresh	R11: 08:36-08:56 on
-			2	64.9' - Fracture, 40 deg, rough, undulating,	× >	55.0-60.0' - some bands of coarser silt	06/06/06
-				0.05' relief		60.6-64.9' - trace green mottling 62.7-62.9' - 15% white coarse sand to	SC-3 collected
_			10+	65.2-65.3' - Fractures (2), horizontal and 10	_ × >	fine gravel	65.3-66.3'
_			. •	deg, smooth, undulating 66.3-66.6' - Fracture zone, horizontal, rough,	××	64.9-65.0' - mottled trace green and	-
	R11NQ			undulating, up to 0.02' relief, fine to coarse	× >	purple, very soft to soft 5.0-70.0' - dusky red	
_	5 ft 96%	84	0	gravel sized bedrock fragments	× >	65.1-65.2' - trace mottling, very soft to	At 67.5': R-Scale = R3-R4
-	3070				- × ×	soft	-
-			2		-Iŝ ₹	65.2-68.1' - mottled trace green and	-
-				68.7' - Fracture, horizontal, smooth,	× ?	purple, very soft to soft, fine grained, coarsens with depth	
1 -			0	undulating, 0.01' relief 69.0' - Fracture, 15 deg, rough, planar, tight fit	××	68.1-70.0' - mottled trace green, up to	At 69.1': R-Scale = R4
70	70.0		XXX		××	50% very fine sand, coarsens with	
182.3				_	× >	depth 70.0-71.9' - dark reddish brown, trace	R12: 09:03-09:20
1 -			0	•	× >	green mottling, soft, coarsens with	1
-			$\vdash$		× >	depth	-
-			1		-{x }	<del> </del>	-
-				71.9' - Fracture, 20 deg, smooth, planar, partial	Î.x	71.9-71.9' - sandstone lens at 20 ┌	
I -	R12NQ 5 ft	98	1	slickensides in siltstone/claystone seam, tight	<b>∐</b> ∷∷	degrees; gray, fine to medium grained	1 -
	98%	50	' <b> </b>	fit	<b> </b> :::	71.9-72.0' - siltstone lens at 20	
				72.9' - Fracture, 50 deg, rough, planar	]∷:	degrees, trace sand	<u> </u>
-			0		<b>1∷</b> ∷	<u> </u>	1 -
1 -			$\vdash$		<del> </del> ∷∷	<u> </u>	-
-			0		- ∷:	ŀ	-
75	75.0		XXX	_	<b>.</b> ∷	_	_
177.3			$\vdash$		+		1
			$\Box$		_	Į	I



PROJECT NUMBER:

338884

BORING NUMBER:

BPA-26

SHEET 5 OF 5

#### **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687898.8 N, 2011865.2 E)

ELEVATION: 252.3 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD: CME-550, NQ Double Barrel ORIENTATION: Vertical WATER LEVELS: 2.0 ft bgs START: 6/1/06 13:16 END: 6/6/06 10:00 LOGGER: JS DISCONTINUITIES LITHOLOGY COMMENTS CORE RUN, LENGTH, AND RECOVERY (%) 90 FRACTURES PER FOOT DESCRIPTION DEPTH AND ELEVATION BELOW SURFACE (ft) ROCK TYPE, COLOR, SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD SYMBOLIC MINERALOGY, TEXTURE RQD(%) DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS WEATHERING, HARDNESS, AND ROCK MASS DROPS, TEST RESULTS, ETC. CHARACTERISTICS Sandstone R13: No time recorded 0 At 72.0' - gray to reddish gray, fine sand to medium sand, fresh, trace At 76.1': R-Scale = R3-R4 coarse sand sized siltstone clasts, 0 laminated to medium bedding, bedding on 20 degree angle, darker R13NQ and lighter bands of well sorted sand, 100 0 5 ft rust colored mottling 100% 74.6-74.7' - siltstone lens 75.0-77.2' - gray to brown 77.2' - medium grained, light gray At 78.3': R-Scale = R3-R4 0 sandstone lens 0.03' thick, black thready silt lens at bottom 0 77.5-79.2' - gray, white, pink, and 80 80.0 black grains; gradation varies in 172.3 R14: No time recorded zones; a few thready silt lenses 0 <0.0002' Siltstone 79.2-79.5' - dark reddish brown, trace 0 At 82.9': R-Scale = R3-R4 green mottling, soft, fresh, dark gray and light gray sand beds interfingered R14NQ First water level = 2.0' bgs in siltstone, laminated bedding 0 taken 6/6/06 at 16:56; 5 ft 98 Sandstone 100% second water level = 1.3' At 79.5' - gray to reddish gray, trace bgs taken 6/7/06 at 19:18 rust color mottling, fresh, trace coarse 0 sand sized siltstone clasts 80.0-85.0' - gray, soft to hard, medium R-scale performed after grained with varying amounts of fine 84.3' - Fracture, horizontal, rough, planar 3 drilling on stored samples grained and up to 20-30% coarse 85 85.0 84.9' - Fractures (2), horizontal, smooth and grains 167.3 80.9-81.0' - conglomerate lens, silt to \rough fine gravel sized grains 81.7-82.0' - fine grained lens with rust colored mottling 82.9-84.1' - scattered coarse sand sized siltstone clasts Bottom of Boring at 85.0 ft bgs on 6/6/06 10:00 ٩n 162.3 95  $157.\overline{3}$ 



PROJECT NUMBER:	BORING NUMBER:				
338884	BPA-27	SHEET	1	OF	8

#### **SOIL BORING LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687838.2 N, 2011884.8 E)

ELEVATION: 258.3 ft MSL (NGVD 29) DRILLING CONTRACTOR: A. Martin/K. Canuel, S&ME

DRILLING EQUIPMENT AND METHOD: BK-51/CME-750, 3-5/8 Tricone Bit, 24" Split Spoon and 140 lb. Automatic Hammer ORIENTATION: Vertical

DRILLIN	IG EQUIF	PMENT /	AND MET	HOD: BK-51/CN	IE-750, 3-5/8 Tricone Bit, 24" Split Spoon and 140 lb. Automatic	Ham	mer	ORIENTATION : Vertical		
WATER	LEVELS	S: 8.5 ft b	ogs		START : 6/2/06 08:20 END : 6/1	2/06	10:45	5 LOGGER : JF/JS/MJ		
DEPTH B	BELOW EX	KISTING C	RADE (ft)	STANDARD	SOIL DESCRIPTION	U		COMMENTS		
	INTERV	AL (ft)		PENETRATION TEST RESULTS						
		RECOV	ERY (in)	120111200210	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR	SYMBOLIC LOG	ίξ	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND		
			#TYPE	6"-6"-6"-6"	CONSISTENCY, SOIL STRUCTURE, MINERALOGY	MB	(TSF)	INSTRUMENTATION		
				(N)		Š	윤			
258.3 - - -	2.0	13.5	SS1SS	2-3-4-5 (7)	Clay (CL)  0.0-0.5' - dark yellowish brown, mottled, moist, medium stiff  Clay (CL)  0.5-1.1' - yellowish red, mottled, moist, medium stiff		2.5	- - -		
- - -	2.5	14.5	SS2SS	5-7-10-17 (17)	Clay (CL) 2.5-3.7' - reddish brown to yellowish brown, mottled, moist, medium stiff, low plasticity		2.0- 4.0	PT-1 collected 3.8-5.8'		
5					-	1		Offset: 5.7' N387E of BPA-27 Lab Results USCS: CL		
253.3 - -	5.0	15.0	SS3SS	12-20-26-50 (46)	Clay (CL) 5.0-5.6' - reddish brown, mottled, moist, stiff, low plasticity Silty Sand (SM)		4.0- 2.5	Lab Results USCS: CL		
-	7.0			(40)	5.6-6.3' - pale brown, moist, medium dense, low plasticity, trace to little clay		2.5	-		
- - -	7.5	10.5	SS4SS	23-50/4.5 (50/4.5")	Clay (CL) 7.5-8.3' - reddish brown, mottled, moist, stiff, low plasticity		3.5	- - -		
	9.5				-	┨		-		
10 248.3 - - -	10.0	4.0	SS5SS	50/4 (50/4")	Clay (CL) 10.0-10.3' - reddish brown, mottled, moist, stiff, low plasticity		4.5+	12.8-25.5 cored on 06/12/06; moved over to take Pitcher samples and core from 12.8-25.5'. Originally soil sampling extended to 25.5' bgs. Core was taken starting at 12.8' as SPT N for 12.5-12.8' was 50/3.  Soil sampling completed at 10:35 on		
-	12.5	3.0	SS6SS		_ Clay (CL)	///	4.5+	6/2/06		
- - - 15_ 243.3	\ <u>12.8</u> /			50/3 (50/3")	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	-				
- - - - -										
					-	1		-		
20						$\vdash$				



PROJECT NUMBER:

338884

BPA-27

SHEET 2 OF 8

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687838.2 N, 2011884.8 E)

ELEVATION: 258.3 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin/K. Canuel, S&ME

CORING EQUIPMENT AND METHOD: BK-51/CME-750, NQ Double Barrel ORIENTATION: Vertical

CORING	EQUIPMEN	I AN	D ME	THOD : BK-51/CME-750, NQ Double Barrel		ORIENTATION : Vertical		
WATER	LEVELS: 8.	5 ft bo	js	START : 6/2/06 08:	20		END: 6/12/06 10:45	LOGGER : JF/JS/MJ
	_ @			DISCONTINUITIES	ပ္ခ		LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG		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.
- - - 15_ 243.3 - - -	RA1NQ 3.7 ft 85%	0	2 10+ 1	12.8' - Fracture, 50 deg, smooth, undulating 13.5' - Fracture, 25 deg, smooth, undulating 13.8-14.4' - Fracture zone, soil-like, sandy clay  15.0' - Fracture, 60 deg, undulating	- × - × - × - × - × - × - × - × - × - ×	× -	Siltstone 12.8-20.1' - reddish brown, very soft, highly weathered to completely weathered, fine grained, some black staining, 20% very fine sand	Rock coring began at 13:05 on 6/7/06 RA1: 16:35-16:42 on 06/12/06 At 12.8-14.9': R-Scale = R0  At 14.9-16.5': R-Scale = R1  RA2: 17:01-17:15 At 16.5-19.0': R-Scale = R0-R1
20 238.3	RA2NQ 5 ft 96%	0	0 0 1	- 20.2' - Fracture, horizontal, smooth, planar 21.3' - Fracture, horizontal, weak material	- × - × - × - × - × - × - × - ×	\(\frac{1}{\times \times \time	18.8-20.1' - heavy dark purple mottling  Sandstone 20.1-20.4' - heavily mottled and banded dark gray, black, dark purple, soft, very fine sand to fine sand, highly	SC-6 collected 18.35-19.35'
- - - - - 25 233.3	RA3NQ 4 ft 100%	0	0 0 0	- -	× × × × × × × × × × × × × × × × × × ×	×	weathered to completely weathered, lens, beds at approximately 20 degrees  Siltstone 20.4-22.5' - brown, heavily mottled with green, yellow, black and dark purple, very soft, highly weathered to completely weathered, very fine grained, some orange staining, up to 15-20% silt/very fine sand, clay-like in last 0.2' 21.5-22.5' - dark reddish brown,	RA3: 17:30-17:38
- - -	R1NQ 2.5 ft 37%	0	0	27.8' - Fracture, 60 deg, rough, undulating	- × - × - × - × - × - × - ×	<del>                                      </del>	mottled 22.1-22.5' - mottled greenish-white and reddish yellow, clayey  Siltstone 22.5-24.7' - gray, heavily mottled with light red, black, and greenish white, very soft, highly weathered to completely weathered, very fine	R1: 13:05-13:15 on 6/7/06 At 26.0': R-Scale = R2 Driller's Comments: First 1- 1.5' went down very easy, last 1-1.5' became hard, might have washed out
30	R2NQ 5 ft 100%	90	2 0 1 0	28.0-33.0' - Microfractures 28.2-3.0' - Microfractures 28.2- Fracture, 20 deg, rough, undulating 28.5' - Fracture, 20 deg, rough, undulating  - 30.2' - Fracture, horizontal, smooth, undulating 30.4' - Fracture, horizontal, smooth, undulating  32.2' - Fracture, 35 deg, smooth, undulating	- × × × × × × × × × × × × × × × × × × ×	*	grained, clay-like rock  Siltstone At 24.7' - dusky red, some mottling, dark green, yellow, black staining, very soft, fine grained 24.7-25.5' - highly weathered to completely weathered 25.5-28.0' - reddish brown, laminated bedding, highly weathered 25.5-26.8' - clay seam 28.0-38.0' - dark reddish brown, laminated bedding, fresh 28.4' - mottled greenish gray 29.2' - mottled greenish gray	R2: 13:27-13:55 At 28.5': R-Scale = R2

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PROJECT NUMBER:	BORING NUMBER:					
338884	BPA-27	SHEET	3	OF	8	

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (687838.2 N, 2011884.8 E)

ELEVATION: 258.3 ft MSL (NGVD 29) DRILLING CONTRACTOR: A. Martin/K. Canuel, S&ME

CORING	EQUIPMEN	T ANI	D ME	THOD : BK-51/CME-750, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS: 8.	5 ft bg	ıs	START : 6/2/06 08:	20	END : 6/12/06 10:45	LOGGER : JF/JS/MJ
	<u>(</u> %		_	DISCONTINUITIES	- 00	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLICE	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.
	33.0				- ×	2 30.5' - mottled greenish gray	R3: 14:16-14:30
-			1	33.5' - Fracture, 45 deg, rough, undulating	- × - × - ×	32.3' - mottled greenish gray 33.0-38.0' - mottled greenish gray, soft	- At 33.0-34.0': R-Scale = R3 -
35_ 223.3	DONO		2	34.6' - Fracture, horizontal, rough	- × - × - ×	X_ X_ X_ X	At 34.0-36.0': R-Scale = R2
223.3	R3NQ 5 ft 100%	84	2	35.4' - Fracture, horizontal, rough	- × × - ×	35.0-35.2' - clay with siltstone	_
_			0		- × × - ×	×-	At 36.5': R-Scale = R4
-	38.0		0		- × - × - ×	**************************************	-
-			3	38.5' - Fracture, 30 deg, smooth, undulating 38.8' - Fracture, 30 deg, smooth, undulating	- × - × - ×	38.0-43.0' - light reddish brown, mottled greenish gray, soft to very soft, very thin bedding, fresh, angular	R4: 14:45-15:15 - -
40_ 218.3	B.416		2	38.9' - Fracture, horizontal, undulating 39.0' - Fracture, horizontal, undulating 39.7' - Microfractures —	××	bedding 39.7' - very soft	At 39.2-39.8': R-Scale = R2 At 39.6': R-Scale = R3-R4
210.3	R4NQ 5 ft 100%	66	66 0	39.9' - Fracture, horizontal, smooth, undulating	- × × - ×	* * * *-	At 40.0': R-Scale = R3-R4
-			2	41.3' - Fracture, horizontal, smooth, undulating	- × ×	41.5-41.9' - clay, greenish gray and brown, very soft, some siltstone	At 41.5-41.9': R-Scale = R0 At 41.9-42.3': R-Scale = R1
-	43.0		2	42.2' - Fracture, horizontal, smooth, undulating	- × - × - × - ×	fragments 42.1-42.4' - very soft 42.7-42.8' - clay, greenish gray and	At 42.5': R-Scale = R3-R4
-			1			brown, very soft, some siltstone fragments  Sandstone	R5: 15:30-15:50 At 43.5': R-Scale = R4
45_ 213.3	DENO		0	_	- - - - - - : :	43.0-48.0' - light reddish brown, mottled greenish gray, soft, fine sand, fresh, fragile	At 44.5': R-Scale = R3-R4
-	R5NQ 5 ft 100%	96	0		- - - - : :	-	-
-			1	46.9' - Fracture, 60 deg, smooth, undulating	- - - - -	47.0-48.0' - grain size increase, white	_
-	48.0		0		- :: :: ×	particles to the bottom	At 47.5': R-Scale = R3-R4 R6: 16:43-17:10
-			0		- × - × - ×	48.0-50.2' - light reddish brown, mottled greenish gray, soft, fresh	At 49.0': R-Scale = R3-R4
50_ 208.3	R6NQ		1	-	- × - × - ×	** * *-	
-	5 ft 94%	94	1		- - - - : :	Sandstone 50.2-53.0' - light reddish brown, soft, fine sand, fresh	]
-			0		- :: - ::	-	- At 52.0': R-Scale = R3
_			0		<del> </del>	-	-

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PROJECT NUMBER:	BORING NUMBER:					
338884	BPA-27	SHEET	4	OF	8	

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687838.2 N, 2011884.8 E)

ELEVATION: 258.3 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin/K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : BK-51/CME-750, NQ Double Barrel

				HOD . BK-3 I/CIVIE-730, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS: 8.	5 ft bc	S	START : 6/2/06 08:	20	END : 6/12/06 10:45	LOGGER : JF/JS/MJ
	(9)			DISCONTINUITIES	ပ္	LITHOLOGY	COMMENTS
EPTH AND EVATION ELOW JRFACE (ft)	RUN, H, AND ERY (%	(%)	URES	DESCRIPTION		ROCK TYPE, COLOR, MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
DEPTH AND ELEVATION BELOW SURFACE (		R Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
_	53.0		XXX		× >	Siltstone	R7: 08:57-09:20 on
-	-		0		×	- 53.0-56.9' - light reddish brown, mottled greenish gray, laminated bedding, fresh, coarse grained	06/08/06 -
55	R7NQ		0	_	× × × × × ×	bedding, fiesti, coarse grained	At 54.5': R-Scale = R3-R4
203.3	4.5 ft 100%	100	0		× > × > × >		-
-			0		× × × × × ×		-
	57.5		0	56.9' - Contact between siltstone and sandstone, smooth, undulating		<b>Sandstone</b> 56.9-57.5' - soft, fresh	SC-1 collected 55.8-56.4'
-			1	57.5' - Fracture, horizontal, smooth, undulating 57.6' - Fracture, horizontal, smooth, undulating 57.7' - Fracture, horizontal, smooth, undulating	× > × > × >	Siltstone At 57.5' - light reddish brown, mottled	At 57.2': R-Scale = R3-R4 R8: 09:43-10:05
-			4	58.1' - Fracture, 30 deg, rough, undulating 58.2' - Fracture, 30 deg, rough, undulating	× × × × × × × × × × × × × × × × × × ×	greenish gray, soft, laminated bedding, fresh	- At 59.0': R-Scale = R4
60_ 198.3	R8NQ 5 ft	68	0	-	× > × > × >	<u>-</u>	_
-	90%		0		\times \t	60.5' - fine grains become more visible	-
-	-		2	61.2' - Fracture, 40 deg, smooth 61.3' - Fracture, 40 deg, smooth	- (x ) - (x ) - (x )		SC-2 collected 60.2-61.1' - At 61.4': R-Scale = R3-R4
-	62.5			61.4' - Fracture, 40 deg, smooth	× × × × × × ×	- 61.8' - very soft 61.8-62.2' - clay seam, rock particles and multiple fractures	At 61.8': R-Scale = R0-R1
-			3	C2 41 Freehore hadrontal assessts undulation		- 62.5' - mottled greenish gray and black	R9: 10:22-10:48 At 62.8': R-Scale = R4
-	-		1	63.4' - Fracture, horizontal, smooth, undulating	X	-	At 64.0': R-Scale = R3-R4
65 <u></u> 193.3	R9NQ		0	_	× > × > × >		
-	6 ft 100%	100	0		× > × > × >	-	-
-			0		× > × > × >		At 66.2': R-Scale = R3-R4
-			0		× > × >	Sandstone	-
-	68.5		0			At 67.9' - pinkish gray, soft to hard, fresh, transitions to sandstone	R10: 12:30-12:42
70					-	69.5' - grains become larger, more	At 69.2': R-Scale = R3-R4 _
188.3	4 ft	100	0	-	]::::	— coarse, white and gray	
-	100%		0		   	-	At 70.9': R-Scale = R4
-	72.5		0		- ::::	<ul> <li>71.8' - grains are larger (0.01) pink and white</li> </ul>	-
					××		



PROJECT NUMBER:

338884

BPA-27

SHEET 5 OF 8

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687838.2 N, 2011884.8 E)

ELEVATION: 258.3 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin/K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : BK-51/CME-750, NQ Double Barrel ORIENTATION : Vertical

				THOD: BK-51/CME-750, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS : 8.	5 ft bg	S	START : 6/2/06 08:2  DISCONTINUITIES	20	END : 6/12/06 10:45	LOGGER : JF/JS/MJ
_	(%) □		<i>(</i> 0		.0G	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
_			0		× ×	_ Siltstone	R11: 12:52-13:10
-			0		× > × > × > × >	At 72.9' - light reddish brown, mottled greenish gray, soft, laminated bedding, rounded, fresh, fine grained	At 73.3': R-Scale = R3-R4
75_ 183.3	R11NQ 5.5 ft 100%		0	_	× > × > × >		_
-	100 %		0		× × × × × × × × × × × × × × × × × × ×	75.5' - pink grains, smooth, rounded	At 75.9': R-Scale = R4
-			0		× > × > × > × >	-	-
-	78.0		0		× > × > × >	78.0' - very soft	R12: 13:15-13:35
- 80			0		× > × > × > × >	} -	-
178.3	R12NQ 5 ft 100%	100	0		× > × > × > × >	_	At 80.1': R-Scale = R3-R4
-			0		× > × > × >		SC-3 collected 80.45-81.25'
-	83.0		0		× > × > × >	-	
-			0		× > × > × > × >	- -	R13: 13:50-14:10 At 83.6': R-Scale = R3
85_ 173.3			0	-	× > × > × >	-	_
-	R13NQ 5.2 ft 100%	100	0		× > × > × > × >	_	At 96 44 D Scolo = D2 D4
-			0			Sandstone     At 86.3' - light reddish brown, mottled green, soft, fine sand, fresh	- At 86.1': R-Scale = R3-R4
-	88.2		0			- -	R14: 14:25-14:55
-			0		] 	88.6' - mottled greenish gray, white fine grains	At 88.7': R-Scale = R3-R4
90 <u> </u>	R14NQ		0	_			_
-	5.2 ft 100%	100	0			90.6' - 20 degree black band	At 91.0': R-Scale = R4
-			0			92.1' - mottled greenish gray, white	
					×	fine grains	
ь					_		1

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PROJECT NUMBER:

338884

BPA-27

SHEET 6 OF 8

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687838.2 N, 2011884.8 E)

ELEVATION: 258.3 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin/K. Canuel, S&ME

CORING EQUIPMENT AND METHOD: BK-51/CME-750, NQ Double Barrel ORIENTATION: Vertical

CORING	EQUIPMEN	I AN	D ME	THOD : BK-51/CME-750, NQ Double Barrel				ORIENTATION : Vertical	
WATER	LEVELS: 8.	5 ft bg	IS	START : 6/2/06 08	:20	_	END: 6/12/06 10:45	LOGGER : JF/JS/MJ	
	(%			DISCONTINUITIES	_] 9	ي [	LITHOLOGY	COMMENTS	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS		SYMBOLIC LUG	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.	
-	93.4		0	92.6' - Fracture, vertical, vertical inclusion, slight fracture of side of core	- ×	. X . X	Siltstone 92.6-93.4' - fresh, greenish gray inclusions	_ At 93.2': R-Scale = R3-R4 _	
- 95_ 163.3			0		-		Sandstone 93.4-108.4' - light reddish brown,	R15: 15:12-15:30	
			0	-	-  -  -		mottled greenish gray, soft, laminated bedding, fine sand to coarse sand, fresh	_	
-	R15NQ 4.9 ft 96%		0		-		93.6' - greenish gray band 20 degree 94.3' - 0.02' thick greenish gray band 94.6-95.5' - medium sand		
_			0				95.5' - soft to hard, white, black, rust colored, fine to medium grained 95.6' - rust colored band		
-	98.3		0 ×××		1:		97.4-98.2' - becomes coarser 97.9-98.2' - rust colored 0.05-0.1' thick bands	At 97.9': R-Scale = R3-R4 = R16: 15:47-16:08 = -	
_			1	98.4' - Fracture, horizontal, smooth, undulating	]:		98.3-103.3' - fine sand to medium sand 98.5' - rust colored mottling, coarse	- Nio. 15.47-10.06	
100 158.3			0	-	1		sand, siltstone inclusions  98.9' - rust color mottling, black band around core, white and gray grains	 At 100.1': R-Scale = R4	
-	R16NQ 5 ft 100%	100	0		1:		99.4-99.6' - rust colored bands at 20 degree angle 99.8-101.6' - greenish gray band at 10	- -	
-			0		1:		degree angle 101.6' - rust colored band 101.6' - rust colored siltstone	- -	
-	103.3		0		-	: : - : : -	inclusion, 0.05' thick, fine grained, smooth around inclusion	At 102.3': R-Scale = R3-R4 -	
-	R17NQ 5.1 ft 100%		0		1:		102.3' - siltstone inclusions 102.8-103.5' - medium sand to coarse sand, white, black, light reddish	R17: 08:36-08:55 on – 06/07/06	
105 153.3			0		-		brown, greenish gray grains are 0.05' thick  — 103.0' - mottled, rust band at 103'	At 104.4': R-Scale = R4	
-		94	1	106.0' - Fracture, smooth, undulating	- :	: : - : : -	103.3-108.4' - pinkish white, mottled, white, gray, black, pink fine to medium grains	SC-4 collected	
-			1	106.9' - Fracture, 10 deg, fissure along core	- :	:: - :: -	106.0' - mottling through to end of core, very soft, sandstone/siltstone mixture	106.0-106.5'	
-			0		-		106.5-106.7' - gray, reddish brown, alternating bands 106.7' - clay seam, 0.01' thick	At 107.4': R-Scale = R3-R4	
-	108.4		0		- × - × - ×	×	106.8' - clay seam, 0.01' thick 107.0' - very soft, very fine sand, clay seams, reddish brown 107.0' - 108.6' dest mething legger	R18: 09:15-09:40	
110 <u></u> 148.3	R18NQ 5.1 ft 100%		0	-	- × - ×	×	107.0-108.4' - dark mottling, larger grains observed 108.1-109.3' - dark mottling	- -	
-			0		- × × - ×	X X X	Siltstone At 108.4' - dusky red, mottled greenish gray, soft, fresh	- -	
-			0		- × - × - ×	X X X	109.0-109.7' - larger inclusions 110.0' - soft to hard, coarsens with depth 111.0' - 0.05' inclusion	 At 111.6': R-Scale = R3-R4	
					- x		<u>-</u>		
						_			

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PROJECT NUMBER:

338884

BPA-27

SHEET 7 OF 8

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687838.2 N, 2011884.8 E)

ELEVATION: 258.3 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin/K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : BK-51/CME-750, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS: 8.	5 ft bg	s	START : 6/2/06 08:2	20	END : 6/12/06 10:45	LOGGER : JF/JS/MJ
	(6			DISCONTINUITIES	O	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	D (%)	CTURES FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
SEE	RECE	a D	FRA( PER	THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYN	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
_	113.5		0		× × × ×	111.6-113.5' - dark mottling 0.02' in size	-
- - 115			0	-	× × × ×	112.5' - dark mottling 0.03' thick and more frequent, grains become finer	R19: 09:57-10:13
			0	_	× × × ×	112.6' - 0.1' thick greenish gray mottling 113.2' - fine sand to medium sand,	At 114.2': R-Scale = R4-R5
143.3	R19NQ				. : : :   _ \ - : : :   - - : : :   -	grains become coarser 113.5-114.6' - siltstone/sandstone	-
_	4.9 ft 100%	100	0	-		layer, siltstone 113.7' - coarser grains 114.4' - 0.02' band	-
_		·	0			At 114.6' - soft, fine sand to medium	At 117.0': R-Scale = R3-R4
-	118.4		0			sand, fresh, white, gray, black 115.0' - black bands 0.01' thick 115.1' - rust colored bands starting	-
_			0			115.2' - becomes finer with depth 115.6' - some coarse grains 115.8' - fine sand to coarse sand,	R20: 10:42-11:00 -
120 138.3		•	0	_		white and black band, grains become coarse, grains vary 0.001-0.01'	
136.3	R20NQ 5 ft 100%	100	0	-		117-118.4' - fine sand to coarse sand 117.3-118.0' - greenish gray mottling 118.4-123.4' - light reddish brown, soft	-
_			0	-		to hard, fine sand to coarse sand 119.2-119.9' - coarse grained 119.6' - coarse sand, very coarse	At 121.1': R-Scale = R3-R4
-			_			grains 120.5' - rust colored band, 0.01' thick	-
-	123.4		0		: : : : : :	120.8' - rust colored band, 0.01' thick 121.2-121.4' - rust colored band, very thin, 0.01' thick, grains are finer   √	- R21: 08:50-09:15 on
_	R21NQ 5 ft 97%		0	-	× × × × × ×	122.0' - medium sand to coarse sand, grains become coarse 123.0' - grains become smooth,	6/12/06 _ At 123.9': R-Scale = R3-R4
125 133.3			0	_	× × × × × ×	transitions to siltstone Siltstone	_
_		97	0		× × × ×	At 123.4' - very dark gray to dark reddish brown, scattered green mottles, soft, fine sand, fresh	-
-			0	-	× × × × × ×	125.2-128.4' - trace green mottles, 1.3-2.0" bands, 15-20% very fine	At 126.4': R-Scale = R3-R4
-			0	-	× × × × × ×	sand/ clayey silt	-
_	128.4		XXX	-	× × × × × ×	128.4-133.4' - trace faint green and	R22: 09:32-10:00
-	Dogwo		0	-	× × × ×	yellow mottles	
130 <u> </u>		ŀ	0	_	× × × × × ×		— At 130.3': R-Scale = R4 —
-	R22NQ 5 ft 100%	100	0		× × × × × ×	131.0-131.3' - trace rectangular, thin	-
-			0		× × × ×	- clasts harder than matrix 131.3-133.4' - heavily mottled yellow, black, purple, very soft to soft, bedding	
_					× × × ×	on 20 deg	-
Ц					1	<u> </u>	



PROJECT NUMBER:	BORING NUMBER:		
338884	RPΔ-27	SHEET	8 OF 8

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687838.2 N, 2011884.8 E)

ELEVATION: 258.3 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin/K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : BK-51/CME-750, NQ Double Barrel ORIENTATION : Vertical

COMING	D EQUIT WILLY	11 / 11	DIVIL	THOD : BK-51/CME-750, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS: 8.	5 ft bo	ļS .	START : 6/2/06 08:	20	END : 6/12/06 10:45	LOGGER : JF/JS/MJ
	Q.(%			DISCONTINUITIES	90	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
_			1	132.7' - Fracture, 30 deg, smooth, undulating	× ×	-	-
-	133.4		5	133.4-133.6' - Fractures (3), horizontal, smooth, stepped to undulating, up to 0.03' relief	- X X X X X X X X X X X X X X X X X X X	133.4-134.4' - heavily mottled yellow, black, purple, very soft to soft	R23: 10:20-10:45
135 123.3	R23NQ 5.2 ft 1 100%		0	134.0-140.1' - Fractures (2), horizontal, smooth, stepped to undulating, up to 0.03'relief	× ;	134.4-137.0' - soft to hard, sandy lenses, green and black mottling, fine grained sandy lenses have white,	At 135.1': R-Scale = R3
_		87			× ;	black, grains very fine up to fine grained, irregularly shaped, lenses from 2 to 6 in length, hard in sandy lenses, up to 50-60% sand in some	First control on the 7 40 has
-			0		× ; × ; × ;	lenses 137.0-138.6' - mottled purple, very soft to soft	First water level = 7.4' bgs taken 6/13/06 at 17:13 At 136.6': R-Scale = R3-R4 SC-5 collected
-	138.6		0		× ;	Bottom of Boring at 138.6 ft bgs on	137.3-138.2' R-scale performed after drilling on stored samples
140				_		- 6/12/06 10:45 -	- - -
118.3						-	-
-						-	
-						-	
_						-	
145 <u> </u>				_		-	_
-						-	
_						-	-
150_ 108.3				_		- -	_
-						-	- -
							-

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PROJECT NUMBER:

338884

BPA-28

SHEET 1 OF 8

# **SOIL BORING LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687697.1 N, 2011943.3 E)

ELEVATION: 272.7 ft MSL (NGVD 29) DRILLING CONTRACTOR: A. Martin, S&ME

DRILLING EQUIPMENT AND METHOD: BK-51, 3-5/8 Tricone Bit, 24" Split Spoon and 140 lb. Automatic Hammer ORIENTATION: Vertical

				HOD: BK-51, 3-	5/8 Tricone Bit, 24" Split Spoon and 140 lb. Automatic				ORIENTATION : Vertical
WATER LEVELS : 21.2 ft bgs					START : 5/30/06 10:05 END : 6/1/06 1				LOGGER : JF/JS
DENETDATION				STANDARD PENETRATION	SOIL DESCRIPTION				COMMENTS
	INTERV	<u> </u>		TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,				DEPTH OF CASING, DRILLING RATE,
	RECOVERY (in)			MOISTURE CONTENT, RELATIVE DENSITY OR				DRILLING FLUID LOSS, TESTS, AND	
			#TYPE	6"-6"-6"-6" (N)	CONSISTENCY, SOIL STRUCTURE, MINERAL	LOGY	SYMBOLIC LOG	PP (TSF)	INSTRUMENTATION
272.7	0.0			(-7	_ Clayey Sand (SC)		1//		
-					0.0-0.3' - yellow brown, moist, medium dense, or Clay (CL)	ganics /-			-
-		8.0	SS1SS	3-3-4-5 (7)	0.3-0.7' - yellow red, mottled, moist, medium stiff	_ /-		3.0	-
-	2.0			(7)	organics				-
_	2.0					-			PT-1 collected
_	2.5				Clay (CL)				2.0-4.0'
_					2.5-3.6' - reddish brown, mottled, moist, medium	stiff -			-
_		13.0	SS2SS	5-7-12-14 (19)			(///	4.0	-
	4.5			( ' )		_	1		-
5						_			-
267.7	5.0				Clay (CL) 5.0-6.4' - reddish brown, mottled, moist, medium	otiff			_
		17.0	SS3SS	8-12-28-25	5.0-6.4 - readish brown, mottled, moist, medium	Suii -			
		17.0	33333	(40)				4.5	
	7.0			, ,					
	7.5				Clay (CL) 7.5-8.5' - reddish brown, mottled, dry to moist, st	iff _			
		12.0	SS4SS	22-27-50/4	7.3-0.5 - reddish blown, mothed, dry to moist, st				_
		12.0	00400	(77/10")		_		4.5+	_
_	9.5					_			_
10	40.0						////		_
262.7	10.0				Clay (CL) 10.0-10.3' - reddish brown, mottled, dry to moist,	stiff to /-	////		
_		3.0	SS5SS	50/3	hard	/ _		4.5+	DT 2 collected
_				(50/3")		-		4.01	PT-2 collected 10.0-11.5'
-	12.0					-			Offset: 4.1' N49E of BPA-28 Lab Results USCS: CL w/Sand
_	12.5				Clay (CL)		///		Eas Nesalis 5556. SE Wisand
_	.2.0				$\uparrow$ 12.5-12.9' - reddish brown, mottled, dry to moist,	stiff to /-	///		-
-		4.5	SS6SS	50/4.5	hard	/ -		4.5+	-
-	4			(50/4.5")		-			-
45	14.5					-			-
15 <u> </u>	15.0				Clay (CL)				_
-					15.0-15.4' - reddish brown, mottled, dry to moist, hard	stiff to /-			-
-		4.5	SS7SS	50/4.5 (50/4.5")	liaiu	/ -			-
-	17.0			(50/4.5)		-			-
-	17.0					-			Soil sampling completed at 11:50 on
-	17.5	3.0	SS8SS,		¬ Clay (CL)				5/30/06
-	17.8			50/3 (50/3")	\\ 17.0-17.8' - reddish brown, mottled, dry to moist, \\ \hard	stiff to /-			-
-				(30/0)	Begin Rock Coring at 17.8 ft bgs				
					See the next sheet for the rock core log	_			-
20						_			-



PROJECT NUMBER:

338884

BPA-28

SHEET 2 OF 8

#### **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687697.1 N, 2011943.3 E)

ELEVATION: 272.7 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD: BK-51, NQ Double Barrel ORIENTATION: Vertical WATER LEVELS: 21.2 ft bgs START: 5/30/06 10:05 END: 6/1/06 11:50 LOGGER: JF/JS DISCONTINUITIES LITHOLOGY COMMENTS 90 CORE RUN, LENGTH, AND RECOVERY (%) FRACTURES PER FOOT DESCRIPTION DEPTH AND ELEVATION BELOW SURFACE (ft) ROCK TYPE COLOR SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD <u>0</u> MINERALOGY, TEXTURE RQD(%) DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS WEATHERING, HARDNESS, AND ROCK MASS DROPS, TEST RESULTS, ETC. CHARACTERISTICS Siltstone Rock coring began at 13:05 0 17.8-17.9' - dark reddish brown, very on 5/30/06 soft, highly weathered, fine grained, R1: 13:05-13:40 on brittle 05/30/06 1 18.9' - Contact between sandstones, 5 deg and At 17.5-20.5': R-Scale = R2 Sandstone 70 deg, rough, undulating, sharp At 17.9' - dark reddish brown to light 20 gray, soft, fine sand 3 252.7 At 20.0-20.9': R-Scale = R0-17.9-25.5' - highly weathered 20.3' - Fracture, 5 deg, rough, undulating, 18.9-20.3' - light gray, hard, fine sand black stains to coarse sand, angular to subangular 20.5' - Fracture, 5 deg, rough, undulating, 19.6-19.6' - siltstone lens, 0.03' thick, R1NQ black stains 0.2' light staining on each side 0 7.7 ft 103% 20.6' - Fracture, 5 deg, rough, undulating, 20.3-24.5' - mottled, very soft, some 1 black stains black staining on surfaces, more 20.8' - Fracture, 20 deg, rough, undulating coarse at the bottom, some rip up At 22.4': R-Scale = R1 clasts (0.007') 0 0 At 24.1': R-Scale = R2 24.5-25.5' - Contact between siltstone and 24.5-25.5' - light reddish brown, very 25 0 sandstone, 15 deg and 20 deg, sharp soft to soft, very fine sand, fining 247.7 upward sequence 25.5 25.5-30.5' - light gray, hard, very fine sand to fine sand, 20 degree bedding R2: 13:55-14:10 0 25.5-33.7' - slightly weathered 0 At 27.0': R-Scale = R2 R2NQ 27.7' - very thin red lense parallel to 100 0 5 ft bedding 100% 28.0-28.4' - very thin, tan-gray, silt lenses parallel to bedding 0 At 29.2': R-Scale = R2 30 0 242.7 30.5 30.5-33.7' - fining upward sequence, R3: 14:15-14:30 0 bottom is coarse At 31.1': R-Scale = R2 0 R3NQ 5 ft 88 0 88% 33.7' - Contact between siltstone and Siltstone 1 sandstone, 30 deg, rough, undulating, sharp At 33.7' - dark reddish brown, very At 34.1': R-Scale = R2 soft, fine grained, slightly brittle 33.7-40.5' - slightly weathered 0 35 237.7 35.5 R4: 14:35-14:55 0 0 At 36.9': R-Scale = R2



PROJECT NUMBER:

338884

BPA-28

SHEET 3 OF 8

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687697.1 N, 2011943.3 E)

ELEVATION: 272.7 ft MSL (NGVD 29) DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

				THOD . BR-31, NQ Double Barrer				ORIENTATION : Vertical
WATER	LEVELS: 21	.2 ft b	ogs	START : 5/30/06 10	:05		END: 6/1/06 11:50	LOGGER : JF/JS
				DISCONTINUITIES	Ö	L	LITHOLOGY	COMMENTS
oz É	, N N N N N N N N		S	DESCRIPTION	2	Г	ROCK TYPE, COLOR,	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	(%	FRACTURES PER FOOT	DEDTIL TYPE ODIENTATION DOLIGINISO	SYMBOLIC LOG		MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
T S O A	Sol	R Q D (%)	ACT R FC	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	ABC		WEATHERING, HARDNESS, AND ROCK MASS	SMOOTHNESS, CAVING ROD
SEE	<u>8</u> – 8	R	EF.	THICKNESS, SURFACE STAINING, AND TIGHTNESS	S		CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
	R4NQ	94	1		× >	×		SC-1 collected
	5 ft 100%	54	'	38.0' - Fracture, 35 deg, rough, undulating	× > × > × >	X	38.0-38.7' - mottled blue green	35.5-36.5'
	100 /6			38.7-39.2' - Fracture zone, 35 deg, rough,	× >	Х		1
			4	undulating, dark stains	× >	<b>*</b>		1 1
40 -				<b>G</b> /	- × >	*		At 39.4': R-Scale = R2
40 <u></u> 232.7			0	39.2-45.5' - Microfractures		<b>*</b>		_
	40.5			33.2-43.3 - Microffactures	× ;	<u>}</u>	10.5.11.01	DE 45 00 45 05
			0		× >	"L	40.5-41.8' - some blue green mottling	R5: 15:00-15:25
					×	X	40.5-47.0' - fresh	
					× >	Χ		1
-			0		× >	<b>X</b>	41.8-45.5' - very dusky red, soft, fine grained, some sand	1 7
-	R5NQ				- (× )	<b>X</b>	41.8-43.8' - mottled blue green	1
-	5 ft	98	0		× >	<b>X</b> -	ŭ	At 42.7': R-Scale = R3
_	100%				(x )	3		1 4
			0		× >	Â.	43.8-45.5' - mottled blue green and	
					× >	X	dark purple, numerous surface	
45					× >	X	microfractures	1
227 7	45.5		2	<del>-</del>	- × >	*		At 45.0': R-Scale = R3
-	45.5				× >	<u>}</u>		R6: 15:30-15:55
-			0		- × ;	3		-
1 _					× >	3		<u> </u>
			0		×	X		
			0		T:::	:[	Sandstone	1 1
-	R6NQ				<b>†∷</b> ∶	:[	47.0-48.0' - very dusky red, mottled, very soft to soft, very fine sand to fine	At 47.6': R-Scale = R4
-	5 ft	100	1		× >	⇟	sand, fresh, laminations at bottom	1
-	100%			48.5' - Fracture, 60 deg and vertical, rough,	- (× )	<b>X</b> -	Siltstone	-
_			1	undulating	× ;	**	48.0-50.5' - dark reddish brown to	1 4
					×××	X.	greenish gray, heavily mottled, very soft, fresh, fine grained, bedding on 30	<u> </u>
50				49.5' - Fracture, 5 deg, rough, undulating	X X	8	degree angle	
222.7	50.5		0	_	Tŝ ŝ	3		
-	55.5				<del>***</del>	1	Sandstone	R7: 16:00-16:20
-			0		┨∷∷	<u>:</u>  -	At 50.5' - dark reddish brown to	-
-					<b>-</b>  :::		greenish gray, soft, very fine sand to fine sand, fresh	1 4
			2	51.9' - Fracture, 60 deg and vertical, rough,	<b>.</b> ∷.	1	51.0-51.6' - black mottling	At 51.6': R-Scale = R3-R4
				undulating, tight fit	<u> </u> :::	:[	52.2-55.5' - heavily mottled, disturbed	l J
	R7NQ	100	[	52.0' - Fracture, 60 deg and vertical, rough,	1:::	:[	bedding, and iron staining	1
1	5 ft 100%	100	0	undulating, tight fit	<b>]</b> :::	:[		1
-	.55,0				<b>†∷</b> ∷	:		1 1
-			0		<b>∃</b> ∷:	1		] -
-					<b>-</b>  ∷∷	: -		1 4
55			0	_	<b>.</b> :::	:L		At 54.6': R-Scale = R3-R4
217.7	55.5		I		]:::	:[		
1 7					1:::	:[	55.5-56.3' - very dark greenish gray,	R8: 08:10-08:50 on
			0		1:::	:[	fine sand, dark staining, bedding at 30 degrees, slightly disturbed	05/31/06
-					┨∷⊹	<u>:</u>  -	55.9-56.3' - no staining	-
-			0		<b>-</b>  ∷::	: -	56.3-56.8' - fine sand, dark staining,	At 56.9': R-Scale = R4
-					<b>.</b> ∷:	: -	bedding at 30 degrees, slightly	
					†	$\top$	disturbed	<del> </del>

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CORING EQUIPMENT AND METHOD: BK-51, NQ Double Barrel

PROJECT NUMBER:

338884

BPA-28

SHEET 4 OF 8

#### **ROCK CORE LOG**

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687697.1 N, 2011943.3 E)

ELEVATION: 272.7 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin, S&ME

75.5-80.5' - Microfractures

0

0

WATER LEVELS: 21.2 ft bgs START: 5/30/06 10:05 END: 6/1/06 11:50 LOGGER: JF/JS DISCONTINUITIES LITHOLOGY COMMENTS 90 CORE RUN, LENGTH, AND RECOVERY (%) FRACTURES PER FOOT DESCRIPTION DEPTH AND ELEVATION BELOW SURFACE (ft) ROCK TYPE COLOR SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND <u>0</u> MINERALOGY, TEXTURE % DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS WEATHERING, HARDNESS, AND ROCK MASS RQD( SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC. CHARACTERISTICS R8NQ 56.8-60.5' - bluish-gray, soft to hard, 100 0 5 ft fine sand to medium sand, angular to 100% subangular, bedding at 30 becoming massive at bottom (59.5-60.5') 0 At 59.2': R-Scale = R3-R4 60 0 212.7 60.5 60.5-67.2' - very dark bluish gray, fine R9: 08:55-09:20 0 grained with trace of very fine sand, soft, micaceous At 61.5': R-Scale = R3-R4 0 R9NQ 100 0 5 ft 100% 63.5-64.4' - very dark bluish gray, 0 mottled reddish brown, thin (0.04') silt lens at 64.25' with red brown staining around it 65 At 64.7': R-Scale = R3 0 64.4-66.2' - dark reddish-brown, 207.7 mottled blue gray, thin (<0.01') 65.5 siltstone to fine sandstone lens at 65.2' R10: 09:25-09:45 65.8' - Fracture, 60 deg, rough, undulating, 0 tight fit 66.2-67.2' - dark reddish-brown, fine 0 67.2-73.0' - dark greenish gray, soft to R10NQ hard, fine sand to medium sand, 94 0 5 ft coarser at bottom, remnant 30 deg At 68.0': R-Scale = R3-R4 100% bedding plane 67.7-71.2' - reddish brown 0 0 202.7 SC-2 collected 70.5 69 25-70 2' 70.5-71.2' - becoming coarse grained, R11: 09:50-10:10 30 deg bedding plane with clasts at bottom (70.9-71') 0 Siltstone 0 71.2-73.0' - multi-colored (yellow-tan, At 72.0': R-Scale = R2 bluish-gray, red brown), thinly mottled, R11NQ very soft, fresh, fine grained, 72.6-73.0' - Fracture zone (2), 5 deg, rough, 5 ft 100% 71 3 gradational, banded, 30 deg bedding undulating, tight fit At 73.0-73.9': R-Scale = R0 plane 73.0-74.0 - Člay seam, heavily fractured/chipped rock fragments with clay, Siltstone 10+ highly weathered soil-like fragments are 73.0-74.0' - multi-colored (yellow-tan, bluish-gray, red brown), mottled, very slickensided At 74.3': R-Scale = R3-R4 soft, highly weathered, fine grained, 0 soil-like characteristics 197.7 75.5 Siltstone

74.0-74.3' - multi-colored (yellow-tan,

bluish-gray, red brown), mottled, fresh, lithified, transitional stage between paled soil horizon and bedrock R12: 10:15-10:40

At 77.0': R-Scale = R3-R4



PROJECT NUMBER:

338884

BPA-28

SHEET 5 OF 8

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687697.1 N, 2011943.3 E)

ELEVATION: 272.7 ft MSL (NGVD 29) DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

				THOD . BR-31, NQ Double Barrer				ORIENTATION : Vertical
WATER	LEVELS: 21	.2 ft b	gs	START : 5/30/06 10	:05	_	END: 6/1/06 11:50	LOGGER : JF/JS
	(G			DISCONTINUITIES	ڻ	L	LITHOLOGY	COMMENTS
oz Ê	CORE RUN, LENGTH, AND RECOVERY (%)		SI	DESCRIPTION	SYMBOLIC LOG	Г	ROCK TYPE, COLOR,	OUTE AND DEDERING
EPTH AND EVATION ELOW JRFACE (ft)	₽ ^H	(%	N TO	DEDTIL TYPE OPENITATION POLICINISO	┪;		MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
T NO S	SOV	R Q D (%)	ZCT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	ABC ABC		WEATHERING, HARDNESS, AND ROCK MASS	SMOOTHNESS, CAVING ROD
SEE	855	8	FRACTURES PER FOOT	THICKNESS, SURFACE STAINING, AND TIGHTNESS	S		CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
	R12NQ	100	0		- × ×	X_	Siltstone	
	5 ft 100%	100			×	X	At 74.3' - dark reddish brown, mottled	
	100 /6				××	Χ	bluish gray, very soft to soft, fresh, fine grained, remnant 30 degree bedding	1
-			0		<b>∀</b> ×	<b>X</b>	plane, large iron stain (0.007-0.01') at	At 79.0': R-Scale = R3-R4
-					××	<b>X</b>	75'	-
80 <u> </u>			0	_	×	<u>-</u>	75.5-81.9' - mottled light yellow, large	_
192.7	80.5				×	Â.	spot (0.3') at 77', fine to medium sand at bottom (0.2')	_
			0		××	X	80.5-81.9' - no fine sand	R13: 10:45-11:15
			"		××	χĪ		1
-					××	XT		1
-			1		××	*	81.9-84.0' - heavily mottled with	l -
-	DAONO			82.3' - Fracture, 60 deg, rough, undulating	-Î×	1	blue-green-gray, yellow, and purple	-
	R13NQ 5 ft	100	0		- × ×	1		
	100%				×	XL		
					×	X		At 83.7': R-Scale = R3-R4
1 1			0		××	ΧŢ	84.0-85.5' - blue green mottling along	1
05 -					××	*	bedding	1
85 <u> </u>			0	_	- ×̂	}-	-	_
-	85.5				_ ×	1	05 5 07 51 be a discount of the coldinary	- I
			0		××	X	85.5-87.5' - heavily mottled with white, green, and purple, more laminated	R14: 11:20-11:45
					×	X	bedding in last 0.4'	
					××	χĪ	-	1
-			1	86.9' - Fracture, 70 deg, rough, undulating,	×	*		1
-	R14NQ			bedrock flaking on surface, heavily mottled purple and green, yellow-red around fracture,	√× ×	<u>}</u>	87.5-88.7' - heavily mottled with dark	-
-	5 ft	100	0	0.02' relief	– ×	<u>}</u>	yellow, purple, dark red, dark green,	At 87.9': R-Scale = R4
	102%				××	<b>X</b>	very soft to soft, finer grained then	_
			3	88.7' - Fracture, 50 deg and 50 deg, smooth to	×××	XL	siltstone above, bedding visible at 150 degrees	
			١	slickensided, undulating, some healed	×××	X	88.7-90.5' - heavily mottled with dark	
90				fractures with white hard infilling	××	X [†]	yellow, red, purple, soft to hard, fine to	1
182.7			0	<del>-</del>	√× ×	<del>}</del>	medium white sand throughout	At 90.0': R-Scale = R3-R4
-	90.5		$\sim$		<del> </del> Ŷ	$\frac{2}{\sqrt{1}}$	90.2-90.4' - fine to medium sandstone	R15: 13:15-13:45
-			1		- × ×	<b>*</b>	Siltstone	11.0. 10.10 10.40
				91.3' - Fracture, 30 deg, slickensided,	×	<u></u>	90.5-91.8' - multi-colored (yellow-tan,	_
			2	undulating	<b>J</b> ∻	$\frac{1}{\sqrt{2}}$	bluish-gray, red brown), thinly mottled,	
]				91.8-91.9' - Fracture zone, 20 deg,	×	<b>/</b> [k	very soft, fresh, gradational contact, banded, fine sand in top, 30 degree	1
	R15NQ			slickensided, top is planar, bottom is undulating	T ×	<b>X</b>	bedding plane	] 1
-	5 ft	98	1	92.8' - Fracture, 15 deg, rough, undulating,	⊢x̂	<u>}</u>	Siltstone	-
-	100%			thin pencil tip wide white (silica) infilling along	⊢×	1	At 91.8' - dark reddish brown, mottled	-
-			1	surface	× ×	*	blue green, very soft, fresh, seems massive but breaks have 15-30	At 04 0k D Cools = D4
				94.2-94.5' - Fracture zone, 60 deg, rough,	××	X_	breaks along same bedding	At 94.0': R-Scale = R4
95_			0	undulating, slight white infilling	××	X	orientation, trace fine sand to very fine	
177.7	95.5		'	_	×	X_	sand	
				95.5-100.5' - Microfractures	√× ×	XT		R16: 13:50-14:24
-			0		√× ×	*		-
-					- ×	1		-
			0		××	<b>X</b>	96.7' - blue green clay clast	]
					××	XL		]
					×	×		

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PROJECT NUMBER:	BORING NUMBER:					_
338884	BPA-28	SHEET	6	OF	8	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687697.1 N, 2011943.3 E)

ELEVATION: 272.7 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

				I HOD . BK-31, NQ Double Barrel				ORIENTATION : Vertical
WATER	LEVELS : 21	.2 ft b	gs	START : 5/30/06 10:	05	_	END : 6/1/06 11:50	LOGGER : JF/JS
	(9)			DISCONTINUITIES	ŋ	L	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	(%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS,	SYMBOLIC LOG		ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
DEPTH ELEVA BELOV SURFA		RQD(%)	FRACT PER F	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMB		AND ROCK MASS CHARACTERISTICS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
_	R16NQ 5 ft 100%	100	0	-	× : × : × :	<u>×</u>		- At 98.3': R-Scale = R3-R4 -
-			0	-	×			_
100 172.7	100.5		0		× : × : × :	<u>X</u>	-	
-			0	-	× : × : × :		100.5-103.5' - dark reddish brown, very soft to soft	R17: 14:30-15:00 – –
-			0	-	× : × : × :	X X X	101.9-102.9' - mottled blue-green-gray	_ At 102.2': R-Scale = R3-R4 _
-	R17NQ 5 ft 100%	100	0	-	× : × : × :	X X -	102.9-103.5' - no medium sand	SC-3 collected 102.6-103.5'
-			0	-	× :	*	103.5-105.5' - heavily mottled blue green, soft	-
105 167.7	105.5		0		× : × : × :		-	
-			0	-	 		Sandstone 105.5-106.4' - dark reddish gray, soft to hard, fine sand, fresh, medium	R18: 15:05-15:30
-			0	-	× : × : × :	X X X	\bedding at bottom / Siltstone 106.4-109.5' - dark reddish gray,	At 106.5': R-Scale = R3-R4
-	R18NQ 5 ft 100%	100	0	-	× :		mottled blue-green-gray, soft, fresh, fine grained	_
-			0	-	× : × : × :	<u>*</u>	109.0-109.5' - fine sand	_
110 162.7	110.5		0		× :		Sandstone - 109.5-110.5' - dark reddish gray, soft to hard, fine sand, fresh, no disturbed	
-			0	- -	× : × : × :		Siltstone At 110.5' - dark reddish brown, mottled	R19: 15:35-16:05 -
-	Diono		0	- -	× : × : × :	*	blue-green-gray, very soft to soft, fresh, fine grained, trace medium sand	-
-	R19NQ 5 ft 100%	100	0	- -	× : × : × : × :	<b>}</b>		- At 113.5': R-Scale = R3-R4
-			0	-	× : × : × :	*	113.9-115.5' - more fine sand at bottom, gradual fining upward	
115 157.7 -	115.5		0		× : × : × :	<b>}</b>	-	R20: 16:05-16:45
-			0	- 175.5-125.5 - MIGOLIAGULIES 	× :	*		At 116.2': R-Scale = R3-R4
-			0	- -	×	*		-
					ľ	1		
						L		



PROJECT NUMBER:

338884

BPA-28

SHEET 7 OF 8

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687697.1 N, 2011943.3 E)

ELEVATION: 272.7 ft MSL (NGVD 29) DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS : 21	.2 ft b	gs	START : 5/30/06 10	:05	END: 6/1/06 11:50	LOGGER : JF/JS
	(9)			DISCONTINUITIES		LITHOLOGY	COMMENTS
QZ €	Ž VAND (§)		ES	DESCRIPTION	2.00	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)		R Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
_	R20NQ 5 ft	100	0		× >	-	-
-	100%		0	-	× > × > × > × >	-	-
120 152.7	120.5		0	_	× > × > × > × >		]
_	·		0		× > × > × > × >	120.5-121.0' - mottled purple	R21: 08:20-09:00 on 06/01/06 - At 121.1': R-Scale = R3-R4
-	50410		0	-	× > × > × >	400 5 400 41 minlaudita alauniaa	-
-	R21NQ 5 ft 100%	100	0		× > × > × > × >	122.5-123.1' - pink-white clay pieces, gravel sized	
-			0	-	× > × > × > × >	-	-
125 <u> </u>	125.5		0		× > × > × >	-	R22: 09:05-09:40
-			0		× > × > × > × >	126.7-127.0' - mottled purple	-
	R22NQ 5 ft	100	0	_	× > × > × > × >	127.7-128.6' - mottled purple	At 127.1': R-Scale = R3-R4
_	100%	100	0		× > × > × >	_	]
130 <u></u> 142.7			0		× > × > × > × >	_	At 129.2': R-Scale = R3-R4
-	130.5		0	-	× > × > × > × >	130.5-134.3' - small transition (0.2')	R23: 10:00-10:30
-			0		× > × > × > × >	_	
_	R23NQ 5 ft 100%	100	0		× >		
_			0		× > × > × > × >	- Sandstone	At 134.0': R-Scale = R3-R4
135 <u> </u>	135.5		0		     	At 134.3' - reddish brown, soft to hard, fine sand to medium sand, angular, fresh, more coarse at bottom	At 134.8': R-Scale = R3-R4 —
-			0		     	- _ 136.2-137.4' - weak red, mottled	R24: 10:35-10:45 - -
-			0		     	blue-green - -	]



PROJECT NUMBER:	BORING NUMBER:					
338884	BPA-28	SHEET	8	OF	8	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687697.1 N, 2011943.3 E)

ELEVATION: 272.7 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD: BK-51, NQ Double Barrel ORIENTATION: Vertical

CORING	EQUIFIVIEN	II AIN	D IVIE	THOD : BK-51, NQ Double Barrel				ORIENTATION : Vertical
WATER	LEVELS : 21	.2 ft b	gs	START : 5/30/06 10	:05	_	END : 6/1/06 11:50	LOGGER : JF/JS
	<u>(%</u>			DISCONTINUITIES	၂ ဗွ	$\vdash$	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG		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.
_	R24NQ 5 ft	100	0		- : : :	: 1	37.4-150.7' - light gray to reddish	-
-	100%				- ∷:	: - ^g	ray, medium sand to coarse sand	-
-			0		<b>-</b>  ∷∷	:-		-
- 140					<b>-</b>  ∷:	:-		At 139.2': R-Scale = R3-R4 _
140 132.7	140.5		0	_	┨∷	: -		_
-	140.5				<b>∃</b> ∷:	:-		R25: 10:50-11:05
-			0		<b> </b> ∷:	:-		-
-					<b>†</b> ∷:	:-		-
-			0		<b>†∷</b> ∶	:-		-
-	R25NQ				<b> </b> ∷∷	: -		-
-	5 ft 100%	100	0		1:::	: -		-
-					<b> </b> :::	:[		-
_			0		]:::	:[		At 144.0': R-Scale = R4
145					<b> </b>  :::	:[		-
127.7	145.5		0	_	]:::	:[		
_			0		]:::	:[		R26: 11:10-11:20
			U		]:::	:[		SC-4 collected 145.5-146.4'
			0		]:::		46.6-147.2' - light yellow-orange	145.5-140.4
			U		]:::	: SI	surface staining on core	_
_	R26NQ 5 ft	100	0		]:::	:[	47.0.440.01	_
_	100%	100			<u> </u> :::		47.9-148.0' - very faint 30 degree bedding plane	_
_			0		<u> </u> :::		48.0-148.5' - coarse sand 48.6-150.5' - fine to medium grained	At 148.6': R-Scale = R3-R4
_					<b> </b> :::	:_ g	ravel sized dark reddish brown	_
150_			0	_	<b>.</b> :::		iltstone clasts < 1% throughout core 147.45 to 150.5')	_
122.7	150.5				<b>.</b> :::	:  `	147.40 10 100.0 )	
_			0		× ;		Siltstone	R27: 11:25-11:50 -
_					× ;		50.7-155.5' - dark reddish brown, rery soft, fresh, fine grained	_
_			0		× ;	1		-
_	DOZNIO				× ;	X 1:	52.0-154.2' - mottled blue-green, fine medium gravel sized pink-white clay	-
_	R27NQ 5 ft	100	0		- (x ) x )	}_ c	lasts	First water level = 21.2' bgs
-	100%				x 3	*		taken 6/13/06 at 09:57
-			0		× ;	<b>*</b>		-
-					× ;	<u>}</u>		At 154.2': R-Scale = R3-R4 _
155 <u> </u>			0	_	× ;	}		R-scale performed after
''''-	155.5				lŵ S	<del>-</del>	Bottom of Boring at 155.5 ft bgs on	drilling on stored samples
-					-		6/1/06 11:50	
-					-	F		-
-					-	F		-
					Ł	F		
						丄		l



PROJECT NUMBER:

338884

BORING NUMBER:

BPA-29

SHEET 1 OF 5

# **SOIL BORING LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687642.7 N, 2011979.1 E)

ELEVATION: 276.4 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin, S&ME

DRILLING EQUIPMENT AND METHOD: BK-51, Tricone Bit, 24" Split Spoon, 140 lb. Hammer, and Cathead ORIENTATION: Vertical

	LEVELS			TIOD : BIC OI, II	START : 5/10/06 09:15         END : 5/11/06 10:10         LOGGER : DT
			RADE (ft)	OTANDADD.	SOIL DESCRIPTION COMMENTS
	INTERV		( -/	STANDARD PENETRATION	9
			ERY (in)	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR  DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND
			#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
276.4 - -	0.0	14.0	SS1SS	4-4-7-9 (11)	Lean Clay (CL) 0.0-1.2' - reddish yellow, moist, stiff, low plasticity, trace fine sand, trace organics
-	2.0				-
-       	2.5	19.0	SS2SS	17-24-36-42 (60)	Clayey Sand (SC) 2.5-4.1' - very pale brown, moist, very dense, fine to coarse grained, subangular
5 -	4.5				1
271.4 - - -	5.0	23.0	SS3SS	20-28-37-46 (65)	Sandy Silt (ML) 5.0-6.9' - pale yellow, moist, very dense, fine to coarse grained, subangular
-	7.0				<del></del>
- - -	7.5	11.0	SS4SS	37-50/5	Silty Sand (SM) 7.5-8.4' - pale yellow, moist, very dense, fine to coarse grained, subangular, some clay
-	9.5			(50/5")	1
10 <u> </u>	10.0	5.0	SS5SS	50/5 (50/5")	Silty Sand (SM)  10.0-10.4' - pale yellow, moist, very dense, fine to coarse grained, subangular, some clay
_	12.0				
- - -	12.5	3.0	SS6SS	50/3	Silty Sand (SM)  12.5-12.8' - pale yellow, moist, very dense, fine to coarse grained, subangular, some clay
_	14.5			(50/3")	<b>-</b>
15 <u> </u>	15.0				Siltstone × ×
- - -		12.0	SS7SS	30-38-50/3 (88/9")	15.0-16.0' - dark reddish brown, hard, platy, black oxidized zones
-	17.0				Soil sampling completed at 10:55 on 5/10/06
- -	17.5 \17.7	2.0	SS8SS.	50/2 (50/2")	Siltstone 17.5-17.7' - reddish brown, hard, platy, black oxidized zones Begin Rock Coring at 17.7 ft bgs
- 20					See the next sheet for the rock core log
			L		<u>I_I</u>



PROJECT NUMBER:

338884

BPA-29

SHEET 2 OF 5

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687642.7 N, 2011979.1 E)

ELEVATION: 276.4 ft MSL (NGVD 29) DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS: 19.1 ft bgs		gs	START : 5/10/06 09	START : 5/10/06 09:15		END: 5/11/06 10:10	LOGGER : DT	
	(9)			DISCONTINUITIES	Ţ	ڻ ا	LITHOLOGY	COMMENTS	
QN (£)	N, AND 3Y (%	_	ZES T	DESCRIPTION	] 3		ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS		SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.	
_	17.7		2	17.8' - Fracture, horizontal, rough, undulating, tight fit	- × ×	×	Siltstone 17.7-23.0' - reddish brown, mottled	Rock coring began at 11:10 - on 5/10/06	
_			0	17.9' - Fracture, 25 deg, rough, stepped, tight fit	- × - × - ×	*	greenish gray, very soft to soft, slightly weathered, fresh, trace fine sand 18.0-23.0' - pale brown	R1: 12:10-12:24 and 12:25- 12:43 on 05/10/06	
20 <u> </u>			1	- 20.3' - Fracture, horizontal, rough, undulating,		∷⊁	-	——————————————————————————————————————	
_	R1NQ		0	tight fit	-× ×	* *		-	
_	7.8 ft 92%	84	0		- × × × × ×	<b>X</b>		-	
_			0		×	∶×「	Sandstone 23.0-26.4' - greenish gray, soft to	-	
_			0		-	-	hard, thick bedding, fine sand to medium sand, subangular, slightly	SC-1 collected	
25_ 251.4	25.5		0	-	-	::[ :::[	weathered, fresh, fining upward sequence	23.5-24.4' -	
_			0			::[ :::[		R2: 12:50-13:05 and 13:08- 13:45	
_			1	26.7' - Fracture, 20 deg, rough, undulating, tight fit		7	Conglomerate 26.4-26.9' - bluish gray, very soft to soft, very thin bedding, fine sand to	=	
-			0		- × - × - ×	X X X	fine gravel, slightly weathered, part of above fining upward sequence  Siltstone At 26.9' - grayish red, soft	-	
-			1	29.0' - Fracture, 25 deg, smooth, undulating, loose fit	- × - ×	* *	26.9-29.0' - slightly weathered 29.0-40.6' - fresh	_ _	
30 246.4	R2NQ 10 ft	94	0	-		X	-	_	
-	96%		1		- × - × - ×	* <del>-</del>		- -	
-			1	32.1' - Fracture, horizontal, smooth, undulating, tight fit	- × × - ×	* * *		- -	
-			1	32.6-32.9 - Fracture, 60 deg, smooth, undulating, loose fit	- × - × - ×	X		- -	
-			0		- ×	* <del>-</del>		- -	
35 241.4 _	35.5		0 ※※	- 35.5-45.5' - Microfractures	- × - ×	*	-	R3: 13:50-14:21 and 14:25-	
-			1	36.4' - Fracture, 35 deg, rough, stepped, tight	- × - × - ×	: <b>*</b>	35.9-37.0' - white silt clasts	14:48 –	
			0	fit	- × - × - ×	*		-	



PROJECT NUMBER:	BORING NUMBER:				
338884	RPΔ-29	SHEET	3 OF	5	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687642.7 N, 2011979.1 E)

ELEVATION: 276.4 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

				THOD . BR-31, NQ Double Barrer			ORIENTATION : Vertical
WATER	LEVELS: 19	9.1 ft b	ogs	START : 5/10/06 09	:15	END : 5/11/06 10:10	LOGGER : DT
	(9)	L		DISCONTINUITIES	ŋ	LITHOLOGY	COMMENTS
اع و	CORE RUN, LENGTH, AND RECOVERY (%)		ပ္သ	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	
DEPTH AND ELEVATION BELOW SURFACE (ft)	Z Y A	્ર	FRACTURES PER FOOT		┫ 음	MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING,
TA SA	STE OVI	(%) Q D	FE	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	BO	WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
	ÜÜÜ	ø	RA	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	Σ	AND ROCK MASS CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
ошшо	Olk	~	μА	11110141200, 00141702 01741410, 7442 11011111200		CHARACTERISTICS	
-			0		- × ;	-	-
					- × ;	_	_
					× >		
1 7			0		- × ;		-
I					<b>-</b>  ×;	<del> -</del>	-
40	50110		0	_	- <b> </b> × ;		
236.4	R3NQ 10 ft	77			× >		_
	100%	′′		40.6' - Fracture, horizontal, smooth, planar,	<b>1</b> × ?	40.6-43.7' - slightly weathered	
	,		2	loose fit	1× ;	Ť ,	-
-				41.2' - Fracture, 60 deg, smooth, planar, tight	- <b> </b> × >	-	-
			2	fit 41.7' Fracture 20 deg smooth planer tight	× ;	<u></u>	-
			_	41.7' - Fracture, 30 deg, smooth, planar, tight fit	××		
1 7				42.1' - Fracture, 50 deg, rough, undulating,	- × ;		<u> </u>
			2	loose fit	- × ;	<b>-</b>	Coring rate slows
-				42.7' - Fracture, 10 deg, smooth, planar, loose	- × ;	-	-
			2	fit 42.9' - Fracture, 50 deg, rough, undulating,	1	Sandstone	] -
			-	tight fit	1:::	43.7-47.9' - light gray, banded	
45				43.5' - Fracture, horizontal, rough, undulating,	<b>1</b> :::	greenish gray and brownish gray, soft,	-
231 7			0	loose fit	<b>┤</b> ∷∶	fine sand to medium sand, fresh, larger grained beds are lighter, finer	_
	45.5			43.7' - Fracture, smooth, planar, loose fit	<b>-</b>  ∷∷	grained beds are darker, bedding is	D4: 45:00 45:45   45:47
			2	45.6' - Fracture, horizontal, rough, undulating,	]::::	undulatory	R4: 15:00-15:15 and 15:17- 15:31 -
				loose fit 45.7' - Fracture, 60 deg, rough, undulating,	1:::		15.51
				loose fit	<b>†∷</b> ∶	-	-
-			0	10036 III		-	-
					4:::		_
			ر ا				
			2	47.9' - Fracture, horizontal, rough, undulating,	- × ;	Siltstone	
-			1	loose fit 48.1' - Fracture, horizontal, smooth, planar,	- <b> </b> × ;	47.9-48.8' - dark gray, soft, laminated bedding, fresh, flat lying, almost fissile	-
-				tight fit	- :::	and shale-like, upper surface eroded	-
				48.6' - Fracture, 10 deg, rough, undulating,	4:::	at contact with sandstone indicative of	_
50				loose fit	:::	scour	
226.4	R4NQ		0	_	<b>7∷</b> ∶	Sandstone	
1 -	10 ft	89.5			<b>1∷</b> ∶	48.8-55.5' - light gray, soft, massive	-
-	95%		0		<b>-</b>  :::	bedding, fine sand to medium sand, fresh	-
					<b>_</b>  ∷∷		_
			[		[:::		
			0		<b>1</b> :::		_
-					┨∷∷	-	-
-			0		<b>-</b> [∷:	-	-
					<b>J</b> ::::	_	]
					1:::		
1 1			0		1:::		_
<b> </b>			0		<b>-</b>  ∷∷	<del> </del>	-
55 <u> </u>				-	4:::	_	
221.4	55.5		$\boxtimes$		:::		_
			[	55.5-65.5' - Microfractures	××	Siltstone	R5: 15:35-16:00 and 16:02-
1 1			0		×	- At 55.5' - grayish red, soft, laminated	16:30 -
					<b>-</b>  × >	bedding, fresh, thin, coarser grained zones up to very fine sandstone	-
			0		_ × ;	<ul> <li>(lighter colored-greenish gray and light</li> </ul>	-
			الله			gray), harder at bottom	
$\vdash$					-¥÷		<del>-</del>
					1		
ldot							

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PROJECT NUMBER:	BORING NUMBER:			
338884	BPA-29	SHEET	4 OF	5

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687642.7 N, 2011979.1 E)

ELEVATION: 276.4 ft MSL (NGVD 29) DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS: 19	).1 ft b	gs	START : 5/10/06 09	:15	END : 5/11/06 10:10	LOGGER : DT
	- (%)			DISCONTINUITIES	90	LITHOLOGY	COMMENTS
QZ €	AND %	_	ES T	DESCRIPTION	CLC	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
-			0		× × × ×	-	-
-			0		× × × × × × × ×		-
60 <u></u> 216.4	R5NQ	00	1	- -	× × × × × ×	_	_
	10 ft 98%	90	2	60.6' - Fracture, horizontal, smooth, planar, loose fit	× × × × × ×	61.0-62.0' - bluish green silt inclusions	-
_			2	61.8' - Fracture, 20 deg, rough, undulating, tight fit	× × × × × ×	_	_
			1	62.2' - Fracture, 45 deg, rough, undulating, tight fit 62.9' - Fracture, horizontal, smooth, undulating, loose fit	× × × × × ×	- -	-
-			0	undulating, loose iit	× × × × × ×	- -	-
65 211.4	65.5		2	64.9' - Fracture, 60 deg, rough, undulating,	× × × × × ×	_	_
			0	65.3' - Fracture, horizontal, smooth, undulating, loose fit	× × × × × ×	_	R6: 07:43-08:03 and 08:04-08:22 on 05/11/06 -
			1		× × × × × ×	_ _	_
_			0	67.5' - Fracture, 60 deg, rough, undulating, tight fit	× × × × × ×		_
-			0		× × × × × ×	Siltstone 69.1-75.0' - dark bluish gray, soft,	-
70 206.4	R6NQ 10 ft	91	0	_	× × × × × ×	fresh, some laminated beds, some very fine sandstone, gradual change from reddish brown siltstone at 69.0' to	
-	99%		2	71.0' - Fracture, 10 deg, rough, undulating, tight fit	× × × × × ×	70.5', light olive brown and very dark red mottling	-
-			1	71.3' - Fracture, 10 deg, smooth, undulating, loose fit 72.1' - Fracture, 10 deg, rough, undulating,	× × × × × ×	-	-
-			1	loose fit  73.4' - Fracture, 50 deg, rough, undulating,	× ×   × ×   × ×	-	-
75			0	tight fit	× × × × × ×	- 73.8-74.1' - green mottling -	-
75 201.4	75.5		1	75.3' - Fracture, 10 deg, smooth, undulating, loose fit	×. ×   	Sandstone  75.0-83.6' - light bluish gray, soft, fine sand, fresh, 1 to 3% medium grained	R7: 08:32-08:50 and 08:52-
			0		       	sand, fresh, 1 to 5% friedum grained sand in sandier beds, coarsens with depth 75.0-80.0' - interbedded siltstone and	09:12 -
-			0		 	sandstone, becomes sandstone at bottom	-

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PROJECT NUMBER:	BORING NUMBER:					
338884	BPA-29	SHEET	5	OF	5	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687642.7 N, 2011979.1 E)

ELEVATION: 276.4 ft MSL (NGVD 29) DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD: BK-51, NQ Double Barrel ORIENTATION: Vertical

				THOD : BK-51, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS : 19	9.1 ft b	ogs	START : 5/10/06 09	:15	END : 5/11/06 10:10	LOGGER : DT
	(%)			DISCONTINUITIES	90	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
-			1	77.9' - Fracture, 20 deg, smooth, undulating, tight fit		-	
- 80			0	_		- -	_
196.4 - -	R7NQ 10 ft 99%	93	1	81.0' - Fracture, 70 deg, rough, undulating,		_ -	
_			1	tight fit 81.6' - Fracture, horizontal, rough, undulating, loose fit		- -	
-			0		× ×	- - Siltstone	
85			0	- - -	× × × × × × × ×	At 83.6' - grayish red to grayish green, mottled grayish green and grayish red and banded, soft, laminated to medium bedding, fresh, becomes	
191.4 - -	85.5		2	85.6' - Fracture, horizontal, rough, undulating, loose fit	× × × × × ×	redum bedding, fresh, becomes redder with depth, grades to sandstone	R8: 09:20-09:41 and 09:45- 10:03
- -			0	- -	× × × × × × × ×	-	
-			1	88.4' - Fracture, horizontal, smooth, undulating, loose fit	× × × × × ×	-	
90 186.4	R8NQ		1		× × × × × × × ×	90.0-91.0' - interbedded with very fine	-
_	10 ft 100%	93	2	90.6' - Fracture, 10 deg, smooth, undulating, loose fit 91.0' - Fracture, horizontal, smooth, planar,	× × × ×	- sandstone stringers - light gray to grayish green Sandstone	
-			0	loose fit		<ul> <li>91.0-95.1' - light gray, mottled grayish red, soft, medium to thick bedding, fine sand to medium sand, fresh,</li> <li>coarsens with depth</li> </ul>	SC-2 collected 91.9-92.7'
-			0	93.1' - Fracture, 10 deg, rough, stepped, tight fit		_ _ _	First water level = 19.1' bgs taken 5/11/06 at 17:38; second water level = 22.8' bgs taken 5/12/06 at 15:40
95 <u> </u>	95.5		2	94.9' - Fracture, horizontal, smooth, — undulating, loose fit	× ×	- 94.3-95.1' - medium to coarse grained sand, rip-up clay clasts  Siltstone	R-scale not performed on rock core samples —
- - - -				95.3' - Fracture, 25 deg, slickensided, undulating, loose fit	-	95.1-95.5' - dark gray, very soft to soft, highly weathered, trace sand 95.2-95.3' - clay seam Bottom of Boring at 95.5 ft bgs on 5/11/06 10:10	



PROJECT NUMBER:	BORING NUMBER:
338884	BPA-30

#### **SOIL BORING LOG**

SHEET 1 OF 5

 PROJECT : PEC COLA, New Hill, NC
 LOCATION : (NAD 27) (687781.4 N, 2011981.6 E)

 ELEVATION : 269.2 ft MSL (NGVD 29)
 DRILLING CONTRACTOR : A. Martin, S&ME

DRILLING EQUIPMENT AND METHOD: BK-51. Tricone Bit. 24" Split Spoon. 140 lb. Hammer and Cathead ORIENTATION: Vertical

DRILLIN	G EQUIF	PMENT A	AND MET	THOD : BK-51, Tr	icone Bit, 24" Split Spoon, 140 lb. Hammer and Cathead		ORIENTATION : Vertical
WATER	LEVELS	S : 5.9 ft l	ogs		START : 5/8/06 09:30 END : 5/	9/06 13	:25 LOGGER : DT
DEPTH B	ELOW EX	(ISTING (	SRADE (ft)	STANDARD	SOIL DESCRIPTION	(2)	COMMENTS
	INTERV	AL (ft)		PENETRATION TEST RESULTS		SYMBOLIC LOG	
		RECOV	ERY (in)	TEST NESOLTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,	SE	DEPTH OF CASING, DRILLING RATE,
			#TYPE	6"-6"-6"	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	MBC	DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
			#1111 =	(N)	,	S	
269.2	0.0				Fat Clay (CH)		
_					0.0-1.5'- strong brown and gray, mottled, moist, medium stiff, medium plasticity		-
-		18.0	SS1SS		modum sun, modum plasticity		-
-	0.0			(8)			-
-	2.0					1 1	-
-	2.5				Fat Clay (CH)		-
-					2.5-3.8' - dark reddish brown, moist, stiff, low plasticity	<b>-</b>	-
-		16.0	SS2SS	4-6-8-17		<b>-</b>	-
_				(14)			-
	4.5					]	_
5							
264.2	5.0				Clay (CL)		
_					5.0-6.1' - dark reddish brown, moist, hard, low plasticity	1///	-
-		13.0	SS3SS			-1//4	-
-	7.0			(39)		1 1	-
-	7.0					1 1	-
-	7.5				Clay (CL)	<del> </del>	-
-	7.0				7.5-8.2' - dark reddish brown, moist, hard, low plasticity	<i>¥///</i>	-
-		8.0	SS4SS	13-19-34-28		777	-
_				(53)		] ]	_
	9.5						
10							
259.2	10.0				Clay (CL)		
_					10.0-11.3' - reddish brown, moist, hard, low plasticity, black oxidized nodules	1///	-
_		15.5	SS5SS	18-22-50/3.5 (72/9.5")	Black Charles Troubles	1///	-
-	40.0			(72/9.5)		1 1	-
-	12.0					1 1	-
-	12.5				Clay (CL)		-
-	0				12.5-13.5' - dark reddish brown, moist, hard, low	<i>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</i>	-
_		12.0	SS6SS	28-50	plasticity, slickensided	_1///4	-
_				(50")		1	_
	14.5					] [	_
15_						⊥ l	
254.2	15.0	3.0	SS7SS	50.10	Clay (CL)		Soil sampling completed at 11:20 on 5/8/06
	15.3			50/3 (50/3")	15.0-15.3' - dark reddish brown, moist, hard, low plasticity, slickensided	7	
-				(00/0)	Begin Rock Coring at 15.5 ft bgs	1 1	-
-					See the next sheet for the rock core log	1	-
-						1	-
-						4	-
-						4	-
_						] [	_
						J	
]						] [	_
20						1	-
						11	



PROJECT NUMBER:

338884

BORING NUMBER:

BPA-30

SHEET 2 OF 5

# **ROCK CORE LOG**

ORIENTATION : Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687781.4 N, 2011981.6 E)

ELEVATION: 269.2 ft MSL (NGVD 29) DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD: BK-51, NQ Double Barrel

00		,		THOD . BR-31, NQ Double Barrer			ORIENTATION : Vertical
WATER	LEVELS: 5.	9 ft bo	as .	START : 5/8/06 09:	30	END : 5/9/06 13:25	LOGGER : DT
	(9			DISCONTINUITIES	G	LITHOLOGY	COMMENTS
oz €	I. ND Y (%)		S	DESCRIPTION	2	ROCK TYPE, COLOR,	
₹Ē. 병	K, A ER, A	(%) Q	E P		┫ 을	MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
F A Q A	ZE F	) <u> </u>	Z.	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	β	WEATHERING, HARDNESS, AND ROCK MASS	SMOOTHNESS, CAVING ROD
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	a Q	FRACTURES PER FOOT	THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
	15.5	_				× Siltstone	Rock coring began at 11:25
-			1 1	15.9-16.2' - Fracture, 70 deg, smooth,	×××	15.5-17.0' - pale red, soft, highly	on 5/8/06
l _				undulating	××	weathered to completely weathered,	_
				16.6' - Fracture, horizontal, rough, undulating	×	weathered in part, fine grained, some	R1: 12:53-13:10 and 13:12-
-			2	16.9' - Fracture, horizontal, rough, undulating	ľ	sand	13:37 on 05/08/06 -
-					1::	Sandstone 17.0-20.2' - soft, medium bedding, fine	-
-			1	17.7' - Fracture, horizontal, rough, undulating	- ∷	sand to medium sand, subrounded to	-
l _					_ ∷	subangular, highly weathered to	_
			2		1::	completely weathered, fresh, some silt,	
			-	19.2' - Fracture, horizontal, rough, undulating	]∷	fine grained	
20				19.4' - Fracture, horizontal, rough, undulating	1::	<u>:</u> [	-
249.2	R1NQ		1	19.7' - Fracture, 10 deg, rough, undulating	1::	: —	_
-	10 ft	0			×	Siltstone	-
_	100%		4	20.01 Fracture EE day rough undulating	×	At 20.2' - pale red, mottled reddish black, very soft, highly weathered to	_
				20.9' - Fracture, 55 deg, rough, undulating 21.0' - Fracture, horizontal, rough, undulating	×	completely weathered, crumbles,	
				21.3' - Fracture, 20 deg, rough, undulating	××	soil-like	
-			3	21.5' - Fracture, horizontal, rough, undulating	×	<b>₹</b>	1
-				21.9' - Fracture, horizontal, rough, stepped 22.1' - Fracture, 20 deg, rough, undulating	××	<b>}</b> -	-
-			3	22.3' - Fracture, 20 deg, rough, undulating 22.3' - Fracture, slickensided, undulating	××	22.0.25.51 mandflood limbs area wish area.	_
l _				22.7' - Fracture, 10 deg, rough, undulating	×	23.0-25.5' - mottled light greenish gray	_
			2	23.2' - Fracture, horizontal, rough, undulating	× × × ×		
			-	23.3' - Fracture, horizontal, rough, undulating 23.9' - Fracture, horizontal, rough, undulating	٦ŝ	<b>T</b>	
25				24.3' - Fracture, horizontal, rough, undulating	×	24.5-25.5' - light greenish gray	-
244.2			0	<u> </u>	×	portions are harder than reddish	_
-	25.5				××	x matrix 3	R2: 14:50-15:14 and 15:18-
-			0		××	greenish gray, soft, grades to very fine	15:35
l _					×	grained sandstone, fresh surfaces are	_
					×	grayish red to blackish red	
_			0		×	25.5-30.5' - slightly weathered	1
-				27.6-27.8' - Fracture, 65 deg, rough, stepped	××	<b>*</b>	-
-			2		×××××	<b>}</b> -	-
-				28.1-28.3' - Fracture, 70 deg, rough, stepped	×	×	_
l _			3	28.6' - Fracture, horizontal, rough, undulating	××	28.5-28.9' - grayish red, very soft, clay-like soil zone	_
				28.9' - Fracture, horizontal, rough, undulating	×	28.7-28.9' - clay seam	
30				29.6' - Fracture, horizontal, rough, undulating	×	28.9-47.0' - grayish red, mottled	1
239.2	R2NQ		1	_	×	greenish gray, soft, grades to very fine	
-	10 ft	90			×	grained sandstone, fresh surfaces are grayish red to blackish red	-
_	98%		0		- × ×	30.5-44.0' - fresh	_
l _					×		
					×		
-			1	32.0-32.2' - Fracture, 60 deg, rough,	×	<b>‡</b>	1
-				undulating	×	<b>/</b>	-
-			0		×	<u>}</u> -	-
_					×	<b>}</b> -	_
			0		×	1	
					×	3	
35					×	<b>⋨</b> Т	1
234.2	25.5		0	_	××	<del> </del>	_
	35.5		XXX		₩.	1	-

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PROJECT NUMBER:	BORING NUMBER:				
338884	BPA-30	SHEET	3	OF	5

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687781.4 N, 2011981.6 E)

ELEVATION: 269.2 ft MSL (NGVD 29) DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS : 5.	9 ft bg	S	START : 5/8/06 09:	30	END: 5/9/06 13:25	LOGGER : DT
	- (%			DISCONTINUITIES	၂ ပ	LITHOLOGY	COMMENTS
QZ €	AND ≪ ₹	_	ES T	DESCRIPTION		ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
40 229.2	R3NQ 10 ft 100%	95	0 0 0 1 0 2	38.6' - Fracture, 20 deg, rough, stepped  - 41.0' - Fracture, horizontal, rough, undulating 41.2' - Fracture, 10 deg, rough, stepped	× × × × × × × × × × × × × × × × × × ×	X - X - X - X - X - X - X - X - X - X -	R3: 15:45-16:11 and 16:13- 16:40
45 224.2	45.5		0 0 1 2	- 45.3' - Fracture, 30 deg, rough, undulating 45.7-50.0' - Fracture, 75 deg, rough, stepped	- × × × × × × × × × × × × × × × × × × ×	44.0-46.1' - slightly weathered  46.1-47.0' - fresh	R4: 08:10-08:30 and 08:33-08:53 on 05/09/06
50 219.2	R4NQ 10 ft 99%	93	0 0 2 0 0 0 0 0 0	49.2' - Fracture, 50 deg, rough, undulating 49.3' - Fracture, 10 deg, slickensided, undulating - 49.8' - Fracture, 60 deg and 70 deg, filled with calcite	× × × × × × × × × × × × × × × × × × ×	Siltstone  47.0-51.0' - light olive gray, mottled light brownish gray, soft, fresh 47.0-48.7' - grades to very fine sandstone, coarsens with depth 48.7-51.0' - greenish gray, alternates with light gray and reddish gray, soft, laminated bedding, grades to very fine grained sandstone towards bottom  Sandstone  51.0-52.8' - light brownish gray with some pale red bedding, soft, laminated to very thin bedding, very fine sand, subrounded, fresh, laminae shale interbedding Siltstone  52.8-56.7' - dark gray, mottled light olive gray, soft, fresh, trace fine sand, grades toward light gray, coarsens	SC-1 collected 48.0-48.7'
55_ 214.2	55.5		0	-	- × × × × × ×	with depth 54.4-56.7' - fine to medium gravel sized dusky red clasts	_



PROJECT NUMBER:

338884

BPA-30

SHEET 4 OF 5

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687781.4 N, 2011981.6 E)

ELEVATION: 269.2 ft MSL (NGVD 29) DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD: BK-51, NQ Double Barrel ORIENTATION: Vertical

		THOD : BK-51, NQ Double Barrel	20	END 5/0/00 40 05	ORIENTATION : Vertical
5.9 ft bo	gs		T		LOGGER : DT  COMMENTS
-	S				OOMMENTO.
R Q D (%)	FRACTURE PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC	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.
	0	57.0' - Fracture, 30 deg, red stains	× × × × × × - × × - · · ·	55.0-56.7' - becomes sandy  Sandstone 56.7-60.1' - light gray, soft, thin to	R5: 09:05-09:18 and 09:21-09:39
	0			medium bedding, medium sand to coarse sand, fresh, 5-10% darker mineral grains in fresh surfaces 58.0-58.1' - light gray siltstone layers, fissile and shale-like	
91	2	59.6' - Fracture, 70 deg, filled with calcite, tightly healed – 59.7-60.0' - Fracture, 75 deg, rough, undulating, tight fit 60.1' - Contact between siltstone and	× × × × × × × ×	59.6-60.1' - becomes coarser with depth  - Siltstone 60.1-64.5' - light olive gray to	-
	0	sandstone, 20 deg, rough, undulating, sharp, fractured 60.9-61.1' - Fracture, 70 deg, rough, stepped	× × × × × × × × × ×	blownish gray, solt, liesh	
	0	_	× × × × × × × ×	Sandstone — 64 5-70 7' - light gray to gray, hard	
	1	65.1' - Fracture, 50 deg, rough, undulating, loose fit 65.3' - Fracture, 20 deg, rough, undulating, loose fit 65.8' - Fracture, 10 deg, rough, planar, tight fit 67.1' - Fracture, horizontal, rough, undulating, loose fit		fresh, silt to medium grained sand, brittle rock, fining upward sequence  66.0-67.8' - brownish gray	R6: 09:50-10:05 and 10:08-10:40
	0	-		- 67.8-70.7' - grayish red - - - -	SC-2 collected 68.8-69.6'
	2 2	70.7' - Fracture, 5 deg, smooth, stepped, loose fit 71.2' - Fracture, 15 deg, smooth, planar, tight fit 71.8' - Fracture, 20 deg, smooth, undulating 71.9-72.3' - Fracture, vertical, quartz-filled, terminates abruptly above and below at silty or softer zones that did not deform 72.2' - Fracture, 20 deg, smooth, undulating 72.8' - Fracture, 20 deg, smooth, undulating	× × × × × × × × × × × × × × × × × × ×	Siltstone At 70.7' - light olive green and gray, soft, laminated bedding, bedding is contorted and possibly folded 70.7-72.8' - fresh  72.8-73.6' - highly weathered 73.6-74.0' - fresh	
	(%) G O N	0 0 0 0 2 2 1 1 0 0 0 2 1 1 0 0 0 0 0 0	DISCONTINUITIES  DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS  0 0 57.0' - Fracture, 70 deg, filled with calcite, tightly healed 59.7-60.0' - Fracture, 75 deg, rough, undulating, tight fit 60.1' - Contact between siltstone and sandstone, 20 deg, rough, undulating, sharp, fractured 60.9-61.1' - Fracture, 70 deg, rough, undulating, loose fit 65.3' - Fracture, 20 deg, rough, undulating, loose fit 65.8' - Fracture, 10 deg, rough, undulating, loose fit 65.8' - Fracture, 20 deg, rough, undulating, loose fit 67.1' - Fracture, 10 deg, rough, undulating, loose fit 67.1' - Fracture, 20 deg, rough, undulating, loose fit 67.1' - Fracture, 20 deg, rough, undulating, loose fit 67.1' - Fracture, 20 deg, rough, undulating, loose fit 67.1' - Fracture, 20 deg, rough, undulating, loose fit 67.1' - Fracture, 20 deg, rough, undulating, loose fit 67.1' - Fracture, 20 deg, rough, undulating, loose fit 67.1' - Fracture, 20 deg, smooth, planar, tight fit 71.2' - Fracture, 20 deg, smooth, undulating 71.9-72.3' - Fracture, vertical, quartz-filled, terminates abruptly above and below at silty or softer zones that did not deform 72.2' - Fracture, 20 deg, smooth, undulating 77.9-72.3' - Fracture, 20 deg, smooth, undulating	DISCONTINUITIES  DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS  THE STAIN THE STAIN THE STAIN THE STAIN THE STAIN THE	DISCONTINUITIES  DESCRIPTION  DEPTH_TYPE_CREMITATION, ROUGHNESS, PLANARITY, NRILLING MATERIAL, AND THICKNESS, SURFACE STANING, AND TIGHTNESS  THICKNESS, SURFACE STANING, AND TIGHTNESS  O  THICKNESS, SURFACE STANING, AND TIGHTNESS  FLANARITY, NRILLING MATERIAL, AND THICKNESS, SURFACE STANING, AND TIGHTNESS  THICKNESS, SURFACE

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PROJECT NUMBER:	BORING NUMBER:				
338884	BPA-30	SHEET	5	OF	5

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687781.4 N, 2011981.6 E)

ELEVATION: 269.2 ft MSL (NGVD 29) DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS : 5.	9 ft bg	s	START : 5/8/06 09:	30	END: 5/9/06 13:25	LOGGER : DT
	(%			DISCONTINUITIES	ő	LITHOLOGY	COMMENTS
NO (#)	JN, AND 3Y (%		ZES T	DESCRIPTION	J C FC	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
-			0	73.6' - Fracture, 25 deg, rough, undulating 74.7' - Fracture, 10 deg, rough, undulating 75.5-85.5' - Microfractures	× × × × × × × ×	74.0-81.0' - more reddish than greenish (like overlying siltstone), green mottles occur along fractures	R7: 10:52-11:16 and 11:18- 11:45 -
-			0		× × × × × ×	-	-
-			0		× × × × × ×	-	-
-			0		× × × × × ×	- -	-
80_ 189.2_	R7NQ 10 ft	100	0	_	× × × × × ×	_	_
-	100%		0		× × × × × ×	-	
-			0		× × × × × ×	92.51 pumpersus assell de deserted	
-			0		× × × × × ×	82.5' - numerous small darker red rounded rip up clasts in light red matrix, mottled with grayish green siltstone	
-			0		× × × × × ×	84.0-89.0' - bluish gray to gray	
85 <u> </u>	85.5		0	– 85.5-86.4' - Fracture, 80 deg, rough, stepped,	× × × × × × × ×	<del>-</del>	-
-			1	tight fit  86.5-86.6' - Fracture, 40 deg, smooth,	× ×   × ×   × ×	- 86.5-89.0' - mottled greenish gray	First water level = 5.6' bgs taken 5/9/06 at 16:00; second water level = 15.5'
-	R8NQ 3.5 ft 90%	64	1	undulating, loose fit		-	bgs taken 5/10/06 at 17:19 – R-scale not performed on rock core samples –
-	89.0		0		- × × × × × ×	88.0-89.0' - laminated bedding, - contorted	]
90	55.0		<b>~~</b> ~		<del> ×-×</del>	Bottom of Boring at 89.0 ft bgs on - 5/9/06 13:25	-
179. <u>2</u>				_		<del>-</del> -	
-					1	<del>-</del> -	]
-						-	]
						- -	]
95				_		- -	
174.2							



PROJECT NUMBER:	BORING NUMBER:
338884	BPA-31

#### **SOIL BORING LOG**

SHEET 1 OF 8

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687883.1 N, 2011990.2 E)

ELEVATION: 263.1 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

DRILLING EQUIPMENT AND METHOD: CME-550, Tricone Bit, 24" Split Spoon, and 140 lb. Automatic Hammer ORIENTATION: Vertical

WATER				TIOD : OIVIE-000	, Incone Bit, 24" Split Spoon, and 140 lb. Automatic Hammer ORIENTATION: Vertical
			RADE (ft)		START : 5/26/06 10:15         END : 5/31/06 15:52         LOGGER : JS/DT/LH           SOIL DESCRIPTION         COMMENTS
	INTERV			STANDARD PENETRATION	
	II TI LICO		ERY (in)	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, GPTH OF CASING, DRILLING RATE,
		RECOV	#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
263.1 - - -	0.0	16.0	SS1SS	2-2-3-3 (5)	Sandy Clay (CL) 0.0-1.0' - brownish yellow, moist, medium stiff, low to medium plasticity Sandy Clay (CL) 1.0-1.3' - yellowish red, mottled, moist, medium stiff, medium plasticity
_					PT-1 collected
-	2.5	20.0	SS2SS	3-4-13-18 (17)	2.0-3.5' - yellowish red, moist, very stiff, micaceous  Clayey Sand (SC)
	4.5			(17)	3.5-4.3' - light greenish gray, low to medium plasticity, fine grained, micaceous  Silty Sand (SM)
5 <u> </u>	5.0				4.25-4.5' - brown, micaceous
-		18.0	SS3SS	16-22-28-30 (50)	Clay (CL) 5.5-7.0' - dark reddish brown, stained black, moist, very stiff to hard, some pieces of siltstone
-	7.0				PT-2 collected
_	7.5				Clay (CL) 7.0-9.0'
-		17.0	SS4SS	18-22-26-42 (48)	7.5-8.9' - dark reddish brown, stained black, moist, hard, platy, micaceous, some fine sand  Offset: 4.0' N32E of BPA-31 Lab Results USCS: CL
_	9.5				] ]
10 253.1 - -	10.0	13.0	SS5SS	10-11-19-50 (30)	Clay (CL) 10.0-11.1' - dark reddish brown, stained black, moist, very stiff, micaceous, some fine sand
_	12.0				<b>.</b> .
- -	12.5	13.0	SS6SS	42-42-50/2	Clay (CL) 12.5-13.6' - dark reddish brown, stained black, moist, hard, platy, micaceous, some fine sand
- - 15	14.5			(92/8")	Soil sampling completed at 11:50 on 5/26/06
248.1 - - - - -	15.0 15.1	1.0	<u> </u>	50/1 (50/1")	Clay (CL) 15.0-15.1' - dark reddish brown, stained black, moist, very hard, platy, micaceous, some fine sand, some pieces of siltstone Begin Rock Coring at 15.1 ft bgs See the next sheet for the rock core log
20					
		l			<u> </u>

2BB-199 Rev. 1



PROJECT NUMBER:

338884

BPA-31

SHEET 2 OF 8

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687883.1 N, 2011990.2 E)

ELEVATION: 263.1 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

	EQUIPIVIEN	ORIENTATION : Vertical					
WATER	LEVELS: 16	3.8 ft b	gs	START : 5/26/06 10	:15	END : 5/31/06 15:52	LOGGER : JS/DT/LH
	_			DISCONTINUITIES	(D	LITHOLOGY	COMMENTS
oz €	CORE RUN, LENGTH, AND RECOVERY (%)		S	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	
NO H	N E E	(9)	JRE OT	5200 Kiii 11011	- 의	MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING,
FA SA	A TEN	Q D (%)	LT FO	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	BO	WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
DEPTH AND ELEVATION BELOW SURFACE (ft)		a Q	FRACTURES PER FOOT	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	Σ×	AND ROCK MASS CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
		ш	шш				Daala andra harrar at 00:50
_	15.1		0		_ ×	Siltstone At 15.1' - reddish brown, mottled	Rock coring began at 08:50 on 5/30/06
l _			U		×	x At 13.1 - reddish brown, motiled x_ green, very soft	R1: 08:50-09:03
					×	15.1-23.4' - moderately weathered	At 15.6': R-Scale = R2
-			0		×	<b>X</b> T	1
-	R1NQ				<b>-</b>   × ∶	<b>}</b> −	-
_	4.9 ft	100*	0		- ×	*-	-
l _	102%		0		×	1	_
					×	3	
_			0		×	<b>₹</b>	1
_					- × ×	<b>}</b> -	-
_			0		- × :	<b>≱</b> -	-
20	20.0			_	××	<u></u>	
243.1			~~~		×	Â	R2: 09:11-09:24
-			0		×	20.4-23.4' - very fine sand/coarse silt	Ī
-					- × :	and hardest portion but still very soft	At 20.8': R-Scale = R3-R4 -
_			1	21.4' - Fracture, 65 deg, smooth, undulating	-× ×	<u>}</u> -	-
l _				21.1 Tradiand, do dog, different, difficulting	× :	$\hat{A}_{\perp}$	_
	R2NQ	00+	_		×		
_	5 ft 99%	68*	0		T _×	<b>☆</b>	Ī -
-	3370				<b>-</b>   × ∶	<del>}</del>	At 22.8': R-Scale = R2 -
-			3	23.4' - Fractures (6), horizontal, smooth,	- × :	23.4-26.8' - highly weathered	-
l _				undulating	_ × :	×_ 20.1 20.0 11191119 Wedahorod	_
				•	×	3	
25	25.0		3		×	<b>3</b> T	Ī
238.1	23.0		<del>. ~ ~ ~</del>	<del>-</del>	- ×	<del>}-</del>	R3: 09:30-09:43
-			2	25.4' - Fracture, horizontal, smooth, undulating	- × :	<b>X</b> -	-
l _				25.7' - Clay-like and very friable bedrock	× :	<b>1</b> _	_
			٦	26.0' - Fracture, 50 deg, smooth, undulating	×	3	
-			2		- × :	<b>7</b>	At 26.4': R-Scale = R3
-	R3NQ			26.8' - Fracture, horizontal, rough, undulating	-×:	26.8-29.1' - dark reddish brown, soft,	l -
_	5 ft	64	0		-× ×	fresh, very fine sand and coarse silt increasing with depth, gradational	-
l _	99%				×	- contact	_
					×	×	
-			0		T×:	<b>*</b>	Ī
-					- <u> </u> ×. :	X-	-
-			5	29.4-29.7' - Fractures, horizontal and 60 deg,	4:::	Sandstone At 29.1' - dark reddish brown, soft,	-
	30.0			smooth, undulating, black stains	<b>_</b> [::::	laminated to thin bedding, very fine	
233.1				30.2' - Fracture, horizontal, smooth, undulating	:::	sand, fresh, clay-like zones	R4: 10:00-10:12
-			1	55.2 Tradiato, Honzontai, dinodit, anddiating	1:::	30.0-33.3' - very dark gray to dark	1
-					<b>-</b>  ::::	reddish gray, mottled red, very soft to soft, fine sand, few siltstone lenses,	At 30.9': R-Scale = R3
_			0		- ::::	banded dark and light, grades to	-
I _					_]∷∷	siltstone at bottom	
	R4NQ	00			1:::	:	
-	5 ft 100%	88	0		1:::	:[	1
-	100 /0				<b>∃</b> ∷:	: <b> </b> -	-
-			1	22 El Frantissa hasimarital accepti	- ×	- Siltstone	] -
I -				33.5' - Fracture, horizontal, smooth, undulating, in very soft rock zone	_ × :	33.3-34.2' - dark reddish gray, mottled	
				34.0' - Fracture, 50 deg, smooth, planar, 50	×	green, gray, brown, very soft to soft,	1
35	35.0		3	deg, smooth and planar, dark orange staining	1:::	- \fresh	At 34.4': R-Scale = R5
	JJJ.U			on surfaces –	╁	<del>-</del>	_

2BB-200 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BPA-31

SHEET 3 OF 8

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687883.1 N, 2011990.2 E)

ELEVATION: 263.1 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

CORING	EQUIPMEN	I AN	D MET	HOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS: 16	.8 ft b	gs	START : 5/26/06 10	:15	END: 5/31/06 15:52	LOGGER : JS/DT/LH
	<u></u>			DISCONTINUITIES	O	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (#)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
_			0	34.2' - Contact between siltstone and sandstone, sharp 34.7' - Fractures (2), 40 deg, smooth,		Sandstone 34.2-36.6' - dark gray, mottled yellow, green, purple, soft, laminated to thin	R5: 10:18-10:31
			4	undulating, multiple bedrock pieces 36.4' - Fracture, 10 deg, smooth, undulating	× × × ×	bedding, very fine sand to fine sand, fresh, dark red and brown banding, gradational contact at bottom	SC-1 collected
-	R5NQ 5 ft 100%	84	3	37.6' - Fracture, 20 deg, smooth, undulating,	× × × × × ×	Siltstone  36.4-37.9' - very dark gray to very dark  greenish gray, very soft, laminated	36.8-37.6'
-			0	dark gray lens - shiny and greasy appearance, but not slickensided		bedding, fresh, irregular bedding, very   fine grained   36.6-36.8' - clay seam	
40 <u> </u>	40.0		0	39.7' - Fracture, 40 deg, partial fracture at 40		Sandstone 37.9-40.0' - very dark gray, very soft to soft, fine sand, fresh, more silt in last 2	At 39.25': R-Scale = R3-R4 R6: 10:41-10:54
- - -			0	deg 40.0-42.3' - Microfractures, capillary pattern	× × × × × ×	Siltstone   40.0-42.3' - dark brown and very dark	At 40.8': R-Scale = R2-R3
-	R6NQ		3	42.0' - Fracture, 50 deg, smooth, undulating,		gray, mottled yellow, dark brown, green, very soft to soft, fresh, fine grained	
-	5 ft 102%	98	1	parallel fracture at 50 deg 42.6' - Fracture, 55 deg, smooth, undulating		Sandstone     42.3-45.3' - gray, fine sand to medium sand, poorly sorted, fresh	
_			0	44.0' - Fracture, 20 deg, smooth, rough		-	At 43.5': R-Scale = R3-R4
45 <u></u> 218.1	45.0		1	-	- :::: - ::::	-	R7: 11:00-11:10
-			2	45.5' - Fracture (2), horizontal, smooth, undulating, fine grained form	× ×   × ×   × ×	Siltstone 45.3-50.0' - dark gray, very soft to soft, laminated to thin bedding, fresh,	
-	R7NQ 5 ft	94		46.9' - Fracture, 60 deg, rough, undulating	× × × × × ×	<ul><li>5-15% very fine sand</li><li>-</li></ul>	
-	99%		0		- × × - × × - × ×	- 48.5-49.5' - very thin black siltstone	At 48.0': R-Scale = R3-R4
- - 50	50.0		2	49.3' - Fracture, 10 deg, rough, undulating	× × × × × ×	<ul> <li>beds at 20 degrees, interbedded with above sandstone</li> <li>49.5-49.8' - interbedded siltstone and</li> </ul>	
213.1			1	50.2' - Fracture, 5 deg, rough, undulating	× × × × × ×	sandstone laminae 49.8-50.0' - very dark gray to very dark greenish gray, mottled brown (trace), length of the grained	R8: 11:17-11:37
-			1	51.0' - Fracture, 5 deg, rough, undulating	× × × × × ×	Sandstone 50.0-50.2' - greenish black, soft, very thin bedding, coarse sand, angular to	At 51.2': R-Scale = R3
-	R8NQ 5 ft 96%	79	3	52.5' - Fracture, 5 deg, rough, undulating, tightly healed	× × × × × ×	subangular, poorly sorted, fresh Siltstone At 50.2' - dusky red, mottled greenish	
- -			1	52.6' - Fracture, 45 deg, smooth, undulating, hard white infilling, unaltered joint 52.9' - Fracture, 5 deg, rough, undulating,	× × × × × ×	gray, soft, thin to medium bedding, 20% medium to coarse sand sized clasts	
55	55.0		2 ***	unaltered 53.2' - Fracture, 45 deg, smooth, undulating, unaltered white, hard infilling —	× × × × × ×	50.2-56.4' - fresh 	_

2BB-201 Rev. 1



PROJECT NUMBER:

338884

BPA-31

SHEET 4 OF 8

# **ROCK CORE LOG**

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687883.1 N, 2011990.2 E)

ELEVATION: 263.1 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	LEVELS : 16	8.8 ft b	gs	START : 5/26/06 10	:15	END: 5/31/06 15:52	LOGGER : JS/DT/LH
				DISCONTINUITIES	Ŋ	LITHOLOGY	COMMENTS
TION TION (CE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	(%)	CTURES FOOT	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE LENGT RECO\	RQD(%)	FRACT PER FO	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBO	WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
-			0	54.2' - Fracture, 5 deg, rough, undulating, tightly healed	× × × × × ×	53.5-54.8' - less than or equal to 0.2' vugs	R9: 12:55-13:11 At 55.4': R-Scale = R3
-			10+	56.4' - Fracture, 30 deg, rough, undulating,		56.4-56.5' - moderately weathered 56.5-58.4' - very soft to soft, laminated	At 56.4-58.2': R-Scale = R1
-	R9NQ 5 ft 100%	68	10+	clay-like material/siltstone, very soft 56.6' - Fracture, 5 deg, rough, undulating, clay-like material/siltstone, very soft	             	bedding, moderately weathered 56.4-56.6' - clay-like material/siltstone,	]
-	100 %		5	56.7' - Fracture, 40 deg, rough, undulating, clay, very soft 57.1-57.5' - Fracture zone, rough, undulating,	- × × - × × - × ×	very soft 56.9-56.9' - clay seam, very soft, friable	-
-			2	vertical and horizontal fractures 57.8' - Fracture, horizontal, rough, undulating, horizontal	-  × ×   × ×   × ×	57.1' - clay seam, soft 58.4-60.0' - soft, moderately weathered	
60 203.1_ -	60.0		10+	58.0' - Fracture, 10 deg, rough, stepped 58.0' - Fracture, horizontal, rough, undulating 58.5' - Fracture, 5 deg, rough, undulating	× × × × - × ×	Siltstone  - At 60.0' - very dark gray, mottled	R10: 13:22-13:42 At 60.0-60.6': PP: 1.5 tsf
-			1	58.5' - Fracture, horizontal, rough, undulating 58.8' - Fracture, 60 deg, rough, undulating 59.6' - Fracture, 10 deg, rough, undulating	× × × × - × ×	green 60.0-60.6' - clay seam with bedrock fragments	and 1.25 tsf -
-	R10NQ 5 ft	62	1	60.0' - Fracture, horizontal, rough, undulating 60.8' - Fracture, 10 deg, slickensided, undulating	× × × × × ×	_ 60.0-60.6' - clay seam 60.6-61.6' - very dark gray to very dark ¬ greenish gray, very soft to soft, very ┌──	At 61.6': R-Scale = R3
-	97%		9	60.9' - Fracture, 5 deg, rough, stepped 61.4' - Fracture, 30 deg, rough, planar 63.0' - Fracture, horizontal, smooth,		fine grained   60.6-61.0' - moderately weathered   61.0-65.0' - fresh	_
-			1	undulating, 0.02' relief, bedrock fragments 63.6' - Fracture, horizontal, smooth, undulating, some bedrock fragments	× ×   × ×   × ×	Siltstone At 62.5' - dark reddish brown, mottled faint yellow, very soft to soft, fresh, fine	_
65 198.1	65.0		1	63.6' - Fractures (2), horizontal and 5 deg, smooth, undulating, several breaks along bedding planes, tight fit	× ×   × ×   × ×	grained 62.95-63.1' - very soft	R11: Started at 14:00
-			1	64.0' - Fracture, rough, undulating, bedrock pieces 65.4' - Fracture, smooth, undulating, small	× × × × × × × ×	_	At 65.6': R-Scale = R3
_	R11NQ			bedrock fragments 66.1' - Fracture, horizontal, smooth, stepped, thin white infilling	×	_	_
_	5 ft 94%	85	1	67.11 - Fracture, 20 deg, <0.5 mm white infilling 67.8' - Fracture, horizontal, smooth, undulating	- × × × × × ×	- -	-
-			4 ו×	69.0' - Fracture, horizontal, smooth, planar	- × × × × - × ×	68.7-70.0' - medium to coarse sand clasts, rounded	]
70 193.1	70.0			-	-  × ×   × ×   × ×	- 	R12: No time recorded
-			10+	70.9' - Fracture zone, horizontal and 10 deg,	-  × × -  × × -  × ×	_	At 70.4': R-Scale = R3 -
-	R12NQ		6	smooth, undulating 71.1' - Fracture, horizontal, smooth, undulating, 0.02' relief	- × × × × - × × × ×	- 72.1.75.01 coft 50%/ coopes silth/s	SC-2 collected
-	5 ft 100%	79	0	71.5' - Fracture, 20 deg, purple/green stains, healed fracture 71.6' - Fracture, horizontal, more than one	× ×   × ×   × ×	72.1-75.0' - soft, 50% coarse silt/very fine sand, 50% silt/clay	72.0-73.0' –
- -			0	piece 72.0' - Fracture, horizontal, smooth, undulating, 0.02' relief	× ×   × ×   × ×	-	]
75 <u> </u>	75.0		2	74.1' - Fracture, 50 deg, rough, undulating, thin white infilling	- × × × × * ×	_	At 74.5': R-Scale = R3

2BB-202 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BPA-31

SHEET 5 OF 8

# **ROCK CORE LOG**

ORIENTATION : Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687883.1 N, 2011990.2 E)

ELEVATION: 263.1 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

00111110	LGOII MEI	7 (1 )	J IVIL	THOD : CME-550, NQ Double Barrel			ORIENTATION: Vertical
WATER	LEVELS: 16	3.8 ft b	gs	START : 5/26/06 10:	15	END : 5/31/06 15:52	LOGGER : JS/DT/LH
	(9)			DISCONTINUITIES	ტ	LITHOLOGY	COMMENTS
oz €	, 'ND (%) Y		ES	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	
₹Ē_병	AUN H, A	Q D (%)	URE	DEDTIL TODE ODJENITATION DOUGLINGS	1 3	MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
H N O A	RE I	) Q i	ACT R FC	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	ΔBC	WEATHERING, HARDNESS, AND ROCK MASS	SMOOTHNESS, CAVING ROD
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RO	FRACTURES PER FOOT	THICKNESS, SURFACE STAINING, AND TIGHTNESS	SY	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
				75.0' - Fracture, 10 deg, smooth, planar	× ×	Siltstone	R13: Started at 15:03
_			0	75.2' - Fracture, 10 deg, smooth, undulating	××	75.0-78.4' - very dark gray to very dark	1
-				75.5' - Fracture, 10 deg, smooth, planar, - <0.0002' white infilling	× × × ×	<ul> <li>greenish gray, mottled dark red, yellow, green, black, very soft,</li> </ul>	-
-			0	75.6' - Fracture, horizontal, rough, undulating,	× × × ×	laminated bedding, fresh, very fine	-
_				0.01' relief	× × × ×	_ grained	-
_	R13NQ 5 ft	44	0	75.9' - Fracture, horizontal, smooth,	× ×	75.9-77.5' - soft with very fine sand	_
	94%		U	undulating, smooth and planar 76.4' - Fracture, 70 deg, rough, undulating	××		
_				76.6' - Fracture, horizontal and 40 deg,	× × × ×	77.9-78.0' - clay seam, 0.1' thick	]
_			0	smooth, undulating	× ×	Siltstone	1
-				77.2' - Fracture, horizontal, smooth, undulating _ 77.5' - Fracture, horizontal, undulating,	× × × ×	At 78.4' - dusky red to dark reddish brown, very soft to soft, fresh, some	-
-			0	bedrock fragments	× ×	very fine sand in areas, fine grained,	-
80	80.0		XXX	00.01 Missafasatawa	××	mottled faint yellow, green and	D44: 00:40 00:00 5/0/00
183.1			0	80.0' - Microfractures	××	black-purple	R14: 08:42-09:02 on 5/3/06
			ľ		× ×		
					× ×		1
-			0	-	× ×	-	1
-	R14NQ			-	× ×	-	At 81.75': R-Scale = R3-R4 _
_	5 ft	100	0	-	× × × ×	-	-
-	100%			-	× ×	-	-
_			0	_	××	_	_
_			ŭ		××		_
					× ×		
85	85.0		0	_	× × × ×	84.6-85.0' - very thin sandy siltstone	1
178.1	00.0			_	× × × ×	seams	R15: 09:06-09:28
-			2	-	× × × ×	<ul> <li>85.0-88.8' - mottled trace greenish gray, grades to 60% very fine sand</li> </ul>	-
-				-	$\times$ $\times$	and 40% silt	-
-			0	-	× ×	=	At 86.3': R-Scale = R3-R4 -
_				_	× ×		_
	R15NQ	91	0		××		
	5 ft 96%	91	U		××		1
-				-	××		1
-			0	-	× × × ×	-	-
-				-	× × × ×	<ul> <li>88.8-89.8' - grades to 60% silt and</li> </ul>	At 89.0': R-Scale = R5
-			2	-	× × × ×	40% very fine sand	
90 <u> </u>	90.0		XXX		× × × ×	_	P46, 00,26 00,50
1/3.1			10+	90.1' - Fracture zone, horizontal and vertical,	× ×	_	R16: 09:36-09:58 and 10:03-10:24
			'0'	smooth, undulating	××		10.00 10.24
				_	× × × ×		]
_			0	-	××	<u>F</u>	1
-	R16NQ			-	××	<b> </b>	-
-	5 ft	88	0	-	× × ×.×	- Our determine	4
-	96%			-	: : :	Sandstone 92.6-93.6' - dark gray to white, fresh,	At 02 0's D. Sools = D4
_			0	_	<b> </b> :::	banded, possibly partially	At 93.0': R-Scale = R4
					× ×	metamorphosed	1
I -				·	× ×	Siltstone	]
95	95.0		0	-	x x	<ul> <li>93.6-97.2' - dark reddish gray, mottled greenish gray, very soft to soft, fresh</li> </ul>	1
<u> </u>	55.0		XXX.		<b> </b> Ŷ~Ŷ		<del>-</del>
							1
L							

2BB-203 Rev. 1



PROJECT NUMBER:

338884

BPA-31

SHEET 6 OF 8

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687883.1 N, 2011990.2 E)

ELEVATION: 263.1 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				THOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS : 16	.8 ft b	ogs	START : 5/26/06 10	):15	END : 5/31/06 15:52	LOGGER : JS/DT/LH
			l	DISCONTINUITIES	90	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
_			0		_ ×	X	R17: 10:34-10:52
-			0		- × - × - × - ×		
- - -	R17NQ 5 ft 100%	99	0	98.2' - Fracture, smooth, undulating, vertical	- <del>· · ·</del> · · · · · · · · · · · · · · · ·	Sandstone 97.2-97.7' - fresh, very fine to coarse grained, mostly fine Siltstone	- - -
100 163.1	100.0		0	and horizontal fractures	- × - × - × - ×	97.7-104.6' - dark reddish gray, mottled greenish gray, very soft to soft, fresh, little very fine to medium sand at bottom	At 98.7': R-Scale = R3-R4
-			0		- × - × - × - ×	X X X	R18: 11:00-11:17
-	R18NQ 5 ft 102%	100	0		- × - × - × - ×		-
-			0		- × - × - ×	X X X X	SC-3 collected 103.0-104.0' -
105_ 158.1	105.0		0	-	<u>*</u>  :::	Sandstone 104.6-106.8' - pale red and very dark gray, soft, angular, poorly sorted, fresh	R19: 11:22-11:35
- - -	R19NQ 5 ft	94	2	107.0' - Fracture, horizontal, rough, undulating		Siltstone 106.8-107.1' - dark reddish gray, very	At 105.8': R-Scale = R3 -
- - -	96%	57	0		- : : : : : : : : : : : : : : : : : : :	Soft, fresh Sandstone 107.1-109.2' - pale red and very dark gray, soft, angular, poorly sorted, fresh	At 107.6': R-Scale = R3
110 153.1 -	110.0		1 ××× 0	109.7' - Fracture, rough, planar _	- × - × - × - × - ×	Siltstone At 109.2' - dark reddish gray, mottled greenish gray, soft, fresh, trace medium to very fine sand	R20: 11:44-12:03
- -	R20NQ 5 ft	94	0	112.0' - Fracture, 45 deg, smooth, undulating, greenish gray material in fracture	- × - × - ×	X	-
-	100%	J <del>-1</del>	0	groomshi gray material in nacture	- × - × - × - ×	**************************************	-
115	115.0		0		- × - × - × - ×		At 114.1': R-Scale = R3

2BB-204 Rev. 1



PROJECT NUMBER:

338884

BPA-31

SHEET 7 OF 8

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687883.1 N, 2011990.2 E)

ELEVATION: 263.1 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				THOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS : 16	3.8 ft b	gs	START : 5/26/06 10:	15	END : 5/31/06 15:52	LOGGER : JS/DT/LH
_	08			DISCONTINUITIES	၅၉	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
_			0	_	××		R21: 12:09-12:34
_				_	××	1	
-			0	-	× × × × × ×	-	
-	R21NQ 5 ft 104%	100	0	117.0' - Fracture, evidence of microfractures throughout core, tightly healed	× ;	-	At 117.1': R-Scale = R3
-	10470		0	-	× × × × ×	- -	
-			0	-	× ; × ;		
120 <u></u> 143.1	120.0		XXX	_	×	 120.0-125.0' - dark reddish brown,	R22: 13:44-14:06
-			0	-	×	- soft to hard, thick beds	
-			0	-	× × × ×		
-	R22NQ 5 ft 98%	98	0	-	×	-	
_			0	-	× × × × × ×	-	At 123.5': R-Scale = R3-R4
-			0	-	×××××××××××××××××××××××××××××××××××××××	- -	7 K 1250 11 Code 1 10 1 1
125 <u> </u>	125.0		0	_	×		R23: 14:13-14:38
-				-	× × × × × × ×	sand	At 125.8': R-Scale = R3-R4
-	R23NQ		0	-	- × × - × × - × ×	Sandstone	
-	5 ft 97%	97	0	-	× × × ×	127.1-127.4' - fresh, 60% very fine to fine sand, 40% silt	
-			0	-	× × × × × × × × × × × × × × × × × × ×	Siltstone 127.4-128.7' - dusky red, mottled \[ \text{greenish gray, soft to hard, fresh, little} \]	
120	120.0		0	-	× ;	very fine to fine sand  Sandstone	
130 <u>1</u> 133.1 –	130.0		0		× ; × ; × ;	128.7-129.4' - pink and reddish brown, hard, fresh Siltstone	R24: 14:44-15:08
-			0		× × × ×	- 129.4-132.0' - dusky red, mottled greenish gray, soft to hard, fresh, little	
-	R24NQ			-	× ;	very fine to fine sand 130.0-132.0' - becomes coarser with depth	
-	5 ft 104%	100	0	-	] :::	Sandstone 132.0-145.0' - gray and white, fresh.	
-			0	-	:::	very fine to medium sand 133.3-133.5' - silty seam (40% silt) 134.0-134.6' - silty seam (40% silt)	At 133.6': R-Scale = R3-R4
135 <u> </u>	135.0		1	_		- 10 7.0 104.0 Sity 36diff (40 /0 Sit)	_
			<b>~~~</b>				_
Щ						l .	

2BB-205 Rev. 1



PROJECT NUMBER:	BORING NUMBER:		
338884	BPA-31	SHEET	8 OF 8

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687883.1 N, 2011990.2 E)

ELEVATION: 263.1 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS : 16	6.8 ft b	gs	START : 5/26/06 10	:15	END: 5/31/06 15:52	LOGGER : JS/DT/LH
	(%)			DISCONTINUITIES	Ō	LITHOLOGY	COMMENTS
₽Z €	N, AND ?Y (%		ES	DESCRIPTION	3.50	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
	014	ш.	$\nabla\nabla\nabla$		1:::	134.6-139.5' - gray to white, very fine	R25: 15:15-15:27
_			1		1:::	sand to coarse sand	-
-				135.9' - Fracture, rough, undulating	1:::	-	-
-			0	136.7' - Fracture, rough, undulating	1:::	-	-
-	R25NQ			100.7 - Fracture, rough, undulating	1:::	-	At 407 0h D O l D0
	5 ft 99%	99	0		1:::	_	At 137.3': R-Scale = R3 -
			0		]:::		
			U		]:::	_	_
			0		]:::	_	SC-4 collected 139.0-140.0'
	140.0			_	<b> </b> :::	139.7-144.0' - gravel sized siltstone	
123.1			0		<b> </b> ::::	clasts in sandstone	R26: 15:35-15:52
-					<b>-</b>  ::::	-	At 141.6': R-Scale = R3
-			0			-	-
_	R26NQ				-	-	At 143.6': R-Scale = R3-R4 First water level = 16.8' bgs
_	5 ft 100%	100	0		-	-	taken 5/31/06 at 16:55;
-	100 /6				<b>-</b>  ∷∷	-	second water level = 10.6' bgs taken 6/20/06 at 07:55
-			0		<b> </b> ∷∷	-	-
-					1:::	144.0-145.0' - becomes silty in layers	R-scale performed after
145	145.0		0		1:::	-	drilling on stored samples -
118.1						Bottom of Boring at 145.0 ft bgs on 5/31/06 15:52	
						-	
_					1	-	_
-					1	- -	_
_						-	-
-					-	-	-
-					1	_	-
-					1	-	-
150					1	-	-
113.1				_	1	<del>-</del>	_
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155					1		_
					1		1

2BB-206 Rev. 1



PROJECT NUMBER: BORING NUMBER: 338884 BPA-32 SHEET 1 OF 5

# **SOIL BORING LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (687832.2 N, 2012083.2 E)

ELEVATION: 268.9 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

DRILLIN	G EQUIF	PMENT /	AND MET	HOD : CME-550	, 2-15/16 Tricone Bit, 24" Split Spoon and 140 lb. Automatic Hammer ORIENTATION: Vertical
WATER	LEVELS	: 19.0 ft	bgs		START : 5/8/06 11:00 END : 5/9/06 14:07 LOGGER : JS
DEPTH B	ELOW EX	CISTING C	SRADE (ft)	STANDARD	SOIL DESCRIPTION O COMMENTS
	INTERV	AL (ft)		PENETRATION TEST RESULTS	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
		RECOV	ERY (in)		SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR DRILLING FLUID LOSS, TESTS, AND
			#TYPE	6"-6"-6"	CONSISTENCY, SOIL STRUCTURE, MINERALOGY
268.9	0.0			(N)	
200.9	0.0	19.0	SS1SS	1-3-3-6 (6)	Silty Sand (SM)  0.0-0.4' - gray, wet, very soft, low to medium plasticity, 30-40% fine to medium sand, roots  Lean Clay (CL)  0.4-1.0' - pale yellow, moist, medium stiff, low to
	2.0				\medium plasticity, slow dilatancy, 20% fine to medium
4					
- - -	2.5 4.5	14.0	SS2SS	2-3-5-5 (8)	1.0-1.6' - yellow, moist, medium to high plasticity, no dilatancy, heavy orange staining, 20% fine to medium sand  Fat Clay (CH)  2.5-3.7' - yellow, 15-20 % fine to medium sand; darker
5					orange staining
263.9 - - -	5.0	14.0	SS3SS	7-8-26-44 (34)	Fat Clay (CH) 5.0-5.5' - pinkish gray, heavily mottled tan and yellow, moist, stiff, medium plasticity, 5-10% fine sand; orange staining Sandy Silt (ML)
	7.0				\\5.5-5.6' - white, moist, very stiff, low to medium
	7.				plasticity, very fine to fine sand, 40-45% fines
-	7.5	8.0	SS4SS	46-49-50/5 (99/11")	5.6-6.2' - reddish brown, heavily mottled maroon, yellow, and white, moist, hard, high plasticity, one lens of greenish white fat clay; becomes harder and less moist with depth
	9.5			(* ** )	Lean Clay (CL)
10					7.5-8.0' - pale brown, mottled gray and brown, moist, Soil sampling completed at 12:10 on 5/8/06 hard, medium plasticity
258.9	10.0 10.1	1.0	ASS5SS/	50/1 (50/1")	Sandy Silt (ML) 8.0-8.2' - light gray, dry to moist, hard, low plasticity, 25% very fine to fine sand
-					Silty Sand (ML) 10.0-10.1' - light yellowish-brown, dry to moist, very dense, very fine to fine grained, 30% fines  Begin Rock Coring at 10.1 ft bgs
					See the next sheet for the rock core log
- -					-
15 <u> </u>					- - -
-					
-					
-					
<b> </b>					
20					

2BB-207 Rev. 1



PROJECT NUMBER:

338884

BPA-32

SHEET 2 OF 5

# **ROCK CORE LOG**

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687832.2 N, 2012083.2 E)

ELEVATION: 268.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

	SORING EQUIPMENT AND METHOD. CME-550, NQ DOUBLE Baffer ORIENTATION. Vertical										
WATER	LEVELS: 19	0.0 ft b	gs	START : 5/8/06 11:0	00	END : 5/9/06 14:07	LOGGER : JS				
	<u></u>			DISCONTINUITIES	U	LITHOLOGY	COMMENTS				
oz Ê	, N N N N N N N N		S	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,					
AE_A	₽, A, M,	(%	R P	DEDTIL TOPE OPENITATION DOLLOWS	<b>1</b>	MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND				
EPTH AND EVATION ELOW JRFACE (ft)	SOV	Q D (%)	ACT FC	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	MBC	WEATHERING, HARDNESS, AND ROCK MASS	SMOOTHNESS, CAVING ROD				
DEPTH AND ELEVATION BELOW SURFACE (	CORE RUN, LENGTH, AND RECOVERY (%)	R	FRACTURES PER FOOT	THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYI	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.				
	10.1				1:::	Sandstone	Rock coring began at 13:00				
_			0		1:::	At 10.1' - light brownish gray, heavily	on 5/8/06				
_				11.0' - Fracture, horizontal, smooth, undulating	1:::	mottled, very soft, fine sand, highly weathered	R1: 13:45-13:51				
-			1		<b>∃∷</b> ∶	10.7-15.0' - medium sand, scattered	At 10.6': R-Scale = R3				
-					4:::	thin clay seams at high angle, pockets	-				
_	R1NQ 4.9 ft	0	2	12.1' - Fracture, horizontal, smooth, undulating	4:::	of clay, black, yellow and red staining	At 12.1-18.3': R-Scale = R1				
	106%	U	_	12.5' - Fracture, horizontal, smooth, undulating	<u>]</u> :::						
					1:::						
-			1		1:::	-	1				
-				14.21 Frontiers harizantal amouth undulating	1:::	-	1				
			4	14.2' - Fracture, horizontal, smooth, undulating 14.4' - Fracture, horizontal, smooth, undulating		-	-				
15 <u> </u>	15.0		$\times\!\!\times\!\!\times$	14.8' - Fracture, horizontal, smooth, undulating —	<b>-</b> 1∷:	15.0-21.0' - becomes coarser with	R2: 14:05-14:11				
255.9			5	15.0-15.8' - Fractures, horizontal, smooth,	J:::	depth - medium to coarse grained.	N2. 14.05-14.11				
				undulating	1:::	_					
			ا ا	16.1-16.5' - Fractures, horizontal, smooth,	1:::						
			3	undulating	1:::	_	1				
	R2NQ			17.1' - Fracture, horizontal, smooth, undulating	1:::	-	1				
-	5 ft	0	3	· · · · · · · · · · · · · · · · · · ·	<b>∃∷</b> ∶	-	1				
_	100%			17.6' - Fracture, horizontal, smooth, undulating 17.9' - Fracture, horizontal, smooth, undulating		-	-				
-			3	18.4' - Fracture, horizontal, smooth, undulating	4:::	<u>-</u>	-				
_				18.5' - Fracture, horizontal, smooth, undulating	<b>.</b> :::	_	_				
			3	18.8' - Fracture, horizontal, smooth, undulating	1:::						
20	20.0		)	19.0' - Fracture, horizontal, smooth, undulating 19.2' - Fracture, horizontal, smooth, undulating	7:::		At 19.6': R-Scale = R3-R4				
248.9				19.9' - Fracture, 15 deg, rough, undulating	1:::		R3: 14:35-15:00				
_			2	20.3' - Fracture, horizontal, rough, stepped	<b>†∷</b> ∷	-	At 20.5': R-Scale = R3				
-				21.0' - Fracture, horizontal, rough, planar	××	Siltstone	1 1				
_			0		× ×	<ul> <li>At 21.0' - weak red, heavily mottled,</li> </ul>	-				
-				,	× ×	very soft, fine grained 21.0-25.0' - highly weathered	-				
	R3NQ 5 ft	0	3		_ × ×	21.0-25.0 - Highly weathered 22.1-22.5' - clay seam					
	100%	0			× ×	·					
				22.21 Freeting FO des recent planes	- × × × ×	- 22.9-23.1' - clay seam	1				
_			1	23.3' - Fracture, 50 deg, rough, planar	Îx x	-	1				
-					√x ×	-	1 -				
_			2			24.4-24.7' - clay seam	-				
25 <u> </u>	25.0			_	- <b> </b> × ×		D4: 45:05 45:40				
243.9			0		× × × ×	25.0-30.0' - dusky red, green mottling, - soft	R4: 15:05-15:19				
					_ × ×						
				26.1' - Fracture, 60 deg, smooth, undulating	×××	25.0-32.8' - fresh					
-			1		××	=	1				
-	R4NQ				× ×	<del>-</del>	At 27 2h D Sools - D2 D4				
-	5 ft	100	0		x x	<del> </del>	At 27.2': R-Scale = R3-R4				
-	100%				-{: :	-	-				
-			0		_ × ×	-	-				
					××	<u>-</u>	At 28.6': R-Scale = R3-R4				
			0		××	_					
30	30.0		"		××		1				
					$\rightarrow$						
					1						
					-						

2BB-208 Rev. 1



PROJECT NUMBER:

338884

BPA-32

SHEET 3 OF 5

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687832.2 N, 2012083.2 E)

ELEVATION: 268.9 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				THOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS : 19	9.0 ft b	gs	START : 5/8/06 11: DISCONTINUITIES	00	END : 5/9/06 14:07 LITHOLOGY	LOGGER : JS  COMMENTS
- □	(%) □		<i>(</i> 0		90.		COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
-			0		_ × × × × _ × ×	-	R5: 15:28-15:40
-			1	31.3' - Fracture, horizontal, smooth, undulating	X		-
-	R5NQ 5 ft 99%	90	2	32.4' - Fracture, 10 deg, smooth, undulating	- × × - × × - × ×	- Conditions	]
-			0	32.8' - Fracture, horizontal, smooth, undulating	 	Sandstone     At 32.8' - light gray, soft, medium sand to coarse sand, fresh	-
35	35.0		0		       	- 34.5-36.2' - fine rounded gravel	At 34.0': R-Scale = R3
233.9	00.0		0	-	      :::	35.0-36.2' - dark gray	R6: 15:45-16:00
-			1	36.1' - Fracture, horizontal, rough, planar	- - - - : : :	-	SC-1 collected 36.1-37.1'
-	R6NQ 5 ft 93%	89	0		 	<del>-</del>	-
-			0		 	-	At 38.4': R-Scale = R3-R4
40	40.0		1	39.5' - Fracture, 20 deg, smooth, undulating	- - - - - - - - - -	-	-
228.9			1	40.6' - Fracture, horizontal, rough, undulating	× × × × × × - × ×	Siltstone  - At 40.0' - dark reddish brown, very soft to soft, fresh, fine grained	R7: Finished at 08:45 on 5/9/06
-			0		- × × × × × × × × ×	40.9-42.4' - soft, whitish inclusions - -	-
-	R7NQ 5 ft 100%	86	4	42.4-42.7' - Fracture zone, horizontal and vertical, rough, undulating	- × × - × × - × ×	42.7-44.1' - green mottling	At 43.0': R-Scale = R3
-			4	43.8-44.1' - Fracture zone, horizontal and	- × ×	42.7-42.8' - clay seam - -	
45_ 223.9	45.0		1	vertical, smooth, undulating, multiple fractures with rock fragments  -	- × × - × × - × ×	44.1-45.0' - soft, some very fine to fine sand 45.0-48.0' - dark reddish brown, green	R8: 08:50 - 09:10
-			0		- × × × × × × × × × ×	- mottling, fine grained	-
-	R8NQ 4.2 ft	100	0		- × × × × - × ×	-	-
-	100%		0		- x x - x x - x x	Sandstone	At 47.3': R-Scale = R3-R4 -
-	49.2		0		- : : : : : : : : : : : : : : : : : : :	- 48.0-48.8' - pinkish gray, fresh, soft, fine grained, contact at 50 degrees	-
50	R9NQ 0.8 ft 50.0 100%	100	0		- × × × × - × ×	<u>-</u>	R9: 09:12-09:16

2BB-209 Rev. 1



PROJECT NUMBER:

338884

BPA-32

SHEET 4 OF 5

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687832.2 N, 2012083.2 E)

ELEVATION: 268.9 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

WATER	ER LEVELS : 19.0 ft bgs		ogs	START : 5/8/06 11:00			END: 5/9/06 14:07	LOGGER : JS				
				DISCONTINUITIES	Т	<u>9</u>	LITHOLOGY	COMMENTS				
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS		SYMBOLIC LOG	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.				
-	032		0		- × - × ×	: X : X	Siltstone At 48.8' - dark reddish brown, trace	R10: 09:20-09:40				
-			0		- × - × - ×	×	green mottling, very soft to soft, fresh, fine grained, scattered white and gray inclusions 50.0-55.0' - coarse sand to fine gravel	-				
_	R10NQ 5 ft 99%	99	0		××××××××××××××××××××××××××××××××××××××	x x x x	50.0-55.0 - coarse sand to line gravel sized	At 52.0': R-Scale = R3				
-			0	54.0' - Fracture, horizontal, smooth, undulating	- × × × × ×	× × × ×		-				
55_ 213.9	55.0		2	54.6' - Fracture, horizontal, smooth, undulating	- × × × × ×	* <u>+</u>		R11: 09:50-10:06				
-			0					-				
_	R11NQ 5 ft		0		٠ × × ×	X X X X X		-				
-	100%	100	0		- × × × ×	X X X		- At 58.4': R-Scale = R3				
-			0		- × - × - ×	× × × ×		-				
60 208.9	60.0		0		-  × -  × -  ×	X X X		R12: 10:20-10:36				
_		96	1	61.7' - Fracture, 70 deg, smooth, undulating	- × × × ×	x x x x		At 60.9': R-Scale = R3-R4 -				
-	R12NQ 5 ft 96%		0		××××××××××××××××××××××××××××××××××××××	×		-				
-								1	63.5' - Fracture, 70 deg, smooth, undulating		: X	
65_ 203.9	65.0		0 ×××			X X		R13: 10:43-11:00				
-			0		-  × -  × × × ×	X X X X		- - At 66.3': R-Scale = R3				
_	R13NQ 5 ft	98	0		×× ×× ××	*		- AL UU.J. N-JUAIR - NJ				
-	98%	<i>3</i> 0	0		× × × × ×	X X X		-				
-			0		- * * * *	X X X		-				
70	70.0			<u> </u>	_ × ×			_				
					_			•				



PROJECT NUMBER:

338884

BPA-32

SHEET 5 OF 5

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687832.2 N, 2012083.2 E)

ELEVATION: 268.9 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS : 19	.0 ft b	gs	START : 5/8/06 11:0	00	END: 5/9/06 14:07	LOGGER : JS		
				DISCONTINUITIES		LITHOLOGY	COMMENTS		
gz €	ŽAN QN (§)			ES	DESCRIPTION	25	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.		
			0		××		R14: 11:05-11:30		
					_ × >	1			
			0		××	1			
					]× >	_			
	R14NQ 5 ft	98	0		× >		_		
	98%				× >	4 <del>-</del>	At 72.6': R-Scale = R3		
-			0		× >   × >	-	-		
-					- ^.^.;	_ 73.7' - dark reddish brown, scattered	-		
-			0		× >	coarse sand, rounded	-		
75 <u> </u>	75.0		~~~	_	× >	75.0-78.1' - dark reddish gray, heavy	R15: 11:35-11:56		
-			0		×	blue, green, and purple mottling	At 75.3': R-Scale = R3-R4 -		
-				76.1-76.3' - Fractures, 40 deg, smooth,	-{x }	-	-		
-			4	undulating	- <b> </b> ×	<del>}</del>	-		
-	R15NQ			77.1' - Fracture, horizontal, smooth to rough	×	-	SC-2 collected		
	5 ft 98%	98	1	and undulating	× > × > × >	<b>†</b>	77.1 - 78.5		
				78.1' - Contact between siltstone and	×	Sandstone	1		
			1	sandstone, 30 deg 78.5' - Fracture, 50 deg, smooth, undulating	1:::	78.1-81.7' - gray, soft, fine sand, fresh, fine black and gray banding			
				76.5 - Fracture, 50 deg, Siriodiri, dilidulating	1:::	78.8-81.7' - light gray, soft to hard,	1		
	80.0		0		]:::	medium sand to coarse gravel	-		
188.9	·		0	_	]:::		R16: 13:20-13:40		
					]:::				
					0		<u> </u> :::		
					× ×	Siltstone	At 81.55': R-Scale = R3-R4		
	R16NQ 5 ft	97	10+	82.1-82.2' - Fracture zone, horizontal, contact between matrices	× × × ×	81.7-87.8' - dark gray, heavy mottling, very soft to soft, fresh, very fine to fine	_		
-	99%			between matrices	- <b> </b> × >	sand throughout	-		
_			0		× × × ×	}-	-		
-					- × >	-	At 83.9': R-Scale = R3		
-			0		× >	}	-		
85 <u> </u>	85.0		~~~	_	× >	85.0-87.8' - soft to hard, harder with	R17: 13:50-14:07		
			0		\(\hat{x}\)	- depth	-		
-					- × >	-	-		
			0		× > × > × >	-	-		
	R17NQ				^.^	<b>†</b>	At 86.8': R-Scale = R3-R4 - First water level = 19.0' bgs		
	5 ft 102%	74	1	87.8' - Fracture, 30 deg, smooth, undulating	- <del>  × · ·</del>	Sandstone	taken 5/9/06 at 16:15; second water level = 10.5'		
				88.2-89.9' - Fractures, 70 deg and horizontal,	1:::	87.8-90.0' - dark gray, hard, fine sand	bgs taken 5/10/06 at 17:21		
			7	smooth to rough and undulating	1:::	to medium sand, fresh	R-scale performed after drilling on stored samples -		
			3		]:::		drining on stored samples -		
90	90.0		ر		<u> </u>				
			~~~			Bottom of Boring at 90.0 ft bgs on			
						5/9/06 14:07			

2BB-211 Rev. 1



PROJECT NUMBER: BORING NUMBER: BPA-33

SOIL BORING LOG

SHEET 1 OF 9

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687730.7 N, 2012118.9 E)

ELEVATION: 270.4 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

DRILLING EQUIPMENT AND METHOD: CME-550, Tricone Bit, 24" Split Spoon, 140 lb. Automatic Hammer ORIENTATION: Vertical

				HOD . CIVIE-550		IENTATION : Vertical
WATER					START : 5/12/06 10:00 END : 5/25/06 17:20 LOI SOIL DESCRIPTION COMM	GGER : DT/JS
DEPIRE			SRADE (ft)	STANDARD PENETRATION	SOIL DESCRIPTION 0	LIVIO
	INTERV		EDV (in)	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	, DRILLING RATE,
		RECOV		6"-6"-6"	MOISTURE CONTENT, RELATIVE DENSITY OR ON DRILLING FLUID LE CONSISTENCY, SOIL STRUCTURE, MINERALOGY	OSS, TESTS, AND
			#TYPE	6 -6 -6 -6 (N)	Solicion Entrol, Solicion Control (E. Minister Cont	
270.4	0.0				Silty Sand (SM) 0.0-1.0' - brown, moist, loose, fine grained, feldspar,	
		16.0	SS1SS	2-2-3-5	trace organics	
		10.0	33133	(5)	Clay (CL) 1.0-1.3' - yellow, moist, medium stiff, medium plasticity,	
_	2.0				\trace fine sand, organics \tag{\}	_
_	2.5					_
_	2.5				ST-2 collected - 2.5-4.5'	=
-		24.0	ST2ST		1 1	-
_					- PT-1 collected	-
	4.5				- 4.0-6.3'	=
5 <u> </u>	5.0				Clay (CL)	
					5.0-6.2' - dark reddish brown, moist, hard, low to	=
-		14.0	SS3SS		medium plasticity	=
-	7.0			(39)	Silty Sand (SM) 6.2-6.9' - very pale brown, dry to moist, hard, saprolite	_
-	7.0				111	=
-	7.5				Silty Sand (SM)	-
-			00400	50/0	7.5-7.8' - very pale brown, dry to moist, hard, saprolite	-
-		3.0	SS4SS	50/3 (50/3")	1	_
	9.5			` ,	11	_
10					Soil sampling complete	ed at 11:15 on 5/12/06
260.4	10.0 \ 10.3	3.5	SS5SS	50/3.5	Silty Sand (SM) 10.0-10.3' - very pale brown, dry to moist, hard,	_
_				(50/3.5")	\saprolite \ _	=
-					Begin Rock Coring at 10.3 ft bgs See the next sheet for the rock core log	_
_					-	-
-						=
-					- 1	_
-						-
-						_
15					- 1	_
255.4						
-					1	-
_					1	=
-					1	=
-					1	-
					1	-
] 1	=
]	
]]	_
20						
ldot						



PROJECT NUMBER:

338884

BPA-33

SHEET 2 OF 9

ROCK CORE LOG

ORIENTATION : Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687730.7 N, 2012118.9 E)

ELEVATION: 270.4 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

CORING EQUIPMENT AND METHOD: CME-550, NQ DOUBLE Barrel									
WATER	LEVELS: 14	.9 ft b	gs	START : 5/12/06 10	:00	END : 5/25/06 17:20	LOGGER : DT/JS		
				DISCONTINUITIES	ŋ	LITHOLOGY	COMMENTS		
oz €	CORE RUN, LENGTH, AND RECOVERY (%)		S	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	OUTE AND DEDECTOR OF THE		
AE'S	RUN H, A	(%) 🛛	FRACTURES PER FOOT	DEDTIL TYPE OPIENTATION POLICINIESS	1 을	MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND		
FYOR	RE I	о О	ACT R FC	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	MBC	WEATHERING, HARDNESS, AND ROCK MASS	SMOOTHNESS, CAVING ROD		
DEPTH AND ELEVATION BELOW SURFACE (ft)	8,5,5	R	FE	THICKNESS, SURFACE STAINING, AND TIGHTNESS	S	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.		
_	10.3			-		- Sandstone	Rock coring began at 14:16 -		
_			0		.	10.3-12.6' - light yellowish brown, soft,	on 5/12/06		
_				11.2' - Fracture, horizontal, rough, undulating,	<u> </u> :::	fine sand to medium sand, subangular, highly weathered	R1: 14:16-14:35 and 14:40 - 14:56 on 5/12/06		
			3	loose fit	: : :	ousungular, mgmy modulored	- 14.50 011 3/12/00		
				11.3' - Fracture, horizontal, rough, undulating, loose fit	1:::				
-			1	11.7' - Fracture, horizontal, rough, undulating,	××	Siltstone	-		
-				loose fit	× ×	12.6-18.9' - dark reddish brown, soft to	-		
-			4	12.5' - Fracture, 25 deg, rough, undulating, loose fit	× ×	very soft, highly weathered, some fine	-		
-			1	13.1' - Fracture, horizontal, smooth,	× ×	sand -	_		
_				undulating, loose fit	× ×	-	_		
15	R1NQ		1	14.7' - Fracture, 10 deg, rough, stepped, tight _	××				
255.4	9.7 ft 101%	0		fit	l x x				
_	10176		0		× ×	_	<u> </u>		
-					××	-	-		
l -			0	-	× ×	-	-		
-			U		$\begin{array}{c c} \times \times \\ \times \end{array}$	-	-		
_					× ×	_	-		
_			1	17.8' - Fracture, horizontal, smooth,	× ×	_	_		
				undulating, loose fit	××				
			1		lê ŝ		_		
-				18.9' - Fracture, horizontal, rough, stepped,	1	Sandstone	Boring abandoned on		
	00.0		1	tight fit 19.6' - Fracture, 10 deg, rough, undulating,	 ∷∷	At 18.9' - dark brown, soft, fine sand to coarse sand, subangular, highly	5/15/06 for geophysical		
20 <u> </u>	20.0		\overline{V}	loose fit	- ∷∷	weathered	work. R2: 09:10-09:15 on 5/22/06;		
			2	20.1' - Fracture, horizontal, rough, planar	. ∷.	_ 20.0-21.8' - dark grayish brown	moved about 2' S of original -		
_				20.4' - Fracture, horizontal, rough, planar	 :::	-	location and started at 20'		
l _			2	_]:::	21.2-21.7' - mottled dark purple	At 20.0-22.4': R-Scale = R1- R2 -		
				21.6' - Fracture, horizontal, rough, undulating,	1:::	_ 21.8-25.8' - light yellowish brown	112		
_	R2NQ			heavily stained	1:::	21.0-25.0 - light yellowish brown	_		
-	5 ft 82%	0	2	21.8' - Fracture, horizontal, rough, undulating 22.0' - Fracture, horizontal, smooth, undulating	 :::	-	-		
-	OZ 70			22.5' - Fracture, horizontal, smooth, undulating	1∷ ∷	-	-		
-			1	23.5' - Fractures (2), horizontal and 70 deg.	∤∷ ∷	23.5-23.9' - heavy pink and red	At 23.2': R-Scale = R2 _		
_				smooth, undulating	1:::	mottling through soil mass, very soft,	-		
_			\bowtie	24.1' - Fracture, horizontal, smooth, undulating] ::::	poorly sorted, fine to coarse sand	-		
25	25.0		\bowtie	_]:::				
245.4			40.	25.0-25.8' - Fracture zone	 :::		R3: 09:20-09:35		
_			10+		1:::		· ·		
-				25.8' - Fracture, 30 deg, smooth, undulating	1:::	- 25.8-26.8' - light brownish gray,	-		
-			1		1:::	mottled pink and red, clay in matrix 25.8-26.2' - very soft, very fine sand to	-		
-	Davio			26.8' - Fracture, horizontal, smooth, stepped	1///	fine sand, clay in matrix	At 26.8-28.8': R-Scale = R0 -		
-	R3NQ 5 ft	0	2	27.0' - Fracture, horizontal, smooth,	V ///	Clay Seam (CL)	At 26.8-28.3': PP: 3.5-4.5+		
_	90%			undulating, black stains 27.2' - Fracture. horizontal. smooth.		26.8-28.3' - grayish brown, mottled greenish white, black, yellow, red, very	tsf _		
			10.	undulating, black stains	/ //	stiff, highly weathered, fine grained	1		
-			10+	28.3-28.4' - Fracture zone, horizontal	××	Siltstone	·		
-			0	28.6' - Fracture, horizontal, smooth, undulating, black stains	××	At 28.3' - reddish brown, mottled	<u> </u>		
			XX	undulating, plack stains	× ×	black, yellow, white and purple, highly weathered, fine grained	-		
30 <u> </u>	30.0		\bowtie	20.0.20.6' Eractura zona numerous frosti	× ×	— woulded, life graffied	P4: 10:03 10:24		
240.4				30.0-30.6' - Fracture zone, numerous fractures	 ××		R4: 10:03-10:21		
					1				



PROJECT NUMBER:

338884

BPA-33

SHEET 3 OF 9

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687730.7 N, 2012118.9 E)

ELEVATION: 270.4 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

۸/ ۸ T E D	LEVELS : 14	O ft h		START : 5/12/06 1/	n-00	END : 5/25/06 17:20	LOCCED : DT/IS
VAIER	LEVELS : 14	. 3 11 E	ys.	START : 5/12/06 10 DISCONTINUITIES	T	END : 5/25/06 17:20 LITHOLOGY	LOGGER : DT/JS COMMENTS
BELOW SURFACE (#)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
- - -			10+	30.6' - Fracture, horizontal and 10 deg, smooth, undulating 30.8' - Fracture, horizontal and 10 deg, smooth, undulating	_ × × _ × × _ × × _ × × _ × ×	 28.3-28.5' - very soft, clay to weathered bedrock 28.5-30.0' - very soft to soft 30.0-32.6' - mottled greenish gray, purple and yellow, very soft, clay 	At 30.6-31.0': PP: 4.5+ tsf At 31.5-31.9': PP: 1.5 tsf
-	R4NQ 5 ft 107%	48	2	31.5' - Fracture, horizontal, smooth, planar, contact with clay seam	- × × × × - × ×	seams, clay-like Sandstone	-
- -	107 /0		1	33.2' - Fracture, horizontal and vertical, smooth, undulating, 0.15' clay infilling	-:::	At 32.6' - very dark gray, mottled greenish gray and yellow, very soft, very fine sand, some silt, laminated to medium bedding	
35 <u> </u>	35.0		0 ×××	-	- - - - - -	32.6-32.6' - highly weathered 32.6-35.0' - dark brown, trace greenish gray mottles, very soft to soft,	R5: 10:35-10:44
_00. - - -			<u>∞</u> 2	35.5' - Fracture, horizontal, smooth, undulating, brown and yellow stains	-	very fine to fine grained, coarser than above 32.6-39.4' - slightly weathered	10.55-10.44
-	R5NQ		0	35.7' - Fracture, 20 deg, smooth, undulating, brown and yellow stains	<u>-</u> :::	35.0-35.7' - very dark gray, mottled brown and black, very soft, very fine grained, some silt in matrix	
-	5 ft 102%	92	0	20.2.20.41. Freeture (2) havingstel and 40	- ::: - :::	35.7-38.7' - gray, mottled pink; white black, green, yellow, orange grains, soft to hard, fine sand to coarse sand, poorly sorted, coarsens with depth	At 37.5': R-Scale = R3-R4
-			3	38.2-38.4' - Fractures (2), horizontal and 40 deg, rough, undulating, black stains 38.9' - Fracture, horizontal, rough, undulating	- - - - - - -	_ 38.7-39.5' - weak red, red, black, white, and gray grains, soft, medium	
40 <u> </u>	40.0		2	-	<u> </u>	sand to coarse sand, dark gray clay seams throughout, irregularly shaped, more abundant with depth	R6: 10:53-11:00
-			0		- - - - -	 39.4-47.4' - fresh 39.5-39.6' - clay seam, joints on either side, undulating, dark gray with no 	SC-1 collected
-	R6NQ		0		- ::: - :::	 bedding, firm 39.6-40.0' - light gray, soft to hard, fine sand to coarse sand, poorly sorted 	40.0 - 41.1
-	5 ft 100%	100	0	43.0' - Fracture, 65 deg, smooth, undulating,		- 40.0-43.3' - gray, multicolored grains, white, green, gray, some black, orange, soft to hard, fine sand to	
_			1	0.01' relief		medium sand, coarsens with depth and then begins fining with depth at 42.2'	
45 <u> </u>	45.0		0	-	-	42.8-43.0' - mottled red 43.3-44.0' - light gray and pale red, mottled dark red, hard, fine sand	At 44.3': R-Scale = R3-R4 R7: 11:05-11:23
-			0 10+	46.3-46.6' - Fracture zone, horizontal and 80		 44.0-45.0' - mottled red, tine sand to coarse sand, poorly sorted, thin, discontinuous, black threadlike lenses, more abundant with depth, coarser in 	
-	R7NQ 5 ft	70*	10+	deg, some orange and yellow stains 47.3' - Fracture, horizontal, smooth,		last 0.2' (30% coarse sand) 45.0-47.4' - light brownish gray, gray, white, yellow, and orange grains, soft,	
-	100%	10	10+	undulating, 0.01' relief 47.6' - Fracture, 5 deg, smooth, undulating, 0.01' relief	× × × × × ×	medium sand to coarse sand, poorly sorted, trace clay clasts, some finer zones	
-			2	47.9' - Fracture, horizontal, smooth, undulating, 0.01' relief 48.3' - Fracture, horizontal, smooth,	× × × × × × × × × × × ×	46.6-46.7' - fine grained zone	At 48.8': R-Scale = R2
50 <u> </u>	50.0			undulating, 0.01' relief	$\stackrel{\times}{\stackrel{\times}{\stackrel{\times}{\stackrel{\times}{\stackrel{\times}{\stackrel{\times}{\stackrel{\times}{\stackrel{\times}$		R8: 11:34-11:57

2BB-214 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BPA-33

SHEET 4 OF 9

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687730.7 N, 2012118.9 E)

ELEVATION: 270.4 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				HOD : CME-550, NQ Double Barrel					ORIENTATION : Vertical
WATER	LEVELS : 14	1.9 ft b	ogs	START : 5/12/06 10	0:00	_	END : 5/25/06 17:20		LOGGER : DT/JS
	(%)		- I	DISCONTINUITIES	_ g	3	LITHOLOGY		COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLICLOG	I MEGELO L	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.
шшш	0716	IĽ.	10+		1 0	1	Siltstone	П	_
-			0	50.5-50.8' - Fracture zone, horizontal, smooth, undulating, 0.01' relief		- <u>-</u>	47.4-48.0' - dark gray, mottled gray, yellow, purple, very soft, moderately weathered, very fine grained, clay		- - -
-	R8NQ 5 ft	88	1		- × × × × ×	X X X X	seams 47.4-47.6' - clay seam, dark gray 47.7-47.8' - clay seam, dark gray		At 52.1': R-Scale = R2-R3
-	93%		0	52.6' - Fracture, horizontal, smooth, undulating, 0.01' relief	- × × - × ×	× × × ×	48.0-48.3' - clay seam, laminated alternating siltstone and clay seams, contacts are horizontal, smooth, undulating		-
- - 55	55.0		0		- × - × ×	X X X	Siltstone 48.0-50.3' - dusky red, mottled gray and greenish gray, very soft		-
215.4	50.0		0	-	- - - - - - - - - - -	X X X X	48.0-48.3' - moderately weathered 48.3-49.2' - fresh 49.0-49.1' - 0.02' thick clay seam and		R9: 13:50-14:01
- -			0		× × × × ×	X X X X	0.02' thick bedrock piece (like 48.0-48.3' alternating, but thinner beds), smooth, undulating, 0.02' relief 49.2-50.3' - brown and black, soft,		At 56.3': R-Scale = R3 -
-	R9NQ 5 ft 102%	100	1	57.6' - Fracture, horizontal, smooth, undulating	- × - : :	× :-	49.2-50.3 - brown and black, soil, laminated bedding, fresh, becomes coarser Claystone	\prod	-
-			0		-	- -	50.3-50.9' - dark reddish gray, mottled yellowish brown, very soft, fresh, very fine grained, gradational contacts		- -
60_ 210.4	60.0		0	-	- :: - ::	-	Siltstone At 50.9' - dark reddish brown, mottled greenish gray and yellow, very soft to		
-			0		-	-	soft, fresh, fine grained 53.1-55.0' - soft, coarser grained silt, 5-10% white medium to coarse		At 60.4': R-Scale = R3-R4
-	R10NQ 5 ft	92	2	62.3-62.5' - Fractures (2), horizontal and 60	-	-	grained sand 56.9-57.4' - transition zone from siltstone to underlying sandstone; interbedded		-
_	98%	92	0	deg, smooth, undulating, thin quartz infilling (~0.0002' thick)		-	57.3-57.4' - fine black bedding at end of transition zone Sandstone		At 63.1': R-Scale = R3-R4
-			0	63.6' - Contact between siltstone and sandstone, horizontal, smooth, undulating, in clay seam at contact, sharp	- × - × - ×	X X X X	At 57.4' - gray to light greenish gray, soft to hard, fine sand to medium sand, poorly sorted, fresh		-
65 205.4 _	65.0		0	63.7' - Fracture, 30 deg, smooth, undulating, small slickenside piece (1/2 sized)	- × - × - ×	X X X X	57.6-58.3' - pale red lens 60.0-63.6' - medium sand, trace coarse sand sized clay clasts, well sorted		R11: 14:45-15:05
-			0		- × × × ×	**************************************	63.6-63.7' - clay seam, green gray, sand wraps around clay		At 65.7': R-Scale = R3
-	R11NQ 5 ft 102%	98	10+	67.6-67.9' - Fracture zone	- × × × ×	X X X X	63.7-65.0' - very dark gray, mottled brown, red, light gray, green, soft, fresh, fine grained		- -
- -			2	68.5-68.7' - Fractures (2), 70 deg, undulating, partial fractures	× × × × ×	XXXX	Siltstone 65.0-73.4' - dark reddish brown, mottled greenish gray and black, soft,		At 68.2': R-Scale = R4
70 200.4	70.0		0	-	- × × × ×	× × × ×	fresh, fine grained		
200.4					†	1			R12: Finished at 15:37

2BB-215 Rev. 1



PROJECT NUMBER:

338884

BPA-33 SHEET 5 OF 9

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687730.7 N, 2012118.9 E)

ELEVATION: 270.4 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

CORING	EQUIPMEN	II AN	DIVIE	THOD : CME-550, NQ Double Barrel		ORIENTATION: Vertical
WATER	LEVELS : 14	1.9 ft b	gs	START : 5/12/06 10:	00	
	(%			DISCONTINUITIES	စ္ခ	LITHOLOGY COMMENTS
A AND TION V ACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	(%) Q	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS,	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, MEDITAL SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND EMOOTHNIESS CAVING ROD
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE LENG1 RECO	RQD	FRACT PER F	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMB	AND ROCK MASS CHARACTERISTICS WEATHERING, HARDINGSS, SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
-			0	-	× × × × × ×	15% coarse sand sized to fine gravel, At 70.6: R-Scale = R3
_			0	-	× > × >	71.6-73.4' - grades into sandstone
_	R12NQ 5 ft 102%	100	0	-	× × × × × ×	-
_	10270		0	- -	× > × >	Sandstone -
-			0	-		 ∴ 73.4-84.3' - dark brown, soft to hard, ∴ very thin to medium bedding, very fine ∴ sand, fresh
75 <u> </u>	75.0		0			73.4-74.4' - gray and dark gray beds 73.4-75.0' - fine sand to medium sand, well sorted, becomes coarser with R13: 08:20-08:45 on 5/24/06
_			0	-		depth
_	R13NQ		_	-		75.3-75.5' - very thin bedding, dark gray and black bedding
_	5 ft 98%	98	0	-		 ∴ 75.8-76.7' - very thin bedding, dark ∴ gray and black bedding ∴ 76.8-77.2' - mottled and banded dark
_			0	- -	:::	reddish brown, iron rich zones 77.5-77.6' - banded dark gray and black
80 190.4	80.0		0	- -		78.0-78.1' - mottled and banded dark reddish brown, iron rich zones
190.4			0	- -		- coarser with depth, becoming medium grained by ~79.0' with 20% coarse
_			0	-		 ☐ grains, siliceous sands, bedding at ☐ 10-20 degrees ☐ 80.0-84.3' - medium sand to coarse At 81.3': R-Scale = R3 -
_	R14NQ 5 ft 103%	100	0	-		sand, poorly sorted, becoming coarser with depth
_			1	-		83.1' - green clast
			0	- -	× × ×	83.9-84.3' - soft, grades from sandstone to siltstone zone, dark gray banding at ~10-20 degrees, iron rich
85 185.4 -	85.0		0		× > × >	minerals increase, dark red staining R15: 09:10-09:19
_			0		× × × × × ×	greenish gray, mottled dark red rusty,
-	R15NQ	98		-	× × × ×	threadlike black bands, soft, fresh, fine At 86.5': R-Scale = R3
-	5 ft 98%	98	0	-		85.1-87.5' - soft to hard, laminated bedding, very fine sand to fine sand,
-			0	- -		85.4-86.0' - very dark gray and weak red
90 <u> </u>	90.0		0	- -		
100.7						11(0, 03,23*03,40
					Ц	

2BB-216 Rev. 1



PROJECT NUMBER:

338884

BPA-33

SHEET 6 OF 9

ROCK CORE LOG

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687730.7 N, 2012118.9 E)

ELEVATION: 270.4 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	LEVELS: 14.9 ft bgs			START : 5/12/06 10	0:00		END: 5/25/06 17:20	LOGGER : DT/JS	
	(%			DISCONTINUITIES	ပွ	ي 🗀	LITHOLOGY	COMMENTS	
ND (ft)	JN, AND RY (9		ZES JT	DESCRIPTION	73	2	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	IMBOE	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.	
	0 5 2	ď	0	THICKNESS, SURFACE STAINING, AND HIGHTINESS	ίς.	n 	CHARACTERISTICS Sandstone	, , , , , , , , , , , , , , , , , , ,	
			U]::		87.5-91.7' - light gray, white, gray, and	At 90.5': R-Scale = R3	
			6	91.0-91.3' - Fracture zone, 70 deg, rough, undulating, 1 main fracture with several broken	.		black, soft to hard, poorly sorted, fresh, fine to medium sand, becomes coarser		
_			Ů	pieces	××	X	and harder with depth, contact is sharp on 30 degree angle	_	
_	R16NQ 5 ft	70	0	91.7' - Contact between siltstone and sandstone, 30 deg, smooth, undulating, 0.02'	-× ×	A -1	87.8' - 1/4 claystone clast	_	
_	98%			thick discolored zone at contact in siltstone (gray), very soft	-× ×	XL \	88.2' - dark red stained beds 88.6' - dark red stained beds	_	
_			1	91.7-105.1' - Microfractures throughout in	- × ×	*- \	89.3' - dark red stained beds 90.0-91.7' - medium sand to coarse	-	
-				capillary pattern 93.8' - Fracture, horizontal, smooth, undulating	- × ×	Х	sand, 10-20% several 1/8 to 1/4 gray	-	
95	95.0		6	94.1-94.4' - Fractures (5), horizontal, smooth, undulating	⊢× ×	×-	siltstone rip up clasts Siltstone	-	
175.4	95.0		\overline{A}	94.6' - Fracture, horizontal, smooth, undulating	⊢× ×	7	91.7-105.1' - dark reddish brown,	R17: Finished at 11:10	
_			0	95.0-100.0' - Microfractures	×××	×	trace green and black mottling, soft, fresh, fine grained	=	
			_		T ×	×	94.7-96.3' - dark gray mottling 95.8-96.2' - very soft to soft	_	
			0		××	×	96.3-98.7' - dark purple mottling,	At 96.7': R-Scale = R3	
	R17NQ 5 ft	88	0		×××	×	5-10% green mottling	_	
_	98%	00			××	×_			
_			0		××	×_		_	
_					-× ×	×	98.7-100.0' - heavily mottled green,	At 98.9': R-Scale = R3-R4	
			1	99.4' - Fracture, 20 deg, smooth, undulating	-× ×	*	becomes coarser, coarse silt, 40% very fine sand	-	
100 <u> </u>	100.0		$\sim\sim$	100.0-100.7' - Microfractures	-× ×	×-	99.4-100.0' - trace to 10% green speckles to 0.0007'	R18: 10:30-10:55	
-			10+	100.3' - Fracture, horizontal, smooth, undulating, 0.01' relief	- ̂×	× –	100.3-100.7' - green and red mottling	-	
_				100.7-101.1' - Fracture zone, bedrock	- × ×	×	covering the core surface 100.7-101.1' - very soft to soft, broken	-	
-			10+	fragments	×××	7	up zone of siltstone; bedrock fragments	-	
	R18NQ	00			××	Χ	101.1-103.4' - heavily mottled dark	_	
	5 ft 100%	86	1	40001 = 404 404 414	××	×	red, gray, dark purple, and green, very soft to soft, very fine grained]	
			0	102.9' - Fracture, 10 deg, smooth, undulating, fossil bed organics]× ×	×	400 4 405 41		
_				103.4' - Contact between siltstone and sandstone, horizontal, strong contact	×××	×L	103.4-105.1' - mottled light gray, tan, dark gray, green, soft to hard, coarser,	At 103.7': R-Scale = R3-R4	
_			0	Sandstone, nonzonital, strong contact	× × ×	ХL	40% coarse silt and very fine sand	_	
105 <u> </u>	105.0			_	_ ×	<u>X</u> _		R19: 11:05-11:25	
105.4			2		-× ×	×L	Siltstone 105.1-106.9' - very dark gray to very	K19. 11.05-11.25	
_				105.8' - Fracture, 30 deg, slickensided, undulating, gray contact	- × ×	×	dark greenish gray, mottled brown, dark yellow, dark red, mottling in	-	
-			10+	106.0' - Fractures (2), 20 deg, rough,	- × ×	ХĒ	irregular bands and streaks, most at	-	
_	R19NQ			undulating, gray material, 0.02' apart, lower surface, smooth, undulating, almost	- × × ×	*	150 degrees, very soft to soft, fresh, mottling/banding irregular, bedding on	-	
-	5 ft 97%	90	1	slickensided, possible fossilized organics	××	*\	150 degrees, very fine grained with	-	
-	37 70			106.3-106.5' - Fracture zone, horizontal and 20 deg, smooth and slickensided	-d× × ×	×	very fine sandy zone 105.2-105.7' - irregular shaped zone	-	
1 -			0	106.6' - Fracture, horizontal, smooth, undulating	- × ×	χГ	106.6-106.8' - dark red/purple lenses	At 108.4': R-Scale = R3-R4	
				106.9' - Contact between siltstones, horizontal,	- × ×	X [†]	Siltstone 106.9-112.1' - dark reddish gray,	1	
110_	110.0		0 ***	sharp 107.0' - Fracture, horizontal, smooth,	×××	×	mottled dark yellow, light gray, very soft to soft, fresh, horizontal bedding		
160.4				undulating	 Ŷ	<u> </u>			

2BB-217 Rev. 1



PROJECT NUMBER: BORING NUMBER: 338884 BPA-33

BPA-33 SHEET 7 OF 9

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687730.7 N, 2012118.9 E)

ELEVATION: 270.4 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING	CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical										
WATER	LEVELS : 14	1.9 ft b	ogs	START : 5/12/06 10	:00		END : 5/25/06 17:20	LOGGER : DT/JS			
	- (%			DISCONTINUITIES	ပ္ခ	L	LITHOLOGY	COMMENTS			
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG		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.			
			0	110.0-112.0' - Microfractures in fine zones	_ × :	*	107.3-110.0' - faint green, red, yellow	R20: Finished coring at -			
-					- × :	×-	mottling, soft to hard, up to 50% very fine to fine sand, fine grained	12:00			
-			0		- × ;	*	110.0-110.5' - mottled yellow and black, 50% very fine sand	At 111.4': R-Scale = R3			
-	R20NQ				- <u>x :</u>	*	110.5-112.1' - very dusky red, dark	-			
_	5 ft 100%	100	0		- × :	/ [.	gray, purple, and dark yellow mottling, trace coarse silt/very fine sand,	-			
			0]:::	:[]	coarsens with depth, up to 30-35%	At 113.1': R-Scale = R3-R4			
_			\bigsqcup		- ∷∷	:[-	112.1-112.8' - very dark gray, faintly mottled dark red, fresh, some	_			
- I			0			: - \	laminated beds of very fine gray	_			
115 <u> </u>	115.0			-	-{∷::	\vdash	siltstone, some very fine sand beds, interbedded	R21: No time recorded			
-			0		∃ ∷:	:	Sandstone 112.8-116.6' - black, mottled red, soft	-			
-					†∷ ∶	:	to hard, very fine sand to coarse sand,	At 115.8': R-Scale = R3-R4 -			
			1	116.6' - Contact between siltstone and	×		well sorted, fresh, coarsens with depth, becomes harder with depth]			
_	R21NQ 5 ft	100	0	sandstone, 10 deg, smooth, undulating	× ;	<u>*</u>	112.8-115.0' - grades from siltstone to sandstone	SC-3 collected			
_	107%				- × ;		113.2-113.3' - medium to coarse grained sand bed	117.3-118.4'			
_			0		- × :	<u>}</u> ∦	114.9' - fine grained siltstone lens 115.0-116.6' - heavily mottled red	-			
-					- × :	*	115.3' - reddish gray, medium sand,	At 119.0': R-Scale = R3			
120	120.0		1		× :	<u>*</u>	coarsens with depth, medium to coarse grained	-			
150.4			\bigotimes_{1}	120.0-122.8' - Microfractures	× :	X	Siltstone 116.6-117.7' - very dark gray, mottled	R22: Finished at 14:20			
_				120.8' - Fracture, 40 deg, slickensided, planar,	× : × :		black, soft, fresh				
_			0	not entire surface is slickensided, partial fractures at same angle opening up below this	- × :	<u>*</u>	Siltstone At 117.7' - dark reddish gray, mottled	-			
-	R22NQ			fracture	- × ;	*	red, soft, fresh 118.8' - white speckles, very fine	-			
-	5 ft 103%	100	0		- × ;	<u>X</u>	grained, 30% very fine sand 120.0-122.8' - dusky red, dark red	At 122.2': R-Scale = R3 _			
-	10070				† ?. :	╬	mottling /	-			
			0]:::	:[`	\\\122.8-123.1' - grades to sandstone \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\]			
_			0	124.4' - Fracture, 20 deg, smooth, undulating,	. ∷ :	:	At 123.1' - very dusky red, 10% black mottling, soft to hard, fine sand, well	_			
125 <u></u> 145.4	125.0		XXX	in gray seam		⊩	sorted, fresh, 0.05' thick medium	At 124.6': R-Scale = R3-R4 R23: 08:20-08:43 on			
-			6	125.5' - Fractures (2), 70 deg and 80 deg,		}	grained zones, very thin claystone bedding, discontinuous	5/25/06 -			
-				rough, undulating, little brown-orange stains 126.0' - Fracture, 50 deg, rough, undulating	- : : : × :	<u>;</u>	125.0-126.2' - dark brown, dark brownish-purple mottling in bands,	-			
-			2	inducto, oo dog, rough, anduculing	- × ;	*	very thin to thin bedding, fine sand to medium sand, angular	SC-4 collected - 126.4-127.3' _			
	R23NQ 5 ft	50	1	127.3' - Fracture, 20 deg, smooth, undulating	× :		Siltstone	120.1 121.0			
_	102%		$\perp \perp$		- × :	<u>X</u>	126.2-129.3' - very dark gray, mottled dark red, light gray, black, soft, very	_			
-			10+	128.0' - Fracture, 20 deg, smooth to slickensided, undulating, tight fit	- × :	X	fine grained, up to 50% very fine sand/coarse silt	-			
-				128.4-128.6' - Fracture zone, horizontal and 70 deg, smooth, planar to undulating, little brown	- × :	<u>*</u>	126.2-129.0' - fresh 129.0-129.3' - highly weathered	_			
130	130.0		4	staining on some surfaces, healed fracture about 1 long at 70 deg angle just above		<u>}`</u>		At 129.3-130.0': R-Scale = - R0			
140.4	.55.0			fractured zone, uneven whitish-yellow infilling	X :	#		At 129.4': PP: 3.0 tsf			



PROJECT NUMBER:

338884

BORING NUMBER:

BPA-33 SHEET 8 OF 9

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687730.7 N, 2012118.9 E)

ELEVATION: 270.4 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

	J LQOII WILIY	I AIN	DIVIL	THOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS: 14	.9 ft b	gs	START : 5/12/06 10:	00	END : 5/25/06 17:20	LOGGER : DT/JS
	_ @			DISCONTINUITIES	ပ္ခ	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
-			6	128.7' - Fracture, 20 deg, slickensided, undulating, 90% of surfaces (both sides) irregularly shaped, very tight fit 129.0-129.3' - Fractures (4), 20 deg, surface at	× × × × × × × × × ×	Clay Seam (CL) 129.3-130.0' - very soft, highly weathered, coarse sand sized bedrock pieces are flakes and small blocks.	R24: 08:55-09:25
-	R24NQ 5 ft	80	4	129.0 is slickensided and planar, remainder are shiny, some slickensided, bedrock flakes and small block-like pieces, gray clay seam	× × × × × × × ×	most upper slickensided and shiny on surfaces Siltstone	
-	100%		1	between two surfaces 130.0-130.3' - Fractures (3), horizontal, smooth, undulating, 0.02' relief	× × × ×	130.0-130.4' - very dark gray, mottled red, gray, yellow, and black, fresh, gradually transitions to dark reddish	At 132.8': R-Scale = R3
-	425.0		0	130.3' - Fracture, 40 deg, smooth to slickensided, undulating, 0.01' relief 130.7' - Fracture, horizontal, smooth, undulating, 0.02' relief	× × × × × ×	brown siltstone Siltstone At 130.4' - dark reddish brown, mottled	
135 <u> </u>	135.0		1	131.7-132.1' - Fractures (5), horizontal, smooth, undulating	× × × × × ×	yellow and green, very soft to soft, fresh 133.5-135.0' - trace green mottling, fine grained, harder with depth, trace	R25: 09:30-09:52
-			7	135.9' - Fracture, horizontal, smooth, undulating	× × × × × ×	coarse sand in last 0.3' at 135.0' 135.0-138.0' - scattered green mottling	At 136.8': R-Scale = R3-R4
-	R25NQ 5 ft 102%	88	2	137.2-137.7' - Fractures (7), horizontal, smooth, undulating	× × × × × ×	-	At 150.0 . IN-Scale - INS-IN4
_			2	420 Ol. Fractures (2) havingstel amouth	× × × × × ×		
140 <u> </u>	140.0		0	139.0' - Fractures (2), horizontal, smooth, undulating	× × × × × ×	139.0-140.0' - heavy dark yellow mottling, 5-10% rounded coarse sand	P20: 40:00 40:20
130.4			6	140.0-140.6' - Fractures (6), horizontal, smooth to rough, undulating - 141.0' - Fracture, horizontal, smooth,	× × × × × ×	140.0-141.0' - green mottles with black thread like centers 141.0-142.6' - green, black, purple	R26: 10:08-10:30
-	R26NQ		2	undulating - 141.7' - Fracture, 60 deg, rough, undulating -	× × × × × ×	- and yellow mottling, soft, gray claystone clast at fracture at 141.7, coarsens with depth	At 141.9': R-Scale = R3-R4
-	5 ft 95%	68	0		× × × × × ×	142.6-143.2' - little mottling, soft, 50% coarse silt, very fine sand, harder than	
-			6	143.3-143.5' - Fractures (3), horizontal, smooth, undulating, small bedrock fragments 143.7' - Fracture, horizontal, smooth,	× × × × × ×	above 143.2-143.6' - reddish brown, little mottling 143.6-150.0' - heavy dark purple,	
145 <u> </u>	145.0		3 ⋙ 0	undulating 143.9' - Fracture, 5 deg, rough, undulating, bedrock fragments 144.6-145.0' - Fractures (3), horizontal,	× × × × × ×	green, dark yellow, and green mottles	R27: 10:39-11:06
-			2	smooth, undulating, some bedrock fragments	× × × × × ×	- -	At 146.5': R-Scale = R4
-	R27NQ 5 ft	75	10+	146.9' - Fracture, 20 deg, smooth, undulating	× × × × × ×	- 147.6 147.9' olov ocom grovinith	AL 140.0 . IN-OCAR - IN4
-	88%		4	smooth and slickensided, undulating 147.8-148.1' - Fracture zone, horizontal and 50 deg, smooth, undulating, partially slickensided,	× × × × × × × ×	147.6-147.8' - clay seam, gray with bedrock fragments 147.8-150.0' - less mottling, faint yellow, green, and black mottling, a	
- 150	150.0		0	bedrock fragments 148.7' - Fracture, horizontal, smooth, undulating	× × × × × ×	few coarse sand grains, medium sand, very little coarse silt/fine sand	At 149.4': R-scale = R3
120.4	130.0		\sim	_	x x	-	R28: 16:15-16:35

2BB-219 Rev. 1



PROJECT NUMBER:	BORING NUMBER:		
338884	BPA-33	SHEET	9 OF 9

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687730.7 N, 2012118.9 E)

ELEVATION: 270.4 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

	, <u> </u>	. ,		THOD : CIVIE-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS: 14	.9 ft b	gs	START : 5/12/06 10	:00	END : 5/25/06 17:20	LOGGER : DT/JS
				DISCONTINUITIES	(D	LITHOLOGY	COMMENTS
oz €	-, N N N N N N N N		SII	DESCRIPTION	Ĭ	ROCK TYPE, COLOR,	OUZE AND DEDTH OF CACINO
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
	011	_	0	148.8' - Fracture, horizontal, smooth,		-	_
_				undulating	- × × × × × × × × × × × × × × × × × × ×	_	
_			0		× ×	_	_
_					× >		_
_	R28NQ 5 ft	94	0		_ (× ;	_	-
_	93%				_ × >	(_
_			0		× >	450545001 8.5	_
_]× >	153.5-153.8' - soft, fine grained with trace medium sand throughout, some	At 153.7': R-Scale = R3-R4
_			0		x x	zones with more very fine sand/coarse	_
155	155.0		\bowtie	_	× >	silt	
115.4			1		- × > × > × >	155.0-157.0' - zones of very fine sand/coarse silt, grades in and out of	R29: 16:45-17:07
_				155.6' - Fracture, 10 deg, rough, undulating, tight fit	_ × >	these zones, several inches thick	_
_			10+	ught nt	× > × > × >	_ 156.2-156.3' - clay seam, bedrock	_
_					x x	fragments and clay mixed together	-
_	R29NQ 5 ft	99	0		x x	Siltstone - 157.0-160.0' - very dark gray,	SC-5 collected 158.55 - 159.5' -
_	102%				- × ×	laminated bedding, fresh, gradual	At 158.0': R-Scale = R3-R4
_			0		× >	darkening to this depth, faint banding of black, light gray, some very fine	First water level = 14.9' bgs -
_					_ × >	sand, coarse silt	taken 5/31/06 at 15:00
_			0		×	_	R-scale performed after drilling on stored samples -
160	160.0				- × × × ×	D # 100 0 0 1	. 3
110.4					1	Bottom of Boring at 160.0 ft bgs on 5/25/06 17:20	_
_					4	 -	-
_					4	-	-
_					-	-	-
_					4	-	-
_					-	-	-
_					-	-	-
_					-	-	-
_					-	-	-
165 <u> </u>				_	4	_	_
100.4					-	-	-
_					4	-	-
_					4	-	-
_					4	-	-
-					-	-	-
-					-	-	-
1 -					-	-	-
-					-	-	-
-					-	<u> </u>	-
170_ 100.4				_	4	 	-
100.4					1		

2BB-220 Rev. 1



PROJECT NUMBER:

338884

BPA-34

SHEET 1 OF 3

SOIL BORING LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687640.2 N, 2012160.6 E)

ELEVATION: 267.1 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

DRILLING EQUIPMENT AND METHOD: CME-550, 3-7/8 Tricone Bit, 24" Split Spoon, and 140 lb. Automatic Hammer ORIENTATION: Vertical

WATER				TIOD : CIVIL-330	3-//8 Fricone Bit, 24" Split Spoon, and 140 lb. Au	END : 5/12		G.EG	ORIENTATION: Vertical LOGGER: JS
			RADE (ft)		START : 5/11/06 11:20 SOIL DESCRIPTION	END . 3/12		0.50	COMMENTS
	INTERV		(11)	STANDARD PENETRATION	22/22/2000		106		· · · · · · · · · · · · · · · · · ·
			ERY (in)	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, CO	OLOR,)LIC I	F)	DEPTH OF CASING, DRILLING RATE,
			#TYPE	6"-6"-6" (N)	MOISTURE CONTENT, RELATIVE DENSI CONSISTENCY, SOIL STRUCTURE, MINEI		SYMBOLIC LOG	PP (TSF)	DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
267.1 - - -	0.0 2.0	19.0	SS1SS	3-2-2-3 (4)	Clay (CL) 0.0-1.6' - brown, moist, soft, low to medium pl slow to rapid dilatancy, 15-20% fine sand 0.7-1.6' - becomes brownish yellow, mottled o	\Box			-
-	2.5	17.0	ST2ST			-		4.5+	ST-2 collected 2.5-4.5' Let sit for 15 minutes before pulling slough in top of tube - removed some before waxing
	4.5					=			-
5 262.1 - -	5.0	9.0	SS3SS	15-11-12-17 (23)	Clay (CL) 5.0-5.8' - reddish brown, moist, very stiff, low to plasticity, scattered white lenses of more plast bedrock pieces	to medium - tic clay,			- - -
_	7.0					_			_
_	7.5				Clay (CL)	_	////		-
- -	7.5	5.0	SS4SS	50/5.5 (50/5.5")	7.5-7.9' - reddish brown, moist, hard, low to m plasticity, scattered white lenses of more plast bedrock pieces				- -
_	9.5					-			-
10 257.1 - - -	10.0	5.0	SS5SS	25-50/3 (50/3")	Clay (CL) 10.0-10.4' - reddish brown, mottled white, mot low to medium plasticity, bedrock pieces	ist, hard,			
-	12.0					-			Soil sampling completed at 12:45 on 5/11/06
- - - - 15	12.5 \12.7∫	2.0	<u> </u>	50/2 (50/2")	Clay (CL) 12.5-12.7' - reddish brown, mottled white, mollow to medium plasticity, bedrock pieces Begin Rock Coring at 12.7 ft bgs See the next sheet for the rock core log	ist, hard,	(///		-
252.1						- - - - - - -			
20_									

2BB-221 Rev. 1



PROJECT NUMBER: BORING NUMBER: **BPA-34** 338884 SHEET 2 OF 3

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (687640.2 N, 2012160.6 E)

ELEVATION: 267.1 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING	EQUIPMEN	T ANI	D ME	THOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS: 5.	8 ft bo	IS	START : 5/11/06 11	:20	END : 5/12/06 16:56	LOGGER : JS
	(%			DISCONTINUITIES)G	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
- - 15 252.1 - - - -	R1NQ 2.8 ft 100% 15.5 R2NQ 5 ft 98%	89	1 1 0 0 0 0 0 0 0 0 0	13.5' - Fracture, 10 deg, smooth, undulating, tight fit 13.8' - Fracture, 11 deg, smooth, undulating, tight fit —	× × × × × × × × × × × × × × × × × × ×	Siltstone At 12.7' - dark reddish brown, very soft, fine grained 12.7-26.1' - slightly weathered to moderately weathered 13.8-15.5' - mottled greenish gray, harder than above 15.5-29.1' - very soft to soft, scattered fine sand	Rock coring began at 13:00 on 5/11/06 - R1: No time recorded on 05/11/06 - R2: 13:25-13:39
20 247.1 - - - -	20.5 R3NQ 5 ft 94%	64	3 3 0	20.6' - Fracture, horizontal, smooth, undulating 20.8' - Fracture, 1 deg, smooth, undulating 21.5' - Fracture, 20 deg, smooth, planar, tight fit, green clay 21.8' - Fracture, 20 deg, smooth, stepped 21.9' - Fracture, horizontal, smooth, undulating		- - 21.0-21.3' - clay seam - -	R3: 13:45-13:58 - - - - -
25242.1	25.5		1 0 ××× 2	23.9-24.0' - Fracture, 70 deg, smooth to rough, undulating, black stains	× × × × × × × × × × × × × × × × × × ×	- - -	- - R4: 14:10-14:28
- - - -	R4NQ 5 ft 100%	12	2 4 3	26.1' - Fractures (2), horizontal and 70 deg, smooth, undulating 26.5-28.5' - Fracture zone, horizontal, smooth, undulating, clay seams 26.9' - Fracture, horizontal, smooth, undulating 27.7' - Fracture, horizontal, smooth, undulating 27.8' - Fracture, horizontal, smooth, undulating 27.9' - Fracture, horizontal, smooth, undulating 28.2' - Fracture, horizontal, smooth, undulating	× × × × × × × × × × × × × × × × × × ×	26.1-29.1' - highly weathered 26.7-28.5' - clay seams, abundant green and white mottling	- - - - -
30 237.1 - - -	30.5		0 0	28.5' - Fracture, horizontal, smooth, undulating 28.7' - Fracture, 70 deg, smooth, undulating 29.1' - Fracture, horizontal, smooth, undulating 30.0' - Fracture, 30 deg, smooth, undulating 30.3-30.5' - Fracture zone		Clay (CL) 29.1-30.3' - highly weathered - Sandstone At 30.3' - dark reddish brown, mottled greenish gray, soft to hard, medium to thick bedding, very fine sand to fine sand 30.3-30.5' - highly weathered 30.5-38.1' - fresh	SC-1 collected 29.1-30.0' R5: 15:44-16:02

2BB-222 Rev. 1



PROJECT NUMBER:	BORING NUMBER:					
338884	BPA-34	SHEET	3	OF	3	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687640.2 N, 2012160.6 E)

ELEVATION: 267.1 ft MSL (NGVD 29)

DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION: Vertical WATER LEVELS: 5.8 ft bgs START: 5/11/06 11:20 END: 5/12/06 16:56 LOGGER: JS DISCONTINUITIES LITHOLOGY COMMENTS 90 CORE RUN, LENGTH, AND RECOVERY (%) FRACTURES PER FOOT **DESCRIPTION** DEPTH AND ELEVATION BELOW SURFACE (ft) ROCK TYPE, COLOR. SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD <u>0</u> MINERALOGY, TEXTURE, RQD(%) DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS WEATHERING, HARDNESS, AND ROCK MASS DROPS, TEST RESULTS, ETC. CHARACTERISTICS R5NQ 95 0 5 ft 0 SC-2 collected 33.9-34.9 35 0 232.1 35.5 R6: 16:07-16:19 0 36.7-38.1' - gray, mottled pink and 0 greenish gray, fine sand to medium sand R6NQ 5 ft 96 0 Siltstone 96% At 38.1' - dark reddish brown, mottled greenish gray, soft, fresh, fine grained, 0 scattered white, angular, medium sand 40 0 227.1 40.5 40.5-42.8' - gradational contact with R7: 16:27-16:45 0 sandstone, coarsening with depth 0 R7NQ Sandstone 0 5 ft 100 R8: 16:54-16:56 104% 42.8-43.4' - dark reddish brown, soft to hard, thin bedding, very fine sand to 0 fine sand, fresh First water level = 5.8' bgs Siltstone taken 5/11/06 at 17:38; 43.4-44.0' - very dark gray, very soft, thin bedding, fresh, fine grained 45 second water level = 14.2' 0 222.1 bgs taken 5/12/06 at 15:35 45.5 Sandstone At 44.0' - dark reddish brown, soft, thin R8NQ 0 to medium bedding, very fine sand to R-scale not performed on 1.5 ft fine sand, fresh rock core samples 113% 44.7-45.5' - gray, red and black 1 mottling, hard, medium sand to coarse 46.9' - Fracture, 70 deg, rough, undulating, loose fit sand Siltstone 45.5-45.7' - greenish black, very soft, very thin bedding, fresh, fine grained Sandstone 45.7-47.0' - greenish gray, staining around grains, hard, medium sand to coarse sand, fresh, multicolored grains 50 Bottom of Boring at 47.0 ft bgs on 217.1 5/11/06 16:56

2BB-223 Rev. 1



PROJECT NUMBER:

338884

BPA-35 SHEET 1 OF 5

SOIL BORING LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687956.7 N, 2012158.6 E)

ELEVATION: 267.6 ft MSL (NGVD 29) DRILLING CONTRACTOR: A. Martin, S&ME

DRILLING EQUIPMENT AND METHOD: BK-51, Tricone Bit, 24" Split Spoon, 140 lb. Hammer and Cathead ORIENTATION: Vertical

DRILLIN	IG EQUI	PMENT A	AND MET	THOD : BK-51, Tr	cone Bit, 24" Split Spoon, 140 lb. Hammer and Cathead			ORIENTATION : Vertical	
WATER	LEVELS	S: 4.5 ft b	ogs		START : 5/22/06 12:20 END : 5/2	23/06	13:55	LOGGER : JF	
DEPTH E	BELOW EX	KISTING C	GRADE (ft)	STANDARD	SOIL DESCRIPTION	(J		COMMENTS	
	INTERV	AL (ft)		PENETRATION TEST RESULTS		SYMBOLIC LOG			
		RECOV	ERY (in)	TEST RESOLTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,	일	Œ	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND	
			#TYPE	6"-6"-6"-6"	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	MBC	(TSF)	INSTRUMENTATION	
			,,,,,	(N)		λS	Ы		
267.6	0.0				Fat Clay (CH)				
]	400	00400	0045	0.0-1.0' - yellowish-red, moist, medium stiff, medium to high plasticity, trace root material			_	
-	1	12.0	SS1SS	2-3-4-5 (7)	3 1	177	0.75	-	
-	2.0			(,)	•	1		-	
-	2.0				•	1		Recirculating drilling mud	
-	2.5				¬ Fat Clay (CH)	111		-	
-	1				2.5-2.8' - dark reddish brown, mottled orange, moist,	1[][-	
-		13.0	SS2SS		\ medium stiff, fine to medium grained, medium to high \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	- 	0.5	-	
-	-			(10)	Silty Sand (SM)	-		-	
-	4.5				2.8-3.6' - strong brown, mottled orange, moist, medium stiff, fine to medium grained	-		-	
5 262.6	5.0				,	19131		_	
202.0	J.0				Silty Sand (SM) 5.0-5.3' - strong brown, medium stiff, loose, saturated			-	
-		15.0	SS3SS	6-10-17-28	Fat Clay (CH)		2.5		
-				(27)	5.3-6.3' - light greenish gray, mottled red brown, moist, medium stiff	1//	2.5	PT-1 collected 6.0-8.0'	
l _	7.0				(mediam sun	┨		Offset: 3.3' S43W of BPA-35	
l _								Lab Results USCS: CL	
l _	7.5				Fat Clay (CH)				
		400	00400	40.50	7.5-8.2' - light greenish gray, mottled red brown, moist, medium stiff	Y			
	1	12.0	SS4SS	18-50 (50")	Silt (ML)	T	4.0	_	
-	9.5			(/	8.2-8.5' - brown, mottled greenish gray, dry to moist, medium dense	1		-	
10	0.0				mediam dense	1		-	
257.6	10.0				Silt (ML)	1 Ш			
-	-				10.0-10.7' - brown, mottled greenish gray, dry to moist,	1		-	
-	1	16.0	SS5SS		medium dense Fat Clay (CH)		4.0	-	
-				(31)	\ 10.7-11.3' - light greenish-gray, mottled dark orange	+ 1		-	
-	12.0				and black, moist, stiff, high plasticity, trace of very fine sand	-		PT-2 collected	
-	12.5				Sandy-Silt (ML)	╂		11.0-13.0'	
-	12.0				\neg 12.5-13.0' - dark reddish brown, moist, hard, fine	Щ			
-		4.0	SS6SS	50/4	\ grained, low to non plasticity, platy, micaceous, some /	1		-	
-		'-		(50/4")	black staining along surfaces	1		_	
l -	14.5]		_	
15						1			
252.6	15.0				Sandy-Silt (ML) ¬ 15.0-15.5' - dark reddish brown, mottled light green /			_	
I -		60	00700	25 FO/5	gray, moist, hard, fine grained, low to non plasticity,			_	
I -		6.0	SS7SS	35-50/5 (50/5")	micaceous, some black staining along surfaces	1			
-	17.0			` ′		1			
-					•	1		-	
-	17.5	2.0	SS8SS,		─ Sandy-Silt (ML)	‡Ш		·	
-	17.7			50/2 (50/2")	17.5-17.7' - dark reddish brown, moist, hard, fine to medium grained, low to non plasticity, platy, micaceous,	1		<u>-</u>	
-				(30/2)	some black staining along surfaces	1		-	
-						1		Soil sampling completed at 15:25 on	
-						-		5/22/06	
20					Begin Rock Coring at 20.0 ft bgs	+	-		
					See the next sheet for the rock core log				



PROJECT NUMBER:

338884

BPA-35

SHEET 2 OF 5

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687956.7 N, 2012158.6 E)

ELEVATION: 267.6 ft MSL (NGVD 29) DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS: 4.	5 ft bg	S	START : 5/22/06 12	:20	END: 5/23/06 13:55	LOGGER : JF	
	(%)			DISCONTINUITIES	90	LITHOLOGY	COMMENTS	
QN (#)	Ä, AND 3Y (9		ZES T	DESCRIPTION	O LC	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,	
EVATION ELOW JRFACE (ft)	E RU STH, OVEF	(%) O	CTURES FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	30LI	MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD	
DEP- ELEV BELC SURI	CORE RUN, LENGTH, AND RECOVERY (%)	RQI	FRA(PER	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	AND ROCK MASS CHARACTERISTICS	DROPS, TEST RESULTS, ETC.	
	20.0			00015 4 51 1 11		Siltstone	Rock coring began at 15:50	
_			1	20.2' - Fracture, <5 deg, rough, undulating	× × × ×	 20.0-21.4' - dark reddish brown, very soft, moderately weathered 	on 5/22/06 - R1: 15:50-16:15 on	
_					××	20.7-21.4' - some fine sand and	05/22/06	
-			1	21.4' - Contact between siltstone and sandstone, 20 deg, rough, undulating	<u> </u>	mottling Sandstone	At 21.3': R-Scale = R5 -	
				sandstone, 20 deg, rough, undulating	 :::	At 21.4' - reddish brown, very soft,	1	
			1	OO OL Frankling of day mounts undulating	 :::	very thin to medium bedding, fine sand	1	
-			_	22.8' - Fracture, <5 deg, rough, undulating	 :::	21.4-24.9' - moderately weathered	1	
_	R1NQ		0]::::	 22.5-25.0' - pale brown to brown, soft, fine sand to medium sand 	At 23.7': R-Scale = R1-R2	
	8.2 ft 95%	95	1]::::	23.9' - black oxidized horizons - 24.0-24.9' - mottled orange, black		
25			'	OA OL Frankling of day mounts unablighting —	:::	oxidized horizons		
242.6			1	24.9' - Fracture, <5 deg, rough, undulating	× ×	24.9-25.0' - slightly weathered	<u> </u>	
_				25.7' - Fracture, <5 deg, rough, undulating	. ∷ ∷ .	_ \ 25.0-25.3' - dark reddish brown,]	
_			0		. ∷ :	slightly weathered - \25.2' - very soft, soil-like	At 26.1': R-Scale = R1	
_					. ∷ ∷	_ characteristics		
_			0		. ∷:	Sandstone At 25.3' - pale brown to brown, very	_	
_	28.2		XX		- : : : : : : : : : : : : : : : : : : :	soft, fine sand to medium sand,	-	
_			1	28.4' - Fracture, <5 deg, rough, undulating,	-	slightly weathered, soil-like characteristics	R2: 16:30-17:00	
_			'	orange stains 29.0' - Contact between sandstones		29.0-31.1' - greenish gray, soft, fine	-	
-			0	20.0 Contact between sandstones	- :::	 sand to medium sand 	-	
30 <u> </u>				_	- [∷∷	_	-	
_			1		- ∷∷	-	-	
-				24 21 Frankling of day mounts undulating	1:::	-	1	
_			0	31.2' - Fracture, <5 deg, rough, undulating, orange stains	 ∷∷	-	1	
-					1:::	<u> </u>	1	
_	R2NQ		0		1:::	-	1	
_	10 ft	100				-	1	
	100%		0]:::		At 33.6': R-Scale = R1	
				04.41 Franking 40.45	<u> </u> :::	_	SC-1 collected 34.4-35.3'	
35			1	34.4' - Fracture, 10 deg, rough, undulating, orange stains	<u> </u> :::		OT.4-00.0	
232.6				· · · · · · · · · · · · · · · · · · ·	<u> </u>	<u>-</u>]	
_			0		. ∷		At 35.9': R-Scale = R1-R2	
-					.∷	36.0-36.2' - laminated bedding, - reddish brown staining	7 1 00.0 . IX-00ai6 - IXI-IX	
-			0		∤∷:	36.4-36.5' - laminated bedding, reddish brown staining	-	
-			0		∤∷:	 37.3-37.7' - 10 degree laminated 	-	
-	38.2		U		∤∷:	_ bedding	-	
-			0		∤∷:	-	R3: 08:10-08:45 on _ 05/23/06	
-			Ŭ	39.1' - Contact between siltstone and	::: × ×	-	-	
40 -			1	sandstone, <5 deg, rough, undulating	× × × ×	-		
40					× ×			
					_		•	

2BB-225 Rev. 1



PROJECT NUMBER:

338884

BPA-35 SHEET 3 OF 5

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687956.7 N, 2012158.6 E)

ELEVATION: 267.6 ft MSL (NGVD 29) DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

				THOD . BR-31, NQ Double Barrer			ORIENTATION : Vertical
WATER	LEVELS: 4.	5 ft bo	S	START : 5/22/06 12	:20	END : 5/23/06 13:55	LOGGER : JF
				DISCONTINUITIES	Ö	LITHOLOGY	COMMENTS
اء €	CORE RUN, LENGTH, AND RECOVERY (%)		S	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	
DEPTH AND ELEVATION SELOW SURFACE (ft)	₽, H, H	Q D (%)	URE	DEDTIL TUDE ODIENTATION DOLLOUNIES	1	MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
YFA WA	Soti	0	VCT R FC	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	₩ W	WEATHERING, HARDNESS, AND ROCK MASS	SMOOTHNESS, CAVING ROD
SEE	<u> </u>	S.	FRACTURES PER FOOT	THICKNESS, SURFACE STAINING, AND TIGHTNESS	S	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
227.6					× ×	Siltstone	
-			1	40.4' - Fracture, <5 deg, rough, undulating	× :	 39.1-41.4' - very dark gray to black, 	-
_			'		××	very soft, slightly weathered, bedding	At 40.8': R-Scale = R1
				44.41. Operators to be transported to the transport	× :	20-25 degrees alternating very dark ├\ gray to black / ├	_
			0	41.4' - Contact between siltstone and sandstone, 25 deg, rough, undulating	1:::	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	
1 7				carractoric, 20 dog, rough, and dating	1:::	Sandstone	
-	David		0		1∷:	41.4-41.5' - gray, soft, fine sand to	-
-	R3NQ 10 ft	93			∦∷ ∶	medium sand, fresh, small black oxidation cracks (<0.03')	-
_	100%	33			- ∷∷	- Oxidation cracks (10.00)	_
_			0		.	_	_
]:::		
45			1	44.6' - Fracture, 25 deg, rough, undulating	× ;	Siltstone	
222.6				44.8' - Fracture, 25 deg, rough, undulating	×.;	44.5-45.2' - gray, very soft, fresh, trace	At 45.1': R-Scale = R1
-			2	45.0' - Fracture, <5 deg, rough, undulating 45.3' - Fracture, 10 deg, rough, undulating	1:::	Sandstone	-
-				iolo i lactaro, lo dog, loagil, anadiating	∤∷∷	 At 45.2' - gray, soft, thin to medium bedding, fine sand to coarse sand, 	-
_						bedding, fine sand to coarse sand, fresh. small black oxidation cracks	_
_			0		. :::	- (<0.03')	_
]:::		
			0		:::		
1 7	48.2				1:::	48.0-49.0' - medium sand to coarse	R4: 08:50-09:30
-			0		†∷ ∷	- sand	K4. 06.50-09.50
-					1:::	49.0-50.8' - fine sand to medium sand	-
-			0		∤∷ ∷	-	-
50			U	_	. : : :	L	
217.6] ∷∷	- 50.3-51.2' - gray, oxidized cracks	_
			1			(relic)	
				51.0' - Fracture, 60 deg, rough, undulating]:::	50.8-53.0' - medium sand to coarse	
			0		1:::	- sand	_
-					†∷ ∷	-	At 51.9': R-Scale = R4
-	R4NQ		0		- [∷:	-	-
-	9.3 ft 100%	100	0	F2 01 Contact between elitetane and	· · ·	Ciltatana	-
_	100%			53.0' - Contact between siltstone and sandstone, 40 deg, rough, undulating	×	Siltstone - At 53.0' - dark reddish brown, very	_
			1		l [°] x 3	soft, fresh, very fine to fine grained	
					× >	53.5-54.9' - mottled blue-green, small	
55			1		×	– purple inclusions]
212.6				54.9' - Fracture, <5 deg, rough, undulating	××	54.9-57.5' - trace blue-green mottling,	
-			0		× ; × ;	gravel sized pink inclusions	
-					×	}	A4 56 4h D Cool D2 D4
-					××	}	At 56.1': R-Scale = R3-R4
			0		××	1	_
	57.5				×××	1	
					Îx ;	57.5-67.5' - mottled blue-green	R5: 09:55-10:55
1 7			1			ſ]
-					l× ?	ł	<u> </u>
-			0		-X	}	At 59.0': R-Scale = R2-R3
-					××	}-	-
60					×	1	
					1		

2BB-226 Rev. 1



PROJECT NUMBER:	BORING NUMBER:					
338884	BPA-35	SHEET	4	OF	5	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687956.7 N, 2012158.6 E)

ELEVATION: 267.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

WATER	TER LEVELS : 4.5 ft bgs			START : 5/22/06 12	:20	END: 5/23/06 13:55	LOGGER : JF	
	CORE RUN, LENGTH, AND RECOVERY (%) R Q D (%) FRACTURES PER FOOT			DISCONTINUITIES	Ō	LITHOLOGY	COMMENTS	
DEPTH AND ELEVATION BELOW SURFACE (ft)	AND ≪≺(3D		SL	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,	
H AN ATIC	I.R.	D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	۵	MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND	
EPT LEV ELO	ORE	Ø	RAC ER F	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	Y.ME	WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.	
207.6	0716	Ω.	0		× ×	OI PARACIENCINO		
207.0					× ×	60.4-61.4' - some fine sand	-	
-			0		× ×	_ (micaceous)	At 61.0': R-Scale = R3-R4	
_					× ×	61.5-61.9' - small (0.02') hard,	At 01.0 : N-3cale - N3-N4	
-	R5NQ		0		× × × ×	- white-pink rip up inclusions	-	
-	10 ft	100			x x	_	-	
-	100%		0		××	-	-	
-					× ×	_	-	
-			0		× ×	-	-	
-					×× ××	_	-	
65 <u> </u>			0	_	× × × ×	 65.0-67.5' - 0.03-0.06' hard,		
					- x x	- white-pink rip up inclusions	-	
-			0		××	_	-	
-					× ×	_	At 66.5': R-Scale = R3-R4	
-			0		× ×	_	At 00.5 : N-3cale - N3-N4	
-	67.5				× × × ×	67.5-68.0' - mottled blue-green, soft,	R6: 11:20-12:15	
-			0			some micaceous very fine sand	No. 11.20-12.15	
-					$\frac{1}{x}$	-	-	
-			0		××	-	-	
-					××	_	-	
70 <u> </u>			0	_	×× ××	_		
107.0					- ÷ ÷	_	-	
-			0		× ×	-	-	
-					× ×	-	At 71.3': R-Scale = R3	
-	R6NQ		0		- × ×	-	-	
-	10 ft	100			× ×	-	-	
-	100%		0		-{.°. °.	-	-	
-					$+\hat{\times}\hat{\times}$	_	-	
-			0		××	-	-	
					× ×	_	-	
75 <u> </u>			1	74.7' - Fracture, <5 deg, smooth to rough,undulating	× ×		_	
-				anddianig	×××	-	-	
-			1	75.8' - Fracture, 60 deg, rough, undulating	× ×	-	_ At 76.1': R-Scale = R3	
-					× ×	-	At 70.1. IX-3cale – IX3	
-			0		× ×	-	-	
-	77.5				× ×	- 77.5-87.5' - soft	R7: 13:00-13:55	
-			0		× ×	-	-	
-					× ×	-	-	
-			1		× × × ×	-	-	
				79.3' - Fracture, 60 deg, rough, undulating	\times \times	 At 79.3' - begins to coarsen with depth 	-	
80					× ×			
					-		ļ	

2BB-227 Rev. 1



PROJECT NUMBER:	BORING NUMBER:				
338884	BPA-35	SHFFT	5 OF	5	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687956.7 N, 2012158.6 E)

ELEVATION: 267.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

00/11/10	<i>-</i> <u>-</u> <u>-</u> - <u>-</u>	,	<u> </u>	THOD . BK-31, NQ Double Barrer			ORIENTATION : Vertical
WATER	LEVELS: 4.	5 ft bo	ıs	START : 5/22/06 12	:20	END: 5/23/06 13:55	LOGGER : JF
				DISCONTINUITIES	G	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)		S	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	
AP H	EY-Z	<u>@</u>	FRACTURES PER FOOT			MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
TA VA	H H H	0	FE	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	BO	WEATHERING, HARDNESS, AND ROCK MASS	SMOOTHNESS, CAVING ROD
		R Q D (%)	RA	THICKNESS, SURFACE STAINING, AND TIGHTNESS	Σ	AND ROCK MASS CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
407.0	074	L.		., ., .,			14.70.01.D.O. 1. D.O.D.1
187.6			0		××	79.8-80.1' - small rip up clasts	At 79.8': R-Scale = R3-R4
					× ×		
_			0		1× ×	<u> </u>	-
-	-				- × ×	81.4-81.6' - blue-green mottling	-
_			0		××	_	
	R7NQ				××		At 82.0': R-Scale = R2-R3
	10 ft 100%	81			××	_	First water level = 4.5' bgs taken 5/23/06 at 18:00;
_	.00,0		0		TŶ ×	-	second water level = 18.9'
_					× ×	-	bgs taken 5/24/06 at 08:30 -
_			0		۱× ۲	_	_
					S S		SC-2 collected
85					×××	-	84.6-85.6'
182.6			0	_	× ×	-	R-scale performed after
-					×××	-	drilling on stored samples -
			0		J ŝ ≨	-] -
					××		
					1 × ×	_	<u> </u>
_			0		×××	-	-
-	87.5				↓ ≎ →	Bottom of Boring at 87.5 ft bgs on	
_					4	- 5/23/06 13:55	_
							_
					1	=	-
-					1	-	-
90 <u> </u>				_	-	-	
177.0					1	_	_
					1		_
-					1	=	-
-	-				1	-	-
_					4	_	_
							_
1 7					1	-	1
-					1	-	-
-					1	-	-
95				_	4	L	_
172.6					1	_	_
1 7					1		1
1 -					1	<u> </u>	1
-					1	-	-
-					-	-	-
					1	-	1 -
					1	L	
1 7					1		1
1 -					1	-	-
-					1	-	-
-					-	-	-
100					1		
					1		
					1		

2BB-228 Rev. 1



PROJECT NUMBER:	BORING NUMBER:				
338884	BPA-36	SHEET	1	OF	5

SOIL BORING LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687881.0 N, 2012189.2 E)

ELEVATION: 269.8 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

DRILLING EQUIPMENT AND METHOD: CME-750, 3-5/8 Tricone Bit, 24" Split Spoon and 140 lb. Automatic Hammer ORIENTATION: Ver									
WATER	LEVELS	: 13.9 ft	bgs		START : 6/19/06 15:55 END : 6/2	1/06	10:33	B LOGGER : JV/JS	
DEPTH B	ELOW EX	CISTING C	SRADE (ft)	STANDARD	SOIL DESCRIPTION	ტ		COMMENTS	
	INTERV	AL (ft)		PENETRATION TEST RESULTS		SYMBOLIC LOG			
		RECOV	ERY (in)		SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR	OLIG	(TSF)	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND	
			#TYPE	6"-6"-6"-6"	CONSISTENCY, SOIL STRUCTURE, MINERALOGY	YMB	PP (T	INSTRUMENTATION	
269.8	0.0			(N)	Tanasil	.γ./"·	Ь		
209.0	0.0					ÌП		-	
-		13.0	SS1SS	3-4-4-5	Silt (ML)	Ш		-	
_				(8)	0.3-1.1' - yellow brown, reddish mottling, moist, medium plasticity, 30% clay, <5% very fine sand, root fragments	ł		-	
_	2.0				-	ł		-	
_	2.5				_ Fat Clay (CH)	///		-	
_	2.0				2.5-2.8' - reddish orange, moist, stiff, high plasticity			PT-1 collected	
_		8.0	SS2SS	23-50/4	Silt (ML)		2.5	3.0-5.0' –	
-				(50/4")	2.8-3.2' - light brown, moist, very stiff, nonplastic, weathered rock fragments, <10% very fine sand		2.5	_	
_	4.5				-	l		_	
5	F 0					////			
264.8	5.0				Clay (CL) 5.0-7.0' - dark reddish brown, green mottling, stiff to			_	
_		12.0	SS3SS	14-50	very stiff, medium plasticity, thinly laminated, staining,		45.	_	
_				(50")	trace very fine sand		4.5+	_	
_	7.0							_	
						ļ.,,		_	
_	7.5				Clay (CL) 7.5-9.5' - dark reddish brown, heavily mottled green,				
		18.0	SS4SS	9-23-50	medium stiff to very stiff, medium plasticity, thinly			_	
		10.0	00100	(73)	laminated, staining, micaceous		4.5+		
	9.5								
10									
259.8	10.0				Clay (CL)			Too friable for PP	
		5.0	SS5SS	50	medium stiff to very stiff, low plasticity, thinly laminated,				
		3.0	33333	(50")	staining, micaceous				
	12.0			` ,	_				
					_				
	12.5				Silt (ML)	Ш		Too friable for PP	
-			00000	50/5	12.5-12.9' - yellow brown, moist, very stiff, trace clay, 40% very fine sand			1	
-		5.0	SS6SS	50/5 (50/5")		1		1	
-	14.5			(****)	-			1	
15						1		1	
254.8	15.0	3.0	SS7SS		Silt (ML)	Ш		Soil sampling completed at 08:40 on	
_	\ <u>15.3</u> 16.0			50/3 (50/3")	15.0-15.3' - yellow brown, mottled white, red brown, and green, moist, dense, fine grained, trace clay, white	1		6/20/06	
-	10.0			(00/0)	√feldspar, quartz, mica, 60% sand,	1			
-					Begin Rock Coring at 16.0 ft bgs See the next sheet for the rock core log	1		1	
-					See the next sheet for the fock core log	1		1	
-					-	1			
-					-	1			
-					-	1		-	
-					-	1		-	
					-	1		-	
20						\vdash		-	

2BB-229 Rev. 1



PROJECT NUMBER:

338884

BPA-36

SHEET 2 OF 5

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687881.0 N, 2012189.2 E)

ELEVATION: 269.8 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, NQ Double Barrel ORIENTATION : Vertical

00				THOD . CIME-750, NQ Double Barrel			
WATER	LEVELS: 13	.9 ft b	gs	START : 6/19/06 15	:55	END: 6/21/06 10:33	LOGGER : JV/JS
	<u> </u>			DISCONTINUITIES	ניו	LITHOLOGY	COMMENTS
o_ €	CORE RUN, LENGTH, AND RECOVERY (%)		S	DESCRIPTION	SYMBOLIC LOG		
DEPTH AND ELEVATION BELOW SURFACE (ft)	N S S S	(9	FRACTURES PER FOOT	BEGGIAII FIGH	으	ROCK TYPE, COLOR, MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING,
¥E ≥ ĕ		(%) Q	Ξŏ	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	βĞ	WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND
FU	8880	g	A P	PLANARITY, INFILLING MATERIAL AND	ME	AND ROCK MASS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
品핔쯺의	8백분	ď	E E	THICKNESS, SURFACE STAINING, AND TIGHTNESS	S	CHARACTERISTICS	BROLO, IEOT REGGETO, ETO.
	16.0					No Recovery	Rock coring began at 09:40
-			-		1	- 16.0-18.0'	on 6/20/06 –
I _							R1:09:40-09:48 on
							06/20/06
I -			-		1	-	16.0-18.0' Blown out of the -
_	5446				ļ		hole; Not recovered.
	R1NQ	0	^		:::	Sandstone	At 17.1': R-Scale = R1
-	5 ft 56%	U	0		1:::	 At 18.0' - tan, black and red grains, very soft, fine sand to medium sand, 	_
-	30 /0		XXX		- ∤∷∷	highly weathered, staining, poorly	-
_			\times		_]:::	- indurated, very friable	_
20			XXX	19.7' - Fracture, 60 deg, smooth, undulating,	:::	19.7' - clay infilling, highly plastic, not	
249.8				1/16" clay infilling, black stains	1:::	enough for PP	
_			$\times \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \!$	17 To Glay Irinining, black stairis		19.9-20.3' - heavy staining	SC-1 collected _
	21.0		XXX		1:::	10.0 20.0 1.001) 0.0	20.2-20.9'
-					1:::	21.0-26.0' - black mottling, silty, poorly	R2: 10:05-10:19
-			1		- 1∷∷	 indurated, very friable 	-
_				21.01 Fracture 40 dag amouth planar black	. :::	_	_
				21.9' - Fracture, 40 deg, smooth, planar, black stains	:::		
-			2	22.3' - Fracture, 40 deg, smooth, planar, black	1:::	22.4-22.5' - black band at 30 degrees	At 22.5': R-Scale = R0-R1
-	DONO			stains	- ::::	_	_
l _	R2NQ 5 ft	0	1	22.6' - Fracture, horizontal and 5 deg, smooth,]:::		_
	54%	U	XXX	undulating	: : :		
-	0.70		XXX	23.1' - Fracture, 30 deg, smooth, undulating	1:::	-	-
-			$\otimes\!\!\otimes\!\!\!\otimes$		1:::	_	_
25			XXX		1:::		
244.8			$\times\!\!\times\!\!\times$	_	1:::		
-			XXX		┨∷∷	-	-
_	26.0		$\times\!\!\times\!\!\times$. ∷:	_	_
				26.1' - Fracture, horizontal, smooth	:::	26.0-26.8' - brown, green and dark	R3: 10:45-11:04
-			3		1:::	reddish brown mottling, very fine sand	-
-				26.8' - Fracture, horizontal, smooth, black	××	to fine sand, trace medium sand, silty, staining	_
_			1	stains	- X X	- \26.4-26.5' - pink stained band at 30	At 27.1': R-Scale = R1
				26.9' - Fracture, 15 deg, smooth, undulating,	× ×	degrees	
-	R3NQ			black stains 27.9' - Fracture, <5 deg, slickensided, planar,	\times \times	Siltstone	-
-	5 ft	0	2	black stains	× ×	At 26.8' - dark reddish brown, heavily	_
	100%			28.1' - Fracture, horizontal, smooth,	××	mottled green with staining, highly	
1 -				undulating, 1/16" clay infilling	\times \times	weathered, trace very fine sand,	·
-			10+	28.7' - Fracture, 5 deg, smooth, planar, 1/16"	× ×	- micaceous	-
30				clay infilling	JŶŶ	28.5-28.7' - banded 0.03' red banding	
239.8				29.1-29.4' - Fracture zone, clay and rock		29.1-29.3' - red brown fat clay infilling	1
I -			2	fragments	1 :::	Sandstone	<u>-</u>
-	31.0			29.5' - Fracture, 15 deg, smooth, undulating,	× ×	30.1-31.0' - dark greenish gray, hard,	R4: 11:20-11:40
I _			2	1/16" clay intilling 29.7' - Fracture, 30 deg, smooth, planar, black	J× ×	very fine sand, highly weathered	N4. 11.20-11.40 _
			-	stains	I× ×	\ \ 30.5' - fine sand, fine sand with some \ \ \ medium sand, light greenish gray,	
-				29.9' - Fracture. horizontal. smooth.	× × × × × ×	bedding at 30 degrees, staining	-
-			4	undulating, 1/16" clay infilling	-∎××	Siltstone	At 32.3-33.9': R-Scale = R0 -
1				30.1' - Fracture, 50 deg, smooth, undulating	××	At 31.0' - reddish brown, mottled	At 32.6-34.8': PP: 4.0 tsf
I -	R4NQ			30.5' - Fracture, 65 deg, smooth, undulating	\times \times	greenish gray and black in bands,	_
-	5 ft	26	10+	31.6' - Fracture, 15 deg, smooth, undulating	× ×	very soft, fine grained, 30 degree	-
1 -	98%			31.7' - Fracture, 20 deg, smooth, undulating	- (× ×	_ bedding	SC 2 callented
				32.1' - Fracture, 5 deg, smooth, undulating,		31.0-34.7' - highly weathered	SC-2 collected
			10+	1/8" clay infilling	1 ××	32.6-34.8' - fat clay, greenish gray,	33.9-34.4'
35				32.3' - Fracture, horizontal, smooth, undulating	× × × × × ×	rock fragments	
234.8			,	32.5' - Fracture, horizontal, smooth, undulating	× ×	34.7-40.9' - fresh	4405 051 D Q
1 -	26.0		1	35.2' - Fracture, horizontal and 65 deg, smooth, undulating	× ×	F	At 35.35': R-Scale = R3-R4 -
	36.0		\overline{A}	omoon, undulating	××	_	
I							

2BB-230 Rev. 1



PROJECT NUMBER:

338884

BPA-36 SHEET 3 OF 5

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687881.0 N, 2012189.2 E)

ELEVATION: 269.8 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, NQ Double Barrel ORIENTATION : Vertical

				THOD : CME-750, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS : 13	8.9 ft b	gs	START : 6/19/06 15 DISCONTINUITIES	:55	END : 6/21/06 10:33	LOGGER : JV/JS COMMENTS
	_8				90	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
-			0		× > × > × > × >	At 34.8' - dark reddish brown, heavy greenish gray mottling, very soft to soft, some linear up to 0.06' long, trace	R5: 13:22-13:42
-	R5NQ		0		X	very fine sand 36.0-38.7' - mottled green, some dark purple mottling, very soft to soft	-
-	5 ft 98%	98	0		- (x) - (x) - (x) - (x)	38.7-39.9' - very dark gray, mottled muted green and yellow, trace dark	At 38.3': R-Scale = R2
40_ 229.8_			0	39.9' - Fracture, horizontal, smooth, undulating	× > × > × >	red mottling with purple and yellow around the red mottling, 30% coarse silt, fine grained 39.9-40.9' - brown, mottled rust	_
-	41.0		0		x 	colored, heavy at 40.1-40.2', soft, 10% medium grained sand, becomes harder with depth	R6: 13:53-14:05
-			0	42.5' - Contact between siltstone and		\[\dagged 40.7-40.8' - very fine sand \] \[\begin{align*} \sum \text{Sandstone} \\ \text{At 40.9'} - \text{dark gray to brown, white, gray, and pink grains, some rust} \]	-
	R6NQ 5 ft 99%	99	0	sandstone, 20 deg, sharp		colored mottling, fine sand to medium sand, fresh, grains up to 0.0002' diameter	At 43.1': R-Scale = R1-R2
45_ 224.8			0	_		41.1-41.4' - rust colored mottling 41.4-42.4' - becomes gray to greenish gray, fine to medium grained to 0.0003' gray, white, pink gravel	- -
-	46.0		0			Siltstone 42.4-42.5' - dark reddish gray, mottled red and gray, very soft, fresh,	- R7: 14:20-14:31
-	R7NQ		0		× > × >	irregularly shaped at top contact Sandstone 42.5-47.2' - gray, hard, fine sand to coarse sand, fresh, gray siltstone lenses, irregular 45.5-46.8' - trace black mottling, soft	
50	5 ft 100%	100	1	49.0' - Fracture, 80 deg, rough, undulating	- - - - - - - -	to hard, fine sand to medium sand 45.7-45.8' - very fine sand to fine sand 46.8-47.2' - medium sand to coarse sand	- - -
219.8	51.0		0	-		Siltstone 47.2-47.6' - very dark greenish gray, fine black mottling, very soft, fresh, irregularly shaped, very fine grained,	SC-3 collected 49.9-51.0
-			0			pink sandstone pockets, mixed with sand at upper contact, abrupt lower contact Sandstone	R8: Began at 14:40 - -
	R8NQ 5 ft	100	0			At 47.6' - light gray, heavy pink mottling, soft, fresh, possibly some silt, some orange staining, gray zones in	At 52.3': R-Scale = R1 -
55_ 214.8	5 π 100%	100	1	54.1' - Contact between siltstone and sandstone, 10 deg, smooth, undulating, gray silt/clay coating in contact 54.1-55.1' - Microfractures	× > × > × > × > × >	0.6' after siltstone lens At 51.0' - medium grained 52.9-54.1' - a few light gray bands, thin thready dark gray lenses in last 1', soft to hard	- - - - - - - - - - - - - - - - - - -
_	56.0		0		× > × >		

2BB-231 Rev. 1



PROJECT NUMBER:

338884

BPA-36

SHEET 4 OF 5

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687881.0 N, 2012189.2 E)

ELEVATION: 269.8 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, NQ Double Barrel ORIENTATION : Vertical

				THOD : CME-750, NQ Double Barrel				ORIENTATION: Vertical
WATER	LEVELS : 13	3.9 ft b	gs	START : 6/19/06 15	:55	ENI	D : 6/21/06 10:33	LOGGER: JV/JS
	(%)			DISCONTINUITIES	8		LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS,	SYMBOLIC LOG	MINE WEAT	OCK TYPE, COLOR, ERALOGY, TEXTURE, HERING, HARDNESS,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
DEPT ELEV BELC SURF	CORI LENG RECO	RQI	FRAC	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS		Cł	IND ROCK MASS HARACTERISTICS	DROPS, TEST RESULTS, ETC.
-			0	56.0-58.6' - Fractures along bedding in siltstone	- × × × × × × × × × × × × × × × × × × ×		rk reddish brown, heavily and mottled greenish	R9: 15:01-15:26 SC-4 collected 56.4-57.1'
-			0		- × × × × × × × × × × × × × × × × × × ×	 colored stair 	oft to soft, fresh, rust ning, up to 30% sand very fine sand lenses, rust	-
-	R9NQ 5 ft 101%	100	0		- × > - × > - × >	colored stair - 56.0-58.6' - I		-
60			0		- (x) - (x) - (x)	appearing da	ark gray, brown, rust ning, fine grained, very soft	_
209.8	61.0		0	-	- × > - × > - × >	57.2-57.6' - v banding, ver	very dark gray with no ry soft, slickensides scattered green and	_
-			0	61.4' - Fracture, 30 deg, hairline fracture with green mottling	- × > > > > > > > > > > > > > > > > > >	purple mottli	ng, soft, fine grained, / fine sand, 10% white	R10: 15:43-16:05
-			0	3.55.1.110Ming	- × × × × × × × × × × × × × × × × × × ×	61.8-62.9' - very fine sar	15-20% medium sand, nd	_
-	R10NQ 5 ft 99%	99	0		- × > > > > > > > > > > > > > > > > > >	40-50% very medium san	increasing sand content, fine sand, trace white d, soft, green, gray, and	At 63.4': R-Scale = R2-R3
- - 65			0			Sandstone At 64.2' - rec	ddish grav to pale red. soft	-
204.8	66.0		1	- 65.4' - Fracture, 70 deg, rough, undulating] - - - -	fresh, trace (0.0006-0.00	sand to medium sand, gray siltstone clasts to 09', trace coarse sand,	-
-			0] :::	64.7 ⁱ - gray, 65.1' - becor	ct at 170 degrees fine grained lens mes white to light gray,	R11: 16:21-16:36
-			0]::::	_ 65.1-65.5' - ı to 0.0009'	and pink grains medium to coarse grained	At 67.2': R-Scale = R2
-	R11NQ 5 ft 102%	100	0			 irregularly sh 	gray siltstone lens, naped, soft medium grained to	-
70			1	69.5' - Fracture, 50 deg, rough, undulating	- × ;	66.0-69.6' - l	light gray, white, pink, gray grains, fine to ined, vanes in zones, no	
199.8 - -	71.0		0		× × × × × × × × × × × × × × × × × × ×	clean beddir mm, hard	grading from grayer	_
-			0		- × ×	material into mottled dark	reddish brown siltstone, reddish brown and gray, ottles, fine grained with	R12: 08:23-08:43 on 6/21/06 -
-			0		- × × × × × × × × × × × × × × × × × × ×	10% very fin	e sand/coarse silt, trace te sand grains, soft dark reddish gray to dusky]
-	R12NQ 5 ft 96%	96	0		- × × × × × × × × × × × × × × × × × × ×	red, mottled, sand, 30% s occurs over	very fine sand to fine lilt, soft to hard, transition 0.1', interbedded between]
75 194.8			0	_	- × × × × × × × × × × × × × × × × × × ×	2 materials	medium to coarse grained	At 74.1': R-Scale = R3-R4
-	76.0		0		- × × ×	-		-
					-			-

2BB-232 Rev. 1



PROJECT NUMBER:	BORING NUMBER:				
338884	BPA-36	SHEET	5	OF	5

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687881.0 N, 2012189.2 E)

ELEVATION: 269.8 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS : 13	3.9 ft b	gs	START : 6/19/06 15	:55	END: 6/21/06 10:33	LOGGER : JV/JS
				DISCONTINUITIES		LITHOLOGY	COMMENTS
QZ €	CORE RUN, LENGTH, AND RECOVERY (%)		ES	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	TH,	(%) O	CTURES FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	ij	MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND
LEV	ORE ENG	Ø	FRAC PER F	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	×ΜΕ	AND ROCK MASS CHARACTERISTICS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
СШВО	0716	ď	шп			69.6-69.8' - grades from sandstone	R13: 09:10-09:30
_			0		× × × ×	 and siltstone, irregular contact, 	K13. 09.10-09.30
_					× ×	interbedded, siltstone is very dark gray	-
_			0		× × × ×	Siltstone At 69.8' - dark reddish brown, heavy	-
_	R13NQ				××	green mottling, very soft to soft, fresh,	-
_	5 ft	100	0		× × × ×	fine grained 70.6' - irregular sandstone lens, fine to	-
_	102%				x x	_ medium sand	-
_			0		××	71.0-76.0' - very fine sand 72.1' - mottling decreases	At 79.2': R-Scale = R4
80 <u> </u>				_	× ×	72.8' - increased very fine sand	
109.0			0		× × × ×	content, <0.0003' white feldspar grains abundant, black mottling	-
_	81.0		~~~		×××	73.9' - greenish gray and black mottling, staining, feldspar sandy zone	R14: 09:40-10:02
_			0		× × × ×	- 75.8-76.0' - green mottled zone	R14: 09:40-10:02
_					l x x	76.0-77.5' - trace very fine white feldspar grains	-
_			0		××	 77.5 - increase in very fine sand, 	-
_	DIANO				× ×	decrease to trace green mottling 77.9-78.2' - very fine to fine sand	-
_	R14NQ 5 ft	96	0		× ×	 sized feldspar clasts abundant 	At 83.5': R-Scale = R5
_	96%				××	78.2-78.5' - greenish gray mottled zone	- At 00.0 : TK-00ale - TG
_			0		× × × ×	- 78.6-78.9' - very fine sand	-
85 <u> </u>				_	x x	79.5-70.8' - very fine sandy zone, white and pink	_
104.0			0		××	80.2-80.4' - very fine feldspar sand	-
_	86.0		XXX		× ×	zone, less sand than 79.5-79.8' 80.5-80.9' - sandy zone, very fine	R15: 10:10-10:33
_			2		× × × ×	feldspar white, pink, graded zone	K13. 10.10-10.33
_				86.6' - Fracture, <5 deg, slickensided, planar	l x x	81.0-86.0' - very soft to soft, stained, very fine sand and siltstone clasts	At 87.7': R-Scale = R3
_			0		- X X	82.6' - pitted where siltstone clasts	SC-5 collected
_	DIENO				××	were ripped out, decreased mottling 84.7' - increase in staining and black	89.8-90.6' -
_	R15NQ 5 ft	96	0		× ×	_ mottling, becomes soft	First water level = 13.9' bgs _ taken 6/21/06 at 19:00;
_	96%				× ×	86.0-91.0' - very soft, fine grained 86.5-86.6' - clay seam	second water level = 15.6' -
-			0		× × × ×	86.9-87.9' - greenish gray and black	bgs taken 6/22/06 at 16:30 _
90 <u> </u>				_	lê ê	mottling 	R-scale performed after
-			0		× ×	89.4-90.3' - 20-30% very fine white and pink feldspathic sand, soft	drilling on stored samples -
-	91.0		XXX		××	89.7-90.4' - greenish gray mottling	
_					┨	Bottom of Boring at 91.0 ft bgs on 6/21/06 10:33	-
_					┨	6/21/06 10:33	-
-					-	-	-
-					1	-	-
-					1	-	-
-					┨	-	-
-					1	-	-
95 <u> </u>				_	1	_	-
					1	-	-
					+		
					1		
					-		•

2BB-233 Rev. 1



PROJECT NUMBER: BORING NUMBER: 338884 BPA-37

SOIL BORING LOG

SHEET 1 OF 3

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687795.2 N, 2012225.3 E)

ELEVATION: 266.5 ft MSL (NGVD 29)

DRILLING CONTRACTOR: R. Norwood, S&ME

DRILLING EQUIPMENT AND METHOD: CME-550, 3-7/8 Tricone Bit, 24" Split Spoon, and 140 lb. Automatic Hammer ORIENTATION: Vertical

WATER				TIOD : OIVIE-000	3-7/8 Tricone Bit, 24" Split Spoon, and 140 lb. Automatic Hamn START : 5/10/06 09:40 END : 5/10		ORIENTATION: Vertical 14:55 LOGGER: JS
			RADE (ft)		START : 5/10/06 09:40 END : 5/10 SOIL DESCRIPTION	П	COMMENTS
	INTERV			STANDARD PENETRATION		90	2 2
			ERY (in)	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,	2	DEPTH OF CASING, DRILLING RATE,
			#TYPE	6"-6"-6" (N)	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
266.5 - - -	0.0	15.0	SS1SS	3-2-3-5 (5)	Clayey Sand (SC) 0.0-1.3' - yellow, moist, loose, fine to medium grained, medium plasticity, brown in first few inches; 35% fines		Surface is brushy, log debris
]
-	2.5 4.5	16.0	SS2SS	4-11-18-23 (29)	Clayey Sand (SC) 2.5-3.8' - pink, moist, medium dense, fine to medium grained, first 10 inches are white and yellow with heavily stained orange bands; last 6 inches pink; coarser with depth; white layers are highly plastic		- - -
5					_	1	_
261.5 - -	5.0	15.0	SS3SS	18-24-32-27 (56)	Clayey Sand (SC) 5.0-6.3' - pink, moist, medium dense, fine to medium grained, multi-colored staining around grains		
_	7.0				_	1	
_	7.5				Olavy (OL)	ļ,,,	Diller Describe shows at 70.75 bottle success
-	7.5	15.0	SS4SS	16-17-23-50/5 (40)	Clay (CL) 7.5-8.8' - dark reddish gray, mottled black and gray, moist, hard, medium plasticity, slow dilatancy, harder with depth; 1/2 lens of white, highly plastic clay near top of sample		Drillers Remark: change at 7.0-7.5' with gray, black -
_	9.5					-	Soil sampling completed at 10:50 on 5/10/06
10 256.5	, 10.0	3.0	SS5SS		_ Clay (CL)	///	Soli sampling completed at 10.30 on 3/10/00
-	\ <u>10.3</u> /	0.0		50/3 (50/3")	10.0-10.3' - dark reddish gray, mottled black and gray, moist, hard, medium plasticity, slow dilatancy, hard bedrock pieces in last 1 Begin Rock Coring at 10.3 ft bgs See the next sheet for the rock core log		- - - - -
15							
		I	1			ь	

2BB-234 Rev. 1



PROJECT NUMBER:

338884

BPA-37

SHEET 2 OF 3

ROCK CORE LOG

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687795.2 N, 2012225.3 E)

ELEVATION: 266.5 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	LEVELS : 1.4	4 ft bg	IS	START : 5/10/06 09	:40	END: 5/10/06 14:55	LOGGER : JS
				DISCONTINUITIES		LITHOLOGY	COMMENTS
gz €	AND ≪Y (%		ES	DESCRIPTION	SLO	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)		R Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
-	10.3		2	10.6-10.7' - Fractures (2), horizontal and 70 deg, smooth, stepped, gray stains	× × × × × × × ×	Siltstone 10.3-15.7' - reddish brown, heavy gray mottling, very soft, highly weathered, fine grained	Rock coring began at 11:00 - on 5/10/06 - R1: 11:00-11:25 on 05/10/06 -
-	R1NQ	0	1	11.8' - Fracture, horizontal, smooth, undulating, loose fit	× × × × × ×	_ 11.8-15.7' - varying amounts of very fine to fine sand	-
-	4.7 ft 89%	U	0	12.8' - Fracture, horizontal, smooth, undulating, tight fit	× × × × × × × ×	-]
-			1	14.2' - Fracture, horizontal, smooth, stepped, tight fit	× × × × - × ×	-]
15 251.5 -	15.0		0	ugiti iit	- × × × × - × × - × ×		R2: 11:30-11:55
-			2	16.5-17.7' - Fractures (4), (1) 50 deg, (3) 70	- - - - - - - - - -	Sandstone 15.7-19.3' - reddish gray, mottling throughout, very soft, moderately weathered, fine sand, well sorted	For R2: High recovery probably due to clay seam expansion
-	R2NQ 5 ft 100%	62	2	deg, smooth, undulating, dark gray staining, tight fit		weathered, line sand, well sorted 17.7-19.5' - becomes lighter colored	expansion
_			0			-	-
20	20.0		10+	19.1' - Fracture, 60 deg	::: × × × ×	- Siltstone At 19.3' - dusky red, black mottling,	Drillers Remark: very fast drilling at ~19'
246.5			2	20.5' - Fractures (2), 40 deg, smooth, undulating, gray-black stains, tight fit	× × × × × ×	very soft, fine grained, some fine sand 19.3-19.7' - clay seams 19.3-19.7' - highly weathered 19.7-20.0' - slightly weathered to fresh	R3: 12:32-12:50
-	R3NQ		1	21.5' - Fracture, 10 deg, smooth, undulating, loose fit	× × × × × × × ×	20.0-23.1' - soft, fresh, some black inclusions, very fine to fine sand	- SC-1 collected
-	5 ft 100%	100	0	22.21 Franking hadinastal arreath standard	× × × × × × × ×	- - 23.1-23.2' - greenish gray, siltstone	23.2-24.5' -
-			1	23.2' - Fracture, horizontal, smooth, stepped, loose fit	× × × × × ×	lens 23.1-29.0' - slightly weathered 23.2' - dark reddish brown, green	
25_ 241.5	25.0		0	-	× × × × × ×	mottling, some black inclusions, fine grained	R4: 12:55-13:20
_			1	25.5' - Fracture, 30 deg, smooth, stepped, tight fit 26.3' - Fracture, horizontal, smooth,	* * * * * * * * *	-]
_	R4NQ 5 ft	90	2	undulating, tight fit 27.1' - Fracture, horizontal, smooth,	-	-]
-	98%	50	1	undulating, loose fit 27.5' - Fracture, 70 deg, smooth, undulating, tight fit	× × × × × ×	 - -]
_			1	28.6' - Fracture, horizontal, smooth, undulating, slickensided pockets 29.0' - Fracture, horizontal, smooth,	× × × × × ×	29.0' - becomes soft 29.0-30.0' - fresh]
30	30.0			undulating, loose fit	- × × - × ×	20.0500.0 - 116511	_

2BB-235 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BPA-37 SHEET 3 OF 3

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687795.2 N, 2012225.3 E)

ELEVATION: 266.5 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				THOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS : 1.	4 ft bo	S	START : 5/10/06 09	:40	END : 5/10/06 14:55	LOGGER : JS
	(%) ص			DISCONTINUITIES	90	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
_			2		- × > × >	30.0-31.6' - heavy mottling, highly weathered, clay seams	R5: 13:30-13:50
-			10+	31.5-31.6' - Fracture zone, horizontal, smooth, undulating, loose fit	X	31.6-35.0' - green mottling, soft, fresh,	-
-	R5NQ 5 ft 90%	59	0	undulating, loose iit	- × × × × × × × ×	possible coal fragments	-
-			0		 		-
- - 35	35.0		0		- × > - × > - × >		-
231.5			0	-	- ×	35.0-37.2' - dark reddish gray, mottled green, light gray and red, fresh, abundant very fine sand	R6: 14:00-14:15
-			0			35.9' - sand lens	-
-	R6NQ 5 ft 94%	94	0		- <u> × </u>	37.0-37.2' - grades to sandstone Sandstone At 37.2' - gray, soft, fresh, fine to	-
-	0.70		0		 	medium sand, multi-colored grains, well to moderately sorted	-
- 40	40.0		0		 	- -	-
226.5	40.0		0	-	× > × > × >	Siltstone 40.0-44.5' - dusky red, green mottling, very soft to soft, fresh, fine grained	R7: 14:25-14:45
-			0		- × > - × > - × >	with abundant very fine to fine sand	
-	R7NQ 5 ft 102%	96	0		- × > - × > - × >	- -	
-	102 /0		0		- × > × > - × >	43.2-44.9' - grades to sandstone, very fine to fine grained	R8: 14:50-14:55
- -	45.0		0		- × × × × × × × × × × × × × × × × × × ×	Sandstone	First water level = 1.4' bgs taken 5/10/06 at 17:27;
45 <u> </u>	45.0 R8NQ 1 ft 46.0 150%	100	0	44.8' - Fracture, horizontal, rough, undulating, – loose fit	 	At 44.5' - gray, soft to hard, thin bedding, fresh, fine to medium grained 45.0-46.0' - gray, soft, very thin	second water level = 2.2' bgs taken 5/11/06 at 14:48 R-scale not performed on
- - - - - - 50	70.0 100 /0					bedding, poorly sorted, orange staining in bands, fine to coarse grained, coarse gravel scattered throughout Bottom of Boring at 46.0 ft bgs on 5/10/06 14:55	rock core samples
216.5							
Ц						l .	

2BB-236 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BPA-38

SHEET 1 OF 4

SOIL BORING LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688010.8 N, 2012267.8 E)

ELEVATION: 264.5 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin, S&ME

DRILLING EQUIPMENT AND METHOD: BK-51, Tricone Bit, 24" Split Spoon, 140 lb. Hammer and Cathead ORIENTATION: Vertical

DRILLIN	IG EQUII	PMENT A	AND MET	HOD : BK-51, Tr	icone Bit, 24" Split Spoon, 140 lb. Hammer and Cathead		ORIENTATION : Vertical			
WATER	LEVELS	: 5.2 ft b	ogs		START : 5/19/06 08:40 END : 5/1	9/06	14:20 LOGGER : DT/JF			
DEPTH B	ELOW EX	(ISTING G	RADE (ft)	STANDARD	SOIL DESCRIPTION	ق	COMMENTS			
	INTERV	AL (ft)		PENETRATION TEST RESULTS		SYMBOLIC LOG	DEDTIL OF GLONIC DRILLING DATE			
		RECOVI	ERY (in)		SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR	S C I	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND			
			#TYPE	6"-6"-6"	CONSISTENCY, SOIL STRUCTURE, MINERALOGY	YME	INSTRUMENTATION			
264.5	0.0			(N)	Fat Clay (CH)	S				
204.5	0.0				0.0-1.6' - yellowish red, mottled, moist, medium stiff,		-			
-		19.0	SS1SS	2-3-4-7	medium to high plasticity, organics (roots)		-			
_				(7)			_			
_	2.0					4	_			
_	2.5				F-4 Ol (OUI)		_			
-	2.5				Fat Clay (CH) 2.5-3.3' - dark reddish brown, some mottling, moist,		_			
_		9.0	SS2SS	5-8-9-12	very stiff, medium to high plasticity, micaceous		_			
l _		0.0	00200	(17)		_	_			
l _	4.5					┛				
5						<u> </u>				
259.5	5.0				Fat Clay (CH) 5.0-6.3' - dark reddish brown, some mottling, moist,					
_		17.0	SS3SS	10-12-50/5	very stiff, medium to high plasticity, micaceous					
	6.5			(62/11")	☐ Clay (CL)					
					\ 6.3-6.4' - dark reddish brown, moist, hard, medium to	1				
-					high plasticity, micaceous	1				
_	7.5 8.0	5.0	SS4SS	50/5	Clay (CL)					
-	0.0			50/5 (50/5")	7.5-8.0' - dark reddish brown, moist, hard, low to medium plasticity, platy	T				
-					(modiani piaosony, piany	1	_			
-						1	PT-1 collected			
10							8.0-9.5' Offset: 0.2' S38W to BPA-38			
254.5	10.0	4.5	SS5SS		Sandy Silt (ML)	1111	Lab Results USCS: CL w/Sand			
-	10.5			50/4.5 (50/4.5")	10.0-10.5' - dark reddish brown, dry to moist, hard, micaceous, fine grained trace clay	╁	-			
-				(00/1.0)	(modessus, me gramed trace day	1	-			
-					-	1	-			
-						1	-			
-	12.5				Clay (CL)		-			
-	12.5	10.0	SS6SS	28-50/4 (50/4")	12.5-13.4' - dark reddish brown, mottled, moist, hard, medium plasticity, micaceous	1///	-			
-	13.5			(30/4-)	Thedidiff plasticity, filicaceous		-			
-						1	-			
1 -						1	-			
15 <u> </u>	15.0	4.0	SS7SS		Sandy Silt (ML)	1	_			
-	15.5	7.0	30733	50/4		$\mathbf{H}^{\perp \perp \perp}$	-			
-				(50/4")	micaceous, some clay, platy, fine grained, some black staining along platy surfaces	┨	-			
-						-	-			
-						-	-			
-	17.5				Clay (CL)	////	-			
-		9.0	SS8SS	33-50/3	17.5-18.3' - dark reddish brown, mottled, moist, hard,	\ ///	_			
_	18.5			(50/3")		 	-			
-	\along platy surfaces / -				-	-				
_						-	-			
20						_				
			I			\bot				



PROJECT NUMBER:	BORING NUMBER:				
338884	BPA-38	SHEET	2	OF	4

SOIL BORING LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688010.8 N, 2012267.8 E)

ELEVATION: 264.5 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin, S&ME

DRILLIN	DRILLING EQUIPMENT AND METHOD: BK-51, Tricone Bit, 24" Split Spoon, 140 lb. Hammer and Cathead ORIENTATION: Vertical									
WATER	LEVELS	6 : 5.2 ft b	ogs		START : 5/19/06 08:40 END : 5/1	9/06	14:20 LOGGER : DT/JF			
DEPTH B	ELOW EX	KISTING C	RADE (ft)	STANDARD	SOIL DESCRIPTION	ני	COMMENTS			
	INTERV	AL (ft)		STANDARD PENETRATION TEST RESULTS		SYMBOLIC LOG				
		RECOV	FRY (in)	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,	일	DEPTH OF CASING, DRILLING RATE,			
			#TYPE	6"-6"-6"	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	¶BC	DRILLING FLUID LÓSS, TESTS, AND INSTRUMENTATION			
			#1175	(N)	,,,	S				
244.5	20.0				Clay (CL)	///				
-					20.0-21.0' - dark reddish brown, mottled, moist, hard, low plasticity, platy, micaceous, some black staining	-	-			
-		12.0	SS9SS	12-50	along platy surfaces	1///	-			
-				(50")		-{///	-			
-	22.0					Y ///	Sail compling completed at 00:20 an E/10/06			
-	22.5	4.0	004000		- 011	<u>ا</u>	Soil sampling completed at 09:20 on 5/19/06			
_	22.5	1.0	<u>SS10SS</u>	50/2	Siltstone 22.5-22.6' - dark reddish brown, soft, micaceous, some	1				
				(50/2")	∖fine sand					
					Begin Rock Coring at 22.6 ft bgs					
					See the next sheet for the rock core log]			
25						1	1			
239.5					_	1	1			
-					-	1	1			
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2BB-238 Rev. 1



PROJECT NUMBER:

338884

BPA-38

SHEET 3 OF 4

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688010.8 N, 2012267.8 E)

ELEVATION: 264.5 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS : 5.2	2 ft bg	S	START : 5/19/06 08	:40	END : 5/19/06 14:20	LOGGER : DT/JF
	(%			DISCONTINUITIES	၅	LITHOLOGY	COMMENTS
₽N (#)	Ä, AND 3Y (9		SES ⊢	DESCRIPTION	3	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	CTURES R FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND
EPT ELC SURF	SORE	g	FRAC PER F	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	, AME	AND ROCK MASS CHARACTERISTICS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
ОШШО	22.6	œ	шп	THE MALES CONTROL OF MINING, 7445 HEITHALES			
-	22.0		0		$\begin{array}{c} \times	Siltstone 22.6-25.5' - dark reddish brown, very	Rock coring began at 12:20 _ on 5/19/06
-	R1NQ				× ×	soft to soft, some fine sand	R1: 12:20-12:35 on
-	2.9 ft	90	0		××	22.6-23.0' - highly weathered 23.0-25.5' - fresh	05/19/06 -
-	97%				××	24.2-25.5' - interbedded siltstone and	-
25 <u> </u>			1	OF OL Freeture of dee receipt and detice	$\overset{\times}{\times}\overset{\times}{\times}$	sandstone, light brownish gray, very soft	_
239.5	25.5		W	25.0' - Fracture, <5 deg, rough, undulating	× ×		D2: 42:45 42:20
_			0		Į∷:¦	Sandstone At 25.5' - light brownish gray, soft,	R2: 12:45-13:30
_					J∷:J	very thin to medium bedding, fine	_
_			0]:::[sand, fresh, micaceous - 26.0-26.3' - medium sand to coarse	_
] [sand	
			0		J∷il	26.3-26.7' - fine sand to medium sand - 26.7-27.5' - medium sand to coarse	
	-		Ů		J∷∷L	sand	
				28.5-28.8' - Fracture, <5 deg, rough and	 × ×	27.5-28.8' - fine sand to coarse sand	1
			4	undulating to smooth and planar	× × × ×	- Siltstone At 28.8' - dark reddish brown, very	1
30			0	•	××	soft, fresh, micaceous, trace	1
234.5	R2NQ		0	-	$\overset{\times}{\times}\overset{\times}{\times}$	 blue-green mottling, laminated to very thin bedding 	SC-1 collected
-	10 ft 99%	94			$\overset{\times}{\times}\overset{\times}{\times}$		26.1-27.2' -
-	- 3376		0		$\stackrel{\times}{\times}\stackrel{\times}{\times}$	-	-
-					$\times \times \times$	-	-
-			0		××	-	-
-					××	-	-
-			2	20 41. Front we 45 day mount and delice.	× × × ×	33.0-33.2' - fine sand lens	-
-				33.1' - Fracture, 45 deg, rough, undulating, parallel to 33.35' 33.4' - Fracture, 45 deg, rough, undulating,	$\{\hat{x},\hat{x}\}$	-	-
-			0		Î X	_	-
-				parallel to 33.1'	x x	_	-
35 <u> </u>			1	_	$\begin{bmatrix} \times & \times \\ \times & \times \end{bmatrix}$	34.7-34.9' - fine sand lens	
229.5	35.5		~~~	35.4' - Fracture, <5 deg, rough, undulating	\times \times	- 05500415	
			0		× × × ×	35.5-38.4' - fine gravel, thinly - laminated and fine grained sand	R3: 13:40-14:20
					××	lenses	
_			4	36.8' - Fracture, 10 deg, rough, undulating	× ×	_	
			Ĺ	36.8' - Fracture, <5 deg, rough, undulating	× × × ×	_	
			0	37.2' - Fracture, 30 deg, smooth, undulating	\times \times	_	
					× × × ×]
			0]: ;:[Sandstone 38.4-40.0' - light gray, soft, fine sand]
1 7			U]:::[to medium sand, fresh, quartzitic]
40					[:::[-] 1
224.5	R3NQ	87	1	40.0' - Fracture, <5 deg, rough, undulating	× ×	Siltstone]
-	- 10 ft 100%			•	$\overset{\times}{\times}\overset{\times}{\times}$	 40.0-41.4' - dark reddish brown/blue green, very soft, fresh, fine grained, 	1
-			1		$\times \times $	fine sand at bottom] -
-			-	41.4' - Fracture, <5 deg, rough, undulating	$\times \times $	-	
-			10+	41.8' - Fracture, <5 deg, rough, undulating 41.8' - Fracture, <5 deg, rough, undulating	$\begin{array}{c} \times \times \\ \times \times \end{array}$	-	-
			-	The Fractions, to dog, rough, undulating	× ×	-	=
					ш		

2BB-239 Rev. 1



PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-38	SHEET 4 OF 4

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688010.8 N, 2012267.8 E)

ELEVATION: 264.5 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

CORING	LQUIFINILI	NI AIN	D IVIL	IHOD : BK-51, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS: 5.	2 ft bo	ıs	START : 5/19/06 08:	40	END : 5/19/06 14:20	LOGGER : DT/JF
	(9	L		DISCONTINUITIES	O	LITHOLOGY	COMMENTS
ے €	-,- N. ≻ (%)		S	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	
NE UB	N H H	(%	URE	DEDTIL TOP ORIENTATION DOUGLINGS	1	MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
YFA VA	SOTE F	R Q D (%)	CT RFC	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	ABC	WEATHERING, HARDNESS, AND ROCK MASS	SMOOTHNESS, CAVING ROD
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	a Q	FRACTURES PER FOOT	THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYN	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
				41.9' - Fracture, <5 deg, rough, undulating	× >	Siltstone	
-			0	42.1-42.3' - Fracture zone, fractured rock	× > × >	41.4-45.5' - bluish gray, very soft to	First water level = 5.2' bgs
-				fragments 42.4' - Fracture, 20 deg, rough, undulating	× >	soft, fresh, some fine sand throughout core	taken 5/22/06 at 11:25;
-			1	42:4 - Fracture, 20 deg, rough, undulating	××	× core	second water level = 4.4' bgs taken 5/23/06 at 18:00
_				44.2' - Fracture, <5 deg, rough, undulating	× > × > × > × > × >	:	-
45			0		××	<u>_</u>	R-scale not performed on
219.5	45.5				$\stackrel{\circ}{\times}$	45.5' - becomes dark reddish brown	rock core samples
					Γ	Bottom of Boring at 45.5 ft bgs on	
_				-	1	5/19/06 14:20	1
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PROJECT NUMBER: BORING NUMBER: 338884 BPA-39

SOIL BORING LOG

SHEET 1 OF 8

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687929.9 N, 2012297.9 E)

ELEVATION: 265.8 ft MSL (NGVD 29) DRILLING CONTRACTOR: A. Martin, S&ME

DRILLING EQUIPMENT AND METHOD: BK-51, Tricone Bit, 24" Split Spoon, 140 lb. Hammer and Cathead ORIENTATION: Vertical

DRILLIN	G EQUIF	PMENT A	AND MET	THOD : BK-51, Tr	cone Bit, 24" Split Spoon, 140 lb. Hammer and Cathead		ORIENTATION : Vertical
WATER	LEVELS	S: 14.5 ft	bgs		START : 5/3/06 09:34 END : 5	5/4/06	18:34 LOGGER : JS/JF
DEPTH E	ELOW EX	KISTING C	RADE (ft)	STANDARD	SOIL DESCRIPTION	(1)	COMMENTS
	INTERVA	AL (ft)		PENETRATION TEST RESULTS		9	
		RECOV	ERY (in)	TEST RESOLTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,	SYMBOLIC	DEPTH OF CASING, DRILLING RATE,
			#TYPE	6"-6"-6"-6"	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	₩	DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
			#1111 =	(N)	, , , , , , , , , , , , , , , , , , ,	S	
265.8 - -	0.0	15.0	SS1SS		Silty Sand (SM) 0.0-0.6' - brown, moist, loose, fine to medium grained, low plasticity, rootlets, 25% fines Lean Clay (CL)	/	
- -	2.0			(6)	0.6-1.3' - yellowish red, heavily mottled orange, moist, medium stiff, medium plasticity, no dilatancy, 15% fine to medium sand		
-	2.5	17.0	SS2SS	3-5-7-16 (12)	Lean Clay (CL) 2.5-3.1' - reddish yellow, with orange-yellow mottling, moist, medium stiff, medium plasticity, no dilatancy, 15% fine to medium sand Fat Clay (CH)		Drilling from 0-2.5' water bubbling up around rig due to sand at surface
	4.5				3.1-3.7' - white, dark brown, and dark yellowish red, moist, stiff, medium to high plasticity, laminated	∥┨	-
5 260.8	5.0				bedding, mica particles, some fine sand	/ 	-
-		19.0	SS3SS	17-19-35-50/4 (54)	Silty Sand (SM) 3.7-3.9' - brown, moist, medium dense, low plasticity, 25% very fine to medium sand Silty Sand (SM)		- - - -
_	7.0				5.0-5.8' - reddish yellow, moist, high, fine to medium grained, low plasticity, 25% fines	//	<u>-</u>
_					Sandy Clay (CL)	/ 	_
-	7.5	5.0	SS4SS	50/5.5 (50/5.5")	5.8-6.1' - brown, some mottling, moist, very stiff, low plasticity, 35% fine to medium sand Fat Clay (CH) 6.2-6.5' - greenish gray, moist, stiff, very fine to fine		Similar to sandstone in BPA-25 near surface
	9.5			, ,	grained, high plasticity, no dilatancy, 10% fine sand	41	
10					Silty Sand (SM) 6.5-6.7' - pale red, moist, very dense, low plasticity,	11	
255.8 - - -	10.0	5.0	SS5SS	50/5.5 (50/5.5")	15-20% fine to medium grained sand Silty Sand (SM) 7.5-8.0' - light gray, moist, very dense, fine to course grained, low plasticity Silty Sand (SM) 10.0-10.4' - light gray, moist, very dense, fine to course		
-	12.0				grained, low plasticity		
- - -	12.5	7.0	SS6SS	25-50/5.5 (50/5.5")	Clayey Sand (SC) 12.5-13.1' - light gray, moist, very dense, fine to medium grained, low to medium plasticity, black, yellow, and red pockets, scattered coarse sand		- - - - -
45 -	14.5					+	-
15 <u> </u>	15.0	17.0	SS7SS	38-37-26-42 (63)	Clayey Sand (SC) 15.0-16.4' - light gray, moist, very dense, fine to medium grained, low to medium plasticity, black, yellow, and red pockets, scattered coarse sand		
_	17.0			()		-	
- - -	17.5 19.5	5.0	SS8SS	50/5 (50/5")	Lean Clay (CL) 17.5-17.9' - reddish brown, moist, hard, low to medium plasticity, slow dilatancy		
20	13.3					1	
						+	<u> </u>

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PROJECT NUMBER:	BORING NUMBER:				
338884	BPA-39	SHEET	2	OF	8

SOIL BORING LOG

 PROJECT : PEC COLA, New Hill, NC
 LOCATION : (NAD 27) (687929.9 N, 2012297.9 E)

 ELEVATION : 265.8 ft MSL (NGVD 29)
 DRILLING CONTRACTOR : A. Martin, S&ME

DRILLING EQUIPMENT AND METHOD: BK-51, Tricone Bit, 24" Split Spoon, 140 lb. Hammer and Cathead ORIENTATION: Vertical

DRILLIN	DRILLING EQUIPMENT AND METHOD: BK-51, Tricone Bit, 24" Split Spoon, 140 lb. Hammer and Cathead ORIENTATION: Vertical									
WATER	LEVELS	S: 14.5 ft	bgs		START : 5/3/06 09:34 END : 5/4	4/06 1	8:34 LOGGER : JS/JF			
DEPTH B	ELOW EX	KISTING C	RADE (ft)	STANDARD	SOIL DESCRIPTION	U	COMMENTS			
	INTERV	AL (ft)		STANDARD PENETRATION TEST RESULTS		SYMBOLIC LOG				
		RECOV	ERY (in)	1	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR	Ę	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND			
			#TYPE	6"-6"-6"-6"	CONSISTENCY, SOIL STRUCTURE, MINERALOGY	ΜB	INSTRUMENTATION			
				(N)		တ်				
245.8 - - - -	20.0	4.0	SS9SS	50/4 (50/4")	Lean Clay (CL) 20.0-20.3' - reddish brown, moist, hard, low to medium plasticity, slow dilatancy, greenish white and black pockets of fat clay, high plasticity	- - - -	Soil sampling completed at 12:42 on 5/3/06			
-	22.5	3.0	SS10SS		⊒ Lean Clay (CL)					
_	<u>22.8</u> ∫	0.0	001000	50/3 (50/3")	\lambda 22.5-22.8' - reddish brown, moist, hard, low to medium plasticity, slow dilatancy, greenish white and black pockets of fat clay, high plasticity		-			
					Begin Rock Coring at 22.8 ft bgs See the next sheet for the rock core log					
25					_		_			
240.8						1	_			
_						4	_			
_						4	-			
_						4	-			
_						4	-			
-						-	-			
_						1	-			
_						+	-			
						4	-			
30 <u> </u>					-	4	_			
_						-	-			
-						+	-			
-						+	-			
-						+	-			
_						-	-			
-						+	-			
-						1	-			
-						1	-			
35						1	-			
230.8					-	1	-			
-						1	-			
-						1	-			
-						1	-			
-						1	-			
-						1	-			
-						1	-			
-						1	-			
-						1	1			
40						1	1			
						1				

2BB-242 Rev. 1



PROJECT NUMBER:

338884

BPA-39

SHEET 3 OF 8

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687929.9 N, 2012297.9 E)

ELEVATION: 265.8 ft MSL (NGVD 29) DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, HQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS: 14					LOGGER : JS/JF		
	(%			DISCONTINUITIES	g	LITHOLOGY	COMMENTS	
₽Z Û	AND ≪∀SD		ES	DESCRIPTION		ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.	
-	22.8		1		× × × ×	- Siltstone At 22.8' - dark reddish brown, soft, fine	Rock coring began at 15:30 – on 5/3/06	
-	R1HQ 2.8 ft	36	0		× > × > × >	grained, some fine sand 22.9-24.5' - highly weathered	R1: 15:30-16:00 on 05/03/06 – Surface rock	
25 <u></u> 240.8	119%		1	_	× > × > × >	24.5-38.2' - slightly weathered to moderately weathered	washed/eroded out	
_	25.6			25.4' - Fracture, <5 deg, smooth, undulating	× > × > × > × >	25.6-30.6' - blue-green mottling	R2: Began at 16:15	
_			1		- (x) - (x) - (x)	-	-	
-	R2HQ 5 ft	64	2	27.6' - Fracture, 50 deg, rough, undulating	× × × × × × × × ×	-	SC-1 collected	
-	92%		0	28.2-28.6' - Fractures (2), 75 deg, rough, undulating	× > × > × >	-	27.75-28.85' -	
30_ 235.8			2	29.6-30.3' - Fractures, 70 deg and 75 deg, rough, undulating	× > × > × >	_		
-	30.6				× > × > × > × >	30.6-35.6' - green mottling, very soft to	R3: 17:30-17:53	
-			4	32.1' - Fracture, horizontal, smooth,	× > × > × >	31.5' - soft, fine gravel sized inclusions, hard	-	
-	R3HQ 5 ft 103%	66	10+	undulating, loose fit 32.3' - Fracture, 70 deg, smooth, undulating 32.6-33.9' - Fracture zone, horizontal and vertical, smooth, undulating, clay seams	× > × > × > × >		-	
- - 35			1	34.1' - Fracture, 70 deg, smooth, undulating, tight fit, stained	× > × > × > × >	-	Higher recovery than run likely due to soft weathered seam that fit back together	
230.8	35.6		0 *** 1	36.0' - Fracture, horizontal, smooth, undulating	× > × > × > × >	35.6-38.2' - greenish white mottling, very soft to soft	R4: 18:08-18:38	
-			2	37.2' - Fractures (2), 70 deg, rough,	× > × > × > × >	-]	
-	R4HQ 5 ft 98%	68	1	undulating, tight fit 37.8' - Fracture, 20 deg, smooth, undulating	\times \t	Clay (CL)	_	
_	3070		10+	39.1-39.6' - Fracture zone, some clay		38.2-39.6' - very soft, highly weathered		
40_ 225.8_	40.6		1	40.0' - Fracture, 5 deg, smooth, undulating	× > × > × >	Siltstone 39.6-42.5' - dark reddish brown, large green mottling, soft, fresh, very fine to] -	
-	-		0		× > × > × > × >	fine, becomes sand lens at 40.7-40.9', scattered medium sand, gradational contact at 40.6-42.5'	R5: 18:49-19:05	
-			0		× > × > × >			
					† · · ·			

2BB-243 Rev. 1



PROJECT NUMBER:	BORING NUMBER:				
338884	BPA-39	SHEET	4	OF	8

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687929.9 N, 2012297.9 E)

ELEVATION: 265.8 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, HQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS: 14	.5 ft b	gs	START : 5/3/06 09:3	4	END: 5/4/06 18:34	LOGGER : JS/JF
				DISCONTINUITIES		LITHOLOGY	COMMENTS
9Z €	Ä, AND ?Y (%		ES	DESCRIPTION	ЭГО	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
_	R5HQ' 5 ft	100	0	-	:::	 Sandstone At 42.5' - gray, dark red mottling, fine 	_
-	102%		0	-		sand to medium sand, fresh, some bands of darker gray and dark red,	-
45 220.8			0	- -		inclusions 42.5-44.3' - fine sand 44.3-45.6' - medium sand	_
	45.6		0	-		_	R6: 07:40-08:00 on 05/04/06
-				-		_	03/04/06
_	R6HQ		0	-		_	_
_	5 ft 100%	100	0	-		- - 46.5-48.6' - red-orange staining at]
-			0	- -		bottom]
50 215.8	50.6		0	_		 -	
-			0	-		-	R7: 08:15-08:35
-			0	-		52.0-52.6' - multicolored, light gray, medium sand to coarse sand]
-	R7HQ 5 ft 100%	100	0	-		_ 52.6-53.6' - multicolored, light gray with dark reddish brown	-
_	10070		0	- -		 53.2-55.2' - bluish gray, dark reddish brown mottling, fine sand 	-
55_ 210.8			0	54.8' - Fracture, 20 deg, rough, undulating		-	_
-	55.6		1	-		 55.3-56.5' - multicolored, light gray, medium sand to coarse sand 	R8: 08:40-09:10
-			2	56.5' - Fracture, <5 deg, rough, undulating 56.6-60.5' - Microfractures -	× ×	Siltstone - \ 56.5-56.8' - dark bluish gray, fresh,	-
-	R8HQ	90	0	56.6' - Fracture, 10 deg, rough, undulating, partially slickensided 56.8' - Fracture, 40 deg, rough, undulating -		\soft, fine grained \square Sandstone 56.8-59.5' - dark bluish gray, fine	_
_	5 ft 100%	50		·		sand, fresh 57.95-58.6' - gray, fine sand to medium sand]
60			0	-	: : : × × × ×	58.6-59.5' - blue gray, fine sand, banded	SC-2 collected
205.8	60.6		0	00.71 Facatama 00 da a manala madalatina	× × × × × ×	Siltstone 59.5-62.5' - dark bluish gray, soft, fresh, banded	59.6-60.6' — R9: 09:20-09:55
-			2	60.7' - Fracture, 30 deg, rough, undulating 61.4' - Fracture, 30 deg, rough, undulating	× × × × × ×	60.6-62.5' - dark greenish gray, some dark red mottling, very soft	
-			4	61.8' - Fracture, 15 deg, rough, undulating -62.0' - Fracture, <5 deg, rough, undulating -62.2' - Fracture, <5 deg, rough, undulating	. × × × × · · · ·	_	_

2BB-244 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BPA-39

SHEET 5 OF 8

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687929.9 N, 2012297.9 E)

ELEVATION: 265.8 ft MSL (NGVD 29) DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, HQ Double Barrel ORIENTATION : Vertical

WATER	ATER LEVELS : 14.5 ft bgs		ogs	START : 5/3/06 09:	34	END : 5/4/06 18:34	LOGGER : JS/JF
	(%			DISCONTINUITIES	90	LITHOLOGY	COMMENTS
QN (£)	JN, AND RY (°	_	ZES T	DESCRIPTION	O LC	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)		RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
_	R9HQ 5 ft	83	0	62.3' - Fracture, <5 deg, rough to smooth, undulating	-	 Sandstone At 62.5' - very dusky red, blue green 	_
_	100%		0	62.5-68.2 - Microfractures]: : : : : :	mottling, soft, laminated to thick bedding, fine sand, fresh	-
65_ 200.8	05.0		0	_] - - - - -	_	_
-	65.6		0		- - - : : : :	- 66.0-68.2' - dark reddish brown, soft,	R10: 10:00-10:30
-			0		- - - : : :	- fine sand -	-
-	R10HQ 5 ft	100	0		- - - : : :	-	-
-	100%		0		- - - : : : :	68.2-69.0' - reddish brown, fine sand to medium sand 69.0-70.5' - gray, medium sand to	-
70_ 195.8			0	_	- - - - - - - -	coarse sand	_
195.6	70.6		0			70.6-73.4' - pinkish gray, soft to hard, medium sand	R11: 10:35-10:55
-			0			- -	-
-	R11HQ					-	_
-	5 ft 100%	100	1	73.4' - Fracture, 50 deg, rough, undulating	-	73.0' - black-oxidized band at contact between medium and coarse grain size	-
75			0]::: :::	73.4-75.6' - pinkish gray, soft to hard, - medium sand to coarse sand	-
190.8	75.6		0	_] - : : :		R12: 11:00-11:20
-			0		- - - : : :	medium sand to coarse sand	-
-	R12HQ		1	76.9' - Fracture, 60 deg, rough, undulating, tight fit	 	77.4-80.6' - dark gray, soft to hard,	
-	5 ft 100%	100	1		- ::: - :::	_ medium sand to coarse sand -	
-			0		- - - - - - -	-	-
80 <u> </u>	80.6		0	-	- - - - - -		
-			1	81.0' - Fracture, <5 deg, rough and undulating to smooth and planar	- ∷ : - × × - × ×	80.6-81.2' - dark blue gray, fine sand Siltstone	R13: 11:20-12:05
-			0	•	× × ×. × 	81.2-82.0' - dark blue gray, fresh, fine grained	-
			\Box				ļ.

2BB-245 Rev. 1



PROJECT NUMBER:

338884

BPA-39

SHEET 6 OF 8

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687929.9 N, 2012297.9 E)

ELEVATION: 265.8 ft MSL (NGVD 29) DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, HQ Double Barrel ORIENTATION : Vertical

00				THOD . BR-31, HQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS: 14	.5 ft b	gs	START : 5/3/06 09:3	4	END: 5/4/06 18:34	LOGGER : JS/JF
	<u> </u>			DISCONTINUITIES	_(j)	LITHOLOGY	COMMENTS
07 €	CORE RUN, LENGTH, AND RECOVERY (%)		S	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	
DEPTH AND ELEVATION BELOW SURFACE (ft)	L A C A	(%	FRACTURES PER FOOT		일	MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
F S S F	GTE S	٥	FC	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY. INFILLING MATERIAL AND	IBO	WEATHERING, HARDNESS, AND ROCK MASS	SMOOTHNESS, CAVING ROD
		R Q D (%)	AR	THICKNESS, SURFACE STAINING, AND TIGHTNESS	λγ	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
	R13HQ					- Sandstone	
	5 ft	100	0	_		At 82.0' - light blue gray, thin to	
-	100%			-	:::	massive bedding, fine sand, fresh	1
-			0	-	1:::	- 82.4-84.2' - multicolored, fine sand	-
_				-	- : : : :	_ 84.2-85.6' - dark reddish brown, fine	-
85				<u> </u>	:::	sand —	
180.8	85.6		0				
	00.0				:::	85.6-90.6' - dark reddish brown, blue	R14: 12:45-13:20
_			0	-	1:::	green mottling, soft to hard, fine sand	-
-				-	1:::	-	-
-			0	-	 ∷∷	_	-
I _			ا	_]: :::l	_	
	R14HQ				::::		
I -	5 ft	100	0	-	1:::1	-	Had some water loss while
-	100%			-	:::	_	coring -
-			0	-	∤∷∷	-	-
-				-		_	_
90				_	:::		
175.8	90.6		0				
-	90.0			-		90.5-95.6' - bluish-gray, soft to hard,	R15: 13:30-13:50
-			0	-	:::	medium sand, coarsens with depth to	-
-				-	- : : : :	_ 98.0'	-
_			2	91.6-92.0' - Fracture	:::	_	-
_				92.1-92.7' - Fracture, 70 deg and 75 deg,	::::	_	_
	R15HQ			rough, undulating	:::		
-	5 ft	100	0	-		_	1
-	100%			-	1:::	_	-
_			0	<u>-</u>	:::	-	-
_						_	_
95				_	:::		
170.8	95.6		0				SC-3 collected
I -	33.0			-	1: ::	=	94.6-95.6' – R16: 13:55-14:10
-			0	-	:::	_	11.10. 10.00-14.10
-				-	∤∷∷I	-	-
-			0	-	.∷ .	_	-
I -				_	. ∷	_	
	R16HQ			97.7-98.0' - Fracture, 60 deg and 65 deg,	:::		
I -	5 ft	100	1	rough, undulating	:::	98.0-100.6' - bluish-gray, soft to hard,	JAS Amended on 5/5/06:
-	100%			· · · · · · · · · · · · · · · · · · ·	1:::1	medium sand, finer with depth to	lost water at ~98-118' bgs
-			1	98.8-99.2' - Fracture, 60 deg and 65 deg,	 ∷∷	_ 100.6'	-
-				rough and undulating to rough and planar	∤∷∷ I	-	-
100				_]::::		
165.8	100.6		0				
-	100.0			_]:::	- 100.6-109.0' - bluish-gray, soft to	R17: 14:15-14:30
-			0	-	1:::1	hard, medium sand to coarse sand	1
-				-	 ∷∷	_	-
-			0	-	 ∷∷	_	-
_				_	 ::::	_	

2BB-246 Rev. 1



PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-39	SHEET 7 OF 8

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687929.9 N, 2012297.9 E)

ELEVATION: 265.8 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, HQ Double Barrel ORIENTATION : Vertical

WATER	ER LEVELS : 14.5 ft bgs		gs	START : 5/3/06 09:34		END: 5/4/06 18:34	LOGGER : JS/JF	
	(9)			DISCONTINUITIES	G	LITHOLOGY	COMMENTS	
QZ €	AND ≪₹		LES	DESCRIPTION	СГО	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.	
-	R17HQ 5 ft 100%	100	0	-		-	-	
			0	-		- -	_	
105 160.8	105.6		0					
			10+	105.6-107.0' - Fracture zone, 70 deg, rough, undulating		- -	R18: 14:35-15:00	
_			10+	-		- - 107.3-108.0' - blue gray, red brown	-	
_	R18HQ 5 ft 100%	72	0	-		mottling, inclusions, very soft to soft]	
			1	109.0' - Fracture, <5 deg, rough, undulating		- - 109.0-111.4' - very dusky red, - blue-green mottling, soft to hard, fine]	
110 155.8	110.6		0	_		sand	-	
	110.0		0	-		-	R19: 15:06-15:33	
			0	-	× × × × × ×	 Siltstone 111.4-117.4' - very dusky red to dark reddish brown, blue-green mottling, 	-	
	R19HQ 5 ft	100	0	-	× × × × × ×	 soft, fresh 112.4-113.0' - purple inclusions, very small, (0.0003' diameter) 	1	
	100%		0	- -	× × × × × ×	112.9-116.8' - white inclusions, very small (0.0003') - large (0.01')		
115 150.8			0	-	× × × × × ×	- 	-	
-	115.6		0	-	× × × × × ×	- -	R20: 15:50-16:15	
-			0	- -	× × × × × ×	- -		
-	R20HQ 5 ft	100	0	-		Sandstone 117.4-120.6' - very dusky red, blue green mottling, soft, very fine sand to] :	
-	100%		0	-		fine sand, fresh		
120 145.8			1	- 119.9' - Fracture, <5 deg, rough, undulating		- -		
-	120.6		0		 × × × ×	Siltstone At 120.6' - dark reddish brown, trace	R21: 16:25-16:55	
-			0	-	× × × × × ×	blue-green mottling, soft, fresh, some very fine to fine sand		
				_	××	-	-	

2BB-247 Rev. 1



PROJECT NUMBER:	BORING NUMBER:			
338884	BPA-39	SHEET	8 OF	8

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687929.9 N, 2012297.9 E)

ELEVATION: 265.8 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, HQ Double Barrel ORIENTATION : Vertical

WATER	ER LEVELS : 14.5 ft bgs		gs	START : 5/3/06 09:3	4	END: 5/4/06 18:34	LOGGER : JS/JF	
	(%)			DISCONTINUITIES	ی ق	LITHOLOGY	COMMENTS	
Q Z (±)	AND 3Y (%		ZES T	DESCRIPTION	C LO	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,	
DEPTH AND ELEVATION BELOW SURFACE (ft)		RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.	
-	R21HQ 5 ft 100%	100	0	<u>-</u>	× × × × × ×	_	-	
-	100 70		0	-	× × × × × ×	-	SC-4 collected 124.4-125.4' -	
125 140.8 -	125.6		0	_	× × × × × ×			
-			0	-	× × × × × ×	125.6-130.6' - dark reddish brown, trace blue-green mottling, soft, some very fine to fine sand, small white	R22: 17:05-17:35	
-			0		× × × × × ×	inclusions 128.0-129.5'	-	
-	R22HQ 5 ft 100%	100	0	-	× × × × × ×		_	
-			0	- -	× × × × × ×	_		
130 <u>135.8</u>	130.6		0	_	× × × × × ×	_	_	
-			0	-	× × × × × ×	130.6-135.6' - dark reddish brown, trace blue-green mottling, soft, white inclusions small (0.0003-0.002')	R23: 17:45-18:15	
-			0	- 132.2-135.0' - Fracture, 70 deg	× × × × × ×	-	_	
-	R23HQ 5 ft 100%	100	1	-	× × × × × ×	-	_	
-			1	-	× × × × × ×	- - -	R24: 18:20-18:34	
135 <u> </u>	135.6		1		× × × × × ×	_	First water level = 14.5' bgs taken 5/5/06 at 11:49; second water level = 19.0'	
-			0	-		Sandstone 135.6-138.6' - very dusky red, soft to hard, fresh, fine sand	bgs taken 5/8/06 at 17:05 R-scale not performed on rock core samples	
-	R24HQ 3 ft 100%	100	0	-		-		
-	138.6		0	-		-	-	
-				-		Bottom of Boring at 138.6 ft bgs on 5/4/06 18:34	-	
140 <u> </u>				_			-	
-				-		- -		
-				-]	
						<u>!</u>	Į.	

2BB-248 Rev. 1



PROJECT NUMBER: BORING NUMBER: BPA-40

SOIL BORING LOG

SHEET 1 OF 3

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687842.4 N, 2012342.8 E)

ELEVATION: 259.2 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

DRILLING EQUIPMENT AND METHOD: CME-750, 2-15/16 Tricone Bit, 24" Split Spoon and 140 lb. Automatic Hammer ORIENTATION: Vertical

DRILLIN	IG EQUIF	PMENT A	AND MET	THOD : CME-750	2-15/16 Tricone Bit, 24" Split Spoon and 140 lb. Automatic Ha	mmer		ORIENTATION : Vertical
WATER	LEVELS	S: 7.9 ft l	ogs		START : 6/26/06 16:20 END : 6/2	27/06	14:10) LOGGER : LH/EM/DT
DEPTH B	BELOW EX	KISTING C	SRADE (ft)	STANDARD	SOIL DESCRIPTION	(J		COMMENTS
	INTERV	AL (ft)		PENETRATION TEST RESULTS		SYMBOLIC LOG		
		RECOV	ERY (in)	TEGT REGGETS	SOIL NAME, USCS GROUP SYMBOL, COLOR,	1 3	Œ	DEPTH OF CASING, DRILLING RATE,
			#TYPE	6"-6"-6"-6"	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	MBC	(TSF)	DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
			<i>"</i>	(N)		λS	뮵	
259.2	0.0				Top Soil	1 /2	1	
		00.4	00400	4040	\\(\(\)\(\)\(\)\(\)\(\)\(\)\(\)]]]	ļ	_
-		20.4	SS1SS	1-0-1-2 (1)	\ 0.2-\(\text{0.9'}\) - pale olive, moist, medium dense, little very	1///	0.75	-
_	2.0			(.,	fine sand, trace to little clay, trace roots at top.	7///	1	-
-	2.0				Clay (CL) 0.9-1.7' - olive yellow, moist, medium stiff	1		-
-	2.5				Silt (ML)	†Ш	1	-
-					2.5-4.1' - reddish brown, with light greenish gray and	1111		-
-		19.2	SS2SS		reddish black mottling, dry to moist, stiff, trace clay, trace roots	-		PT-1 collected
-				(27)		-Ш	1	3.0-5.0'
_	4.5					4		Offset: 1.6' S40W of BPA-40 Lab Results USCS: Sandy CL
5 <u> </u>	5.0				Silt (ML)	-	1	- Count Cooc. Carry CL
	0.0				5.0-6.3' - reddish brown, with light greenish gray and	4		-
-		15.6	SS3SS	14-16-21-50/3	reddish black mottling, dry to moist, very stiff, trace fine to coarse sand	4		-
-				(37)	to coarse sailu	╁╨	ł	-
_	7.0					1		
_						1	1	Soil sampling completed at 17:17 on 6/26/06
_	7.5 7.7	2.4	SS4SS	50/3	Silt (ML) 7.5-7.7' - reddish brown, dry to moist, very dense, trace		1	-
				(50/3")	to little fine grained sand]		_
					Begin Rock Coring at 7.7 ft bgs	_		
					See the next sheet for the rock core log	1		
10						1		_
249.2					_	1		
-						1		-
-						1		-
-						1		-
-						1		-
-						1		-
-						1		-
-						1		-
-						-		-
-						4		-
15 <u> </u>					-	4		
244.2						4		-
_						1		_
_						1		_
								_
]								_
						1		
						1		_
20						1		-
						1	t	



PROJECT NUMBER:

338884

BPA-40

SHEET 2 OF 3

ROCK CORE LOG

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687842.4 N, 2012342.8 E)

ELEVATION: 259.2 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, NQ Double Barrel

WATER	LEVELS: 7.	END : 6/27/06 14:10	LOGGER : LH/EM/DT				
	(%)			DISCONTINUITIES	g	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
_	7.7		0		××	Siltstone 7.7-9.2' - dark reddish brown, very soft	Rock coring began at 08:28 _ on 6/27/06
-	R1NQ 3.7 ft	95	1	9.2' - Fracture, 5 deg, smooth, undulating, stained, loose fit	× × × × × × • · · ·	to soft, bedding, moderately weathered, fine grained, 25% fine sand, micaceous	R1: 08:28-09:25 on 06/27/06 - At 8.5': R-Scale = R0-R1
10 249.2 _	100%		0	10.6' - Fracture, 5 deg, rough, stepped,	× × × × × × × ×	9.2-9.6' - greenish gray, very soft to soft, fine sand to medium sand, moderately weathered, micaceous	-
-	11.4		1	stained, tight fit 10.6-11.4' - Fracture, vertical, black stains, tight fit 11.4-11.9' - Fracture, vertical and 80 deg,	× × × × × × ×	Siltstone 9.6-12.6' - dark reddish brown, very soft to soft, moderately weathered, fine grained, micaceous, 20% fine sand,	R2: 08:58-09:25 -
-	R2NQ 4 ft	83	2	rough, undulating, black stains, tight fit 12.6' - Fracture, 20 deg, smooth, planar, black stains, tight fit 12.9' - Fracture, 25 deg, smooth, undulating,	× × × × × × × ×	bioturbated 12.6-12.9' - very soft, moderately weathered	At 12.3': R-Scale = R1-R2 -
-	100%	00	0	black stains, loose fit		 12.9-17.0' - soft, slightly weathered, bioturbated 	-
15 <u> </u>	15.4		1	14.6' - Fracture, 5 deg, rough, undulating, loose fit	× × × × × × × ×	_	R3: 09:40-10:00 -
-			0		× × × × × ×	-	
-	R3NQ 5 ft 100%	96	0			Sandstone 17.0-19.7' - dark reddish gray, fine sand, slightly weathered, 30% silt, micaceous, medium bedding, soft	-
-			1	18.8-19.1' - Fracture, 65 deg, smooth, undulating, calcitic infilling, tight fit		-	At 18.7': R-Scale = R3
20 239.2 	20.4		0	19.7' - Fracture, 10 deg, smooth, undulating, _ loose fit 19.8' - Fracture, 5 deg, smooth, undulating, loose fit	- × × × × × × × ×	Siltstone 19.7-22.3' - dark reddish brown, slightly weathered, fine grained, micaceous, 15% fine sand, soft	R4: 10:10-10:21
-			0			-	At 21.2': R-Scale = R2
- -	R4NQ 5.7 ft 100%	100	0	23.4-24.1' - Fracture, 75 deg, rough,		Sandstone At 22.3' - greenish gray, slightly weathered, micaceous, 20% silt, soft, fine sand	-
25			2 NA	undulating, calcitic infilling, tight fit 24.1-24.7' - Fracture, 70 deg, rough, undulating, calcitic infilling, tight fit		- - 	At 24.0': R-Scale = R1
234.2	26.1		NA		 	25.5-25.6' - coarse gravel, quartz, feldspar	- DE. No time recorded
-			1	26.8' - Fracture, 5 deg, rough, undulating, tight fit	-	26.0-26.8' - light bluish gray, fine sand to medium sand, quartz mica, 5% - medium gravel	R5: No time recorded
					1:::	_	At 27.3': R-Scale = R2 -

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PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-40	SHEET 3 OF 3

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687842.4 N, 2012342.8 E)

ELEVATION: 259.2 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS: 7.9	9 ft bg	ıs	START : 6/26/06 16	:20	END: 6/27/06 14:10	LOGGER : LH/EM/DT
	(%)			DISCONTINUITIES	ပ္ထ	LITHOLOGY	COMMENTS
Q _N (£)	Ä, AND 3Y (9		ZES T	DESCRIPTION	O'C	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
-	R5NQ 4.6 ft 100%	83	1	27.8' - Fracture, 25 deg, rough, stepped, tight fit 28.9' - Fracture, 20 deg, rough, undulating,	× ; × ; × ;	26.8-27.9' - very dark greenish gray, fine sand, 25% silt quartz, mica Siltstone 27.9-28.9' - bluish gray, slightly	- - -
30_ 229.2			1	loose fit 29.9-30.1' - Fracture, 50 deg, rough,		weathered, fine grained, 10% fine sand Sandstone	- -
-	30.7		1	undulating, tight fit 30.3' - Fracture, 20 deg, rough, stepped, tight fit		28.9-34.9' - bluish gray, fine to coarse sand 28.9-30.7' - slightly weathered to	R6: No time recorded
-			0		- - - - - - -	moderately weathered 30.7-34.9' - slightly weathered -	SC-1 collected
-	R6NQ 5 ft	84	1		- - - - - - - -	- -	30.8-32.2' - At 33.1': R-Scale = R1-R2
-	92%		1	33.4-33.7' - Fracture, 75 deg, rough, undulating, tight fit 33.8' - Fracture, 5 deg, rough, undulating, loose fit		- 33.9-34.5' - Conglomeratic in part	- - -
35	35.7		1	34.9' - Fracture, 10 deg, smooth, undulating, tight fit	× ; × ; × ; × ;	Siltstone At 34.9' - dark greenish gray, fresh, fine grained, mica, mottled, soft	R7: No time recorded
-			0		× ; × ; × ;	Siltstone At 36.2' - dark reddish brown, fresh, mica, fine, massive, some brown mottling, soft	At 36.6': R-Scale = R2
-	R7NQ 5 ft 100%	100	0		× × × × × × × × × × × × × × × × × × ×	_ Hotuing, soit	- - -
40			0		× × × × × × ×	-	- -
219.2	40.7		0	_	× ; × ; × ;	- - - 40.7-42.7' - large (1-2) bluish gray	
-			0		X	coloration along small fractures	At 42.4': R-Scale = R3 First water level = 7.9' bgs taken 6/27/06 at 16:40;
-	R8NQ 5 ft	95	0		× × × × × × × × × × × × × × × × × × ×	- -	second water level = 0.2' bgs taken 6/28/06 at 18:23 R-scale performed after
-	95%	ฮบ	0		×		drilling on stored samples -
45 214.2	45.7		0	- -	× × × × × × × × × × × × × × × × × × ×		-
-	45.7				- X X	Bottom of Boring at 45.7 ft bgs on 6/27/06 14:10	- - -
						-	_



PROJECT NUMBER: BORING NUMBER: 338884 BPA-41 SHEET 1 OF 9

SOIL BORING LOG

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (686943.6 N, 2012431.0 E)

ELEVATION: 264.6 ft MSL (NGVD 29) DRILLING CONTRACTOR: D. Hedges, S&ME

DRILLIN	DRILLING EQUIPMENT AND METHOD: CME-550, 3-5/8 Tricone Bit, 24 Split Spoon and 140 lb. Automatic Hammer ORIENTATION: Vertical									
WATER	LEVELS	3 : 26.4 ft	bgs		START : 6/15/06 12:47 END : 6/1	7/06	14:46 LOGGER : LH			
DEPTH B	ELOW EX	KISTING C	SRADE (ft)	STANDARD	SOIL DESCRIPTION	υ	COMMENTS			
	INTERV	AL (ft)		PENETRATION TEST RESULTS		2.0				
		RECOV	ERY (in)		SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR	Ğ	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND			
			#TYPE	6"-6"-6"	CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	INSTRUMENTATION			
264.6	0.0			(N)	Top Soil	2 <u>1 1</u> 2				
-	0.0				0.0-0.5'	///	-			
-		24.0	SS1SS		Clay & Fine Sand (CL&SP-SM) 0.5-1.4' - reddish brown and light brown, moist, medium	<i>\///</i>	-			
-				(7)	stiff, loose, trace roots, fill		-			
-	2.0				Fine Sand (SP-SM) 1.4-2.0' - light brown, moist, loose, fill	1,1	-			
-	2.5				Clay (CL)	///	-			
-					2.5-4.0' - reddish brown, greenish gray mottling, moist,	<i>\///</i>	-			
-		18.0	SS2SS		hard, laminated bedding, friable		-			
-	4.5			(50/5")		1///	-			
5	4.5				-	┨	-			
259.6	5.0	3.0	SS3SS,		¬ Clay (CL)	///	Soil sampling completed at 13:20 on 6/15/06			
-	5.3 5.7			50/3 (50/3")	5.0-5.3' - greenish gray mottling, moist, hard, laminated /-bedding, friable	1				
-	<u> </u>			(50/3)	Begin Rock Coring at 5.7 ft bgs	1	-			
-					See the next sheet for the rock core log	1	-			
-					-	1	-			
-					-	1	-			
-					-	1	-			
-					-	1	-			
-					-	1	-			
10					-	1	1			
254.6					_	1				
-					-	1	_			
-					-	1	1			
-					-	1]			
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15					_	1]			
249.6					_	1				
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20										
						1				
						<u> </u>				

2BB-252 Rev. 1



PROJECT NUMBER:

338884

BPA-41

SHEET 2 OF 9

ROCK CORE LOG

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686943.6 N, 2012431.0 E)

ELEVATION: 264.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

				THOD : CIVIE-330, NQ DOUBLE BAITEL					ORIENTATION : Vertical
WATER	LEVELS : 26	6.4 ft b	gs	START : 6/15/06 12	2:47	_	END : 6/17/06 14:46	_	LOGGER : LH
	- (%			DISCONTINUITIES	ي ا	≀ L	LITHOLOGY		COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)		FRACTURES PER FOOT	DESCRIPTION	SYMBOLICLOG	۱ <u>۱</u>	ROCK TYPE, COLOR,		SIZE AND DEPTH OF CASING,
돌은 _ 링	L H.	(%) О	E C	DEDTIL TYPE OPIENTATION POLICINIESS	7 5	ĺ	MINERALOGY, TEXTURE,		FLUID LOSS, CORING RATE AND
E S O E	Social	0	ZCT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	Jak	Í	WEATHERING, HARDNESS, AND ROCK MASS		SMOOTHNESS, CAVING ROD
SEEE	<u>S</u> ##	R Q	F.E.	THICKNESS, SURFACE STAINING, AND TIGHTNESS	5	5	CHARACTERISTICS		DROPS, TEST RESULTS, ETC.
	5.7		3		+::	+	Sandstone		Rock coring began at 08:30 _
			3		1∷	:[5.7-14.2' - reddish brown, white, and		on 6/16/06
-			3		1∷	: -	dark reddish gray, reddish black		R1: 08:30-08:40 on
-	R1NQ		Ů	6.8' - Fracture, horizontal, rough, planar		: -	mottling, soft to hard, laminated to medium bedding, very fine sand to		06/16/06 At 5.7-6.5': R-Scale = R1
_	3.5 ft	77*		7.2' - Fracture, horizontal, rough, planar	_ ∷	: -	coarse sand, angular to subrounded,		At 6.2-6.7': R-Scale = R1
l _	97%		2	7.6' - Fracture, horizontal, rough, planar]::	ΞL	moderately weathered, becomes		At 6.7-8.3': R-Scale = R1
				8.2' - Fracture, horizontal, rough, planar]::	:[coarser with depth to 7.9' then gets		
-			0	8.3' - Fracture, horizontal, rough, planar	1∷	: -	finer and becomes coarser with depth to 9.2', well to poorly sorted		-
-	9.2		~~~		1::	∄	6.2' - clay seams, 0.05' thick,		At 8.7': R-Scale = R3 _
_				9.4' - Fracture, horizontal, rough, undulating	- ∷	: -	laminated beds, very soft, siltstone		R2: 08:44-08:52
10			1	_	∐∷	٦L	_ beds alternating with clay throughout,		
254.6					1::	:[fracture at bottom		
-			0		1::	: -	6.5-6.7' - clay seams, 0.15' thick, laminated beds, very soft, siltstone		
-					Ⅎ∷	: -	beds alternating with clay throughout,		- At 44 41: D 01
_	R2NQ				4::	÷	fracture in middle		At 11.1': R-Scale = R4
l _	5 ft 89%	82*	1]::	ΞL	9.2-12.0' - coarsens with depth		
	0976			12.0' - Fracture, horizontal, rough, undulating	::	:	12.0-14.2' - mottled reddish black,		At 12.0-12.4': R-Scale = R1
_			2	12.5' - Fracture, 45 deg, rough, undulating	1::	: -	olive, greenish gray, soft to hard, bedding, coarse sand, angular to		7
-				12.7-12.9' - Fracture, horizontal, rough,	1:	: -	subrounded, poorly sorted, banded		-
-			1	undulating, fracture (top) and clay seam,	- ∷	: -	lighter & darker		At 13.3': R-Scale = R3-R4 -
l _	14.2		XXX	laminated beds]::	ΞL	13.5-13.7' - clay seam, very soft,		_
	14.2		XXX		×	×	friable material	\neg	R3: 08:56-09:08
15			1		××	XT	Siltstone		_
249.6				14.8' - Fracture, horizontal, smooth, planar –	××	*	_ 14.2-15.8' - dark reddish brown, mottled greenish gray, white, and		SC-1 collected
_				15.2' - Fracture, horizontal, smooth, planar	-lê	<u>}</u>	reddish black, soft, very thin to thin		14.2-14.8'
l _			1		Ě	1	bedding, moderately weathered	Ⅎ	At 15.4': R-Scale = R3-R4 _
	R3NQ			16.1' - Fracture, horizontal, rough, stepped, top		7	Sandstone	П	
	5 ft	100*	1	of clay seam, soft, friable material	1::	:[15.8-16.0' - dark reddish brown,	П	_
-	102%				- · ·	÷	mottled greenish gray, white, and reddish black, laminated to bedding,	Н	-
-			0		-×	3	fine sand, well rounded to	Ш	-
l -			U		_ ×	ΆL.	subrounded, well sorted, moderately		_
					×	×	weathered		At 18.1': R-Scale = R3-R4
I -			0		×	X	Siltstone		7
-	19.2		$\sim\sim$		∃× ×	*	16.0-16.1' - dark reddish brown, mottled greenish gray, white, and		-
-			0		\dashv ×	1	reddish black, very soft to soft,		R4: 09:13-09:34 At 19.5': R-Scale = R3-R4
20			U	_	_×	1	laminated bedding, moderately		AL 13.0 . N-OLAIE - NO-N4
244.6					××	X.	weathered		
			0		×	Ţ	Sandstone		
-					- × ×	}	16.1-17.1' - dark reddish brown, mottled greenish gray, white, and		
-	R4NQ 5 ft	100	0		- <u> </u> ×		reddish black, very thin to thin		-
-	104%	100			-L:	:	bedding, very fine sand to fine sand,	Ш	At 00 01: D 0 1
I -					××	XL	well rounded to subrounded, well	П	At 22.0': R-Scale = R3
			0		×	ķ	sorted, moderately weathered 16.1-16.2' - clay seam, soft, friable	П	
-					T	*	material		7
-			0		-×	*	16.7-17.0' - coarse grained sand seam		-
-	24.2				-×	*	Siltstone		-
-			XXX		-×	<u></u>	At 17.1' - dark reddish brown, mottled		R5: 09:39-09:48
25			0		×	X	greenish gray, white, and reddish black, soft, laminated bedding		At 24.8': R-Scale = R3-R4
239.6				_	×	XT.	17.1-17.4' - moderately weathered		, 1.2 1.0 . IT GODIE - ITO-IT
					- ×	*			
					1				
					1				

2BB-253 Rev. 1



PROJECT NUMBER:	BORING NUMBER:					
338884	BPA-41	SHEET	3	OF	9	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686943.6 N, 2012431.0 E)

ELEVATION: 264.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

00				THOD . CIVIE-330, NQ DOUBLE BAITEI				ORIENTATION : Vertical
WATER	LEVELS: 26	3.4 ft b	gs	START : 6/15/06 12	:47	_	END: 6/17/06 14:46	LOGGER : LH
	<u></u>			DISCONTINUITIES	(D	ı	LITHOLOGY	COMMENTS
o¬ €	CORE RUN, LENGTH, AND RECOVERY (%)		S	DESCRIPTION	SYMBOLIC LOG	Г	DOCK TYPE COLOR	
EVATION EVATION ELOW JRFACE (ft	N E E	(9)	滿	DESCRIPTION	닉익	ı	ROCK TYPE, COLOR, MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING,
EPTH AN EVATION ELOW JRFACE	STE OVE	() ()	달	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	BOI	ı	WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
DEP' ELEY BELC SURI	RNI	R Q D (%)	FRACTURES PER FOOT	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	Σ	ı	AND ROCK MASS CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
ОШШО	075	œ		THOUSE OF THE THOUSE		┸		
-			0		×	**	17.3-17.4' - clay seam, soft, friable	-
l _	R5NQ				××	XL.	material 17.4-21.7' - fresh	
	5 ft	94	0		×	Ŕ	Sandstone	
_	94%				×	**	21.7-22.1' - soft, very thin to thin	1
-			0		××	Ճ Ի	bedding, well rounded to subrounded,	At 27.4': R-Scale = R3-R4 -
-			"		××	XL.	well sorted, fresh, very fine to fine	1
					×	Â	grained	
			0		×	X	Siltstone	
-	29.2		\bowtie		×	*	22.1-29.4' - dark reddish brown,	1
-					╁╌	î F	mottled greenish gray, white, and reddish black, soft, laminated bedding,	R6: 09:51-10:09
30			0	_	_]∷	:L	fresh	
234.6					::	1	24.2-29.2' - trace medium to coarse	At 20 2h D Casta = D4
1 -			0		1::	:[sand	At 30.3': R-Scale = R4 -
-					Ⅎ∷	: -	26.2-26.4' - 30-40% sand	1
-	R6NQ	465	_		↓ ∷	:[-	Sandstone At 29.4' - dark reddish brown, white.	-
l _	5 ft 102%	100	0]::	:L	dark reddish gray, and gray, medium	
	10276				1::	:[to thick bedding, very fine sand to fine	
-			0		1::	:[sand, well rounded, well sorted, fresh	At 32.5': R-Scale = R3-R4
-					∤∷	⊱		-
_					↓ ∷	ŀ		
			0		1::	:[At 33.8': R-Scale = R4
-	34.2				1::	:[33.9-34.1' - trace medium sand	
			0		 ∷	╌	34.2-39.2' - dark gray, greenish gray, and white, medium to thick bedding,	R7: 10:13-10:21
35 <u>229.6</u>			"	_	4::	ŀ	fine sand to coarse sand, angular to	_
229.0]::	Ŀ	subrounded, poorly sorted	
			0		1::	:		
-					1∷	:[1
-	R7NQ 5 ft	100	0		1::	: -		At 36.5': R-Scale = R4
-	103%	100	"		4::	: -		At 30.3 : 14-3cale = 144
	100,0				::	:		
			0		ו∷	:Г		
-					1::	: -	37.8' - trace gravel sized clasts of silt	1
-			_		- 1∷	: -		-
l _	39.2		0		_]∷	:L		At 38.8': R-Scale = R3-R4
1	JJ.2		XXX		0	0	Conglomerate	R8: 10:36-10:46
40			0		1,4	4	39.2-40.0' - dark gray, greenish gray,	1
224.6				_	-	+	abla and white, soft to hard, thin bedding, $ abla$	1 ⊢
-				40 F 40 9! Fracture hadront-land	×	<u>.</u>	fresh	4 - 4
I _			4	40.5-40.8' - Fracture zone, horizontal, rough, undulating	×	Ł	Sandstone]
	R8NQ			andalaling	×	Ŕ	40.0-40.5' - dark gray, greenish gray, and white, laminated to very thin	
1 -	5 ft	92	0		×	XT.	bedding, fine sand to coarse sand,	At 44 7h D Cools = D0 D4
-	98%				×	*	angular to subrounded, poorly sorted,	At 41.7': R-Scale = R3-R4
-				42.5.42.61 Fractures (2) hard-antal results	××	1	fresh	-
1 _			2	42.5-42.6' - Fractures (2), horizontal, rough, undulating, microfractures with greenish gray	×××	X L	Siltstone	l J
				infilling throughout siltstone	×	X	At 40.5' - dark reddish brown, mottled]
-			0	.9	×	XT.	greenish gray, white, and reddish black, very soft to soft, laminated	1 1
-	44.2				× ×	*	bedding, fresh	-
I -					××	1	44.2-49.2' - no mottling	R9: 10:51-11:05
45			0		×	K	•	
219.6			\vdash	_	×	Æ	_	7
					×	土		-

2BB-254 Rev. 1



PROJECT NUMBER:	BORING NUMBER:					
338884	BPA-41	SHEET	4	OF	9	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686943.6 N, 2012431.0 E)

ELEVATION: 264.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				HOD . CIVIE-930, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS: 26	6.4 ft b	gs	START : 6/15/06 12	:47	END : 6/17/06 14:46	LOGGER : LH
	· (9			DISCONTINUITIES	ტ	LITHOLOGY	COMMENTS
EPTH AND LEVATION ELOW JRFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
	8필뿐	R O	띥띮	THICKNESS, SURFACE STAINING, AND TIGHTNESS	S	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
-	R9NQ		0		× ;		At 45.5': R-Scale = R3-R4 _
-	5 ft 94%	94	0		× ;		-
-			0		× ; × ; × ;	- -	-
-	49.2		0		× ;	-	-
50			0	_	× ;	49.2-54.2' - no reddish black mottling	R10: 11:13-11:28 _
214.6			0		× ; × ; × ;	-	At 50.5': R-Scale = R3-R4
-	R10NQ 5 ft 100%	100	0		- X X X X X X X X X X X X X X X X X X X	51.7-53.6' - white clasts (<0.05' thick) 52.0-52.4' - very soft, almost clay	-
-			0		× ;	oz.o-ozr - vory sort, annust day	SC-2 collected 52.4-53.4'
-	54.2		0		× ; × ; × ;	-	At 53.8': R-Scale = R3-R4 -
55_ 209.6			0	_	 	_ Sandstone At 54.2' - dark reddish brown, mottled greenish gray and reddish black, very	R11: 11:40-12:00
-			0			thin to medium bedding, very fine sand to fine sand, subrounded, well sorted, fresh	
-	R11NQ 5 ft 103%	100	0		 	- 56.8-56.9' - white clasts (0.01'thick) 57.2-59.2' - white clasts (<0.03' thick)	-
-			1	5001 5 1 (0) 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	 		-
-	59.2		0	58.2' - Fracture (2), horizontal and vertical, rough, undulating, vertical (0.03' long)	 		At 58.8': R-Scale = R3-R4 -
60_ 204.6			0	_	 	59.2-64.2' - soft, 70% very fine sand, very silty layers(40-60%) 59.2-59.4' - white clasts	R12: 12:51-13:04
-			0			- - 60.8-61.0' - fine sand	 At 61.0': R-Scale = R3-R4
-	R12NQ 5 ft 97%	97	0		 	- 61.4-61.4' - white clasts - 61.9-62.0' - white clasts	-
-			0		 	_ 62.1-62.5' - fine sand	At 62.5': R-Scale = R4
-	64.2		0		<u> </u>	-	- -
65_ 199.6			0	-	× ;	Siltstone 64.2-64.8' - dark reddish gray, mottled greenish gray and reddish black, very	R13: 13:09-13:25
199.0					. ∷.	_ \soft, laminated bedding, fresh	-
					1		

2BB-255 Rev. 1



PROJECT NUMBER:

338884

BPA-41

SHEET 5 OF 9

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686943.6 N, 2012431.0 E)

ELEVATION: 264.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

	J EQUIFIVIEN		ORIENTATION : Vertical				
WATER	LEVELS : 26	6.4 ft b	ogs	START : 6/15/06 12	<u>:47</u>	END : 6/17/06 14:46	LOGGER : LH
	(%			DISCONTINUITIES	ე	LITHOLOGY	COMMENTS
H AND ATION W ACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)		FRACTURES PER FOOT	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	S.F.A	(%) 🛭	E S	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	٦ ا	MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND
FYOR	RSS	OΩ	AC.	PLANARITY, INFILLING MATERIAL AND	MB	AND ROCK MASS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
屈픽핆의	8 프뿐	Ω.	E.H.	THICKNESS, SURFACE STAINING, AND TIGHTNESS	S	CHARACTERISTICS	DROFS, TEST RESULTS, ETC.
			0		- : : :	_ Sandstone & Siltstone	At 65.5': R-Scale = R3-R4 _
1 _	R13NQ]:::	64.8-71.5' - white, dark reddish gray, and very dark greenish gray, soft,	
	5 ft	100	0		1:::	laminated bedding, very fine sand,	
-	104%				1:::	subrounded, well sorted, fresh,	
-			0		Ⅎ∷∶	 becomes more siltstone with depth. 	-
-	-				4:::	66.6-71.5' - white and dark greenish	-
_					↓∷ ∶	- 66.9-71.5' - dark reddish brown &	_
1 _	000		0		∐∷∷	white, mottled greenish gray and	At 68.7': R-Scale = R4
	69.2		$\times\!\!\times\!\!\times$		1:::	reddish black	R14: 13:43-13:55
70			0		⊺∷ ∷	 69.2-71.5' - trace medium grained sand 	10.45-10.55
194.6	1			_	Ⅎ∷	- Saliu	-
-	-				- :::	-	-
_			0			_ -	
1 _	R14NQ						At 71.0': R-Scale = R4
	5 ft	100	1	71.5' - Contact between siltstone and	× ×	Siltstone	
1 -	100%			sandstone, horizontal, rough, planar	$\stackrel{-}{\times}$ $\stackrel{\times}{\times}$	 At 71.5' - dark reddish brown, mottled greenish gray, white, and reddish 	1 7
-			0		∃ŝ ŝ	black, very soft to soft, laminated	-
-	-				- x x	 bedding, mottling as large as 0.05' 	-
_					_ × ×	thick.	
1 _	74.0		0		_ × ×	71.5-74.5' - fresh	At 73.5': R-Scale = R3-R4
	74.2				$\begin{array}{c} \times \times \\ \times \times \end{array}$	74.2-76.5' - clay seams	At 74.2-76.5': R-Scale = R0
75	1		10+	74.5-76.5' - Fracture zone, horizontal, rough,	× ×	74.5-76.5' - moderately weathered	- R1
189.6	1			undulating, 0.01-0.1' thick clay infilling, —	$\dashv \times \times$	-	R15: 14:03-14:25 —
-	-		10+	undulating to planar, friable material	- × ×	-	-
-			10+		× ×	_	-
1 _	R15NQ				_ × ×		_
	5 ft	62*	10+		××	76.5-89.2' - fresh	
-	104%				Tŝ ŝ	-	1
-	1		0		Ô x	 	At 77.5': R-Scale = R3-R4
-	-				- × ×	-	-
_					× ×	1 -	
I _	70.2		0		× ×		At 78.5': R-Scale = R3
	79.2		$\times\!\!\times\!\!\times$		X X	79.2-84.2' - dark reddish brown,	R16: 14:48-15:06
80]		0		Tŝ ŝ	mottled greenish gray and reddish]
184.6				_	^ × ×	— black, soft	At 80.1': R-Scale = R3
-			1		√××	-	7 1 30.1.11-30ale = 113
-				80.9' - Fracture, horizontal, rough, undulating	- × ×	-	-
_	R16NQ			,,, ,	- × ×	-	_
		100	0		×××		At 81.8': R-Scale = R3-R4 -
1 -	102%				Tŝ ŝ		
-			0		Tŝ ×	<u> </u>	SC-3 collected _ 82.3-83.2'
-					┨ ^ҳ ҳ	 	
-					- × ×	}-	-
_	84.2		0		× ×	-	-
	UT.L		W		X X	84.2-89.2' - 40% very fine to fine	R17: 15:24-15:34
85			0		$]_{\times}^{\hat{\times}}$	grained sand	
179.6				_	× ×		
					- × ×		-

2BB-256 Rev. 1



PROJECT NUMBER:	BORING NUMBER:				
338884	BPA-41	SHEET	6	OF	9

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686943.6 N, 2012431.0 E)

ELEVATION: 264.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

CORING	EQUIPMEN	II AN	D ME	THOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical						
WATER	LEVELS : 26	3.4 ft t	gs	START : 6/15/06 12	:47	END : 6/17/06 14:46	LOGGER : LH						
	় ভ			DISCONTINUITIES	ق	LITHOLOGY	COMMENTS						
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.						
_			0		××		At 85.5': R-Scale = R4						
- - -	R17NQ 5 ft 98%	98	0		× ;	-	- - - - - At 87.8': R-Scale = R3						
-	189.2		0		× ; × ; × ;	-	-						
_					-:::	Sandstone	R18: 15:43-15:55						
90 <u> </u>			2	_	- : : : : : : : : : : : : : : : : : : :	89.2-90.7' - soft to hard, medium bedding, very fine sand to fine sand, angular to subrounded, poorly sorted, fresh, grades back and forth between	At 89.8': R-Scale = R3-R4 — At 89.9': R-Scale = R3-R4						
-	R18NQ			91.1' - Fracture, horizontal, rough, planar	× ;	siltstone and sandstone	-						
-	5 ft 102%	66*	3	91.2' - Fracture, horizontal, rough, planar 91.5' - Fracture, horizontal, rough, planar 91.5-92.3' - Fracture zone, horizontal, rough,	× ;	At 90.7' - white clasts 90.7-91.5' - fresh	At 91.4-91.9': R-Scale = R1 -						
-			2	planar, clay seams (0.01-0.04' thick)	× ; × ; × ;	91.5-92.3' - moderately weathered 92.3-99.2' - fresh -	-						
-			2		× ×	[At 93.5': R-Scale = R3-R4						
_	94.2		W	94.0' - Fractures (2), horizontal, smooth, planar 94.0' - Fracture, horizontal, smooth, planar	× ;		R19: 16:01-16:12						
95 169.6 _			0	Tracture, Horizontal, Smooth, planal	× ; × ; × ; × ;		- - -						
- - -	R19NQ 5 ft 100%	100	0		× ;	97.4' - large reddish black mottles 10.03' thick, >0.2'long							
_					Î×;	2 10.03 tillox, >0.2 long	-						
-	99.2		0		× ;	Sandstone	At 98.6': R-Scale = R3-R4						
100 <u> </u>									0	_		99.2-104.4' - dark reddish brown, trace greenish gray and reddish black mottling, soft, laminated to medium bedding, very fine sand to fine sand, subangular, well sorted, fresh, 30-40%	06/17/06
-	R20NQ 5 ft 100%	100	0	101.5' - Microfractures with greenish gray infilling		_ silt becomes coarser with depth.	At 101.5': R-Scale = R3-R4						
-			0	102.8' - Microfractures with greenish gray infilling		- -	- - At 103.5': R-Scale = R3-R4						
105_ 159.6	104.2		2	104.4' - Fracture, horizontal, rough, undulating 104.5' - Fracture, horizontal, rough, undulating _	- X X	104.2-104.4' - trace medium grained sand	R21: 08:39-08:54						
					l [×]								

2BB-257 Rev. 1



PROJECT NUMBER:

338884

BPA-41

SHEET 7 OF 9

ROCK CORE LOG

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686943.6 N, 2012431.0 E)

ELEVATION: 264.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	LEVELS : 26	6.4 ft b	ogs	START : 6/15/06 12	:47	END : 6/17/06 14:46 LOGGER : LH			
	(%)			DISCONTINUITIES	၅၉	LITHOLOGY	COMMENTS		
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.		
-	R21NQ 5 ft 98%	64	3 4 3	105.7' - Fracture, horizontal, rough, planar 105.8' - Fracture, horizontal, rough, planar 106.1' - Fracture, horizontal, rough, planar 106.3' - Fracture, horizontal, rough, undulating 106.5' - Fracture, 30 deg, smooth, undulating 106.6' - Fracture, 40 deg, smooth, undulating 107.2' - Fracture, horizontal, rough, planar	-	Siltstone At 104.4' - dark reddish brown, mottled greenish gray and reddish black, soft 104.4-111.1' - fresh 106.6-106.9' - 30-45 degree bedding 106.9-107.0' - clay seam, very soft, friable material, siltstone laminated beds alternating 107.6-107.7' - clay seam, very soft,	At 105.5': R-Scale = R3-R4		
110 154.6	109.2		2	109.4' - Fracture, horizontal and 10 deg, rough, undulating 109.8' - Fracture, horizontal, rough, undulating	× × × × × × × × × ×	friable material, siltstone laminated beds intermingled - 	At 108.5': R-Scale = R3-R4 R22: 09:19-09:31		
- - -	R22NQ 5 ft 100%	64*	9	111.1' - Fracture, horizontal, rough, undulating, with a 45 deg angle in it (^) (tightly healed) 111.1-111.3' - Fracture zone, horizontal and 45	× × × × × × × × × × × × × × × × × × ×	- 110.3-110.7' - 30-40% very fine to fine sand - 111.1-112.7' - moderately weathered	At 110.6': R-Scale = R3-R4		
-	114.2		6	deg, rough, planar, clay seam and fracture zone, clay material with laminated siltstone 111.4' - Fracture, horizontal, smooth, planar 111.5' - Fracture, horizontal, rough, planar 111.8' - Fracture, horizontal, smooth, planar 111.9' - Fracture, horizontal, rough, planar	- × × - × × - × × - × × - × ×	112.7-119.5' - fresh 113.3-114.2' - trace medium grained sand	At 112.6': R-Scale = R3		
115 149.6 -			0	112.0' - Fracture, horizontal, smooth, planar 112.2-112.7' - Fracture zone, horizontal, rough, planar, clay seams (0.02' thick) rough and smooth, 1 vertical fracture at 112.5'	× × × × × × × × × ×	114.2-119.2' - slightly coarsening with depth, trace medium sand	R23: 09:38-09:50 At 114.9': R-Scale = R3-R4 		
- - - -	R23NQ 5 ft 100%	100	0		× × × × × × × × × × × × × × × ×	- - - -	- - At 117.5': R-Scale = R3-R4 - -		
120	119.2		10+	119.5' - Contact between siltstones, horizontal,	× × × × × ×	Siltstone	R24: 09:56-10:13		
144.6			5	tightly healed, sharp 119.7-119.7' - Fracture zone, horizontal and vertical, rough, undulating, undulating, planar	× × × × × ×	— 119.5-124.2' - dark greenish gray, olive, dark reddish brown mottling, soft, laminated bedding, moderately	At 119.8': R-Scale = R3-R4 —		
-	R24NQ 5 ft 100%	51*	10+	119.9' - Fracture, horizontal, smooth, undulating 120.2-124.9' - Fracture zone, horizontal and vertical, significant clay seams, horizontal,	× × × × × × × ×	 weathered, many clay seams, contact between siltstones very clear 119.7-119.9' - clay seams, every 0.05', <0.02' thick, very soft, friable 	At 120.8': R-Scale = R3 - At 122.4': PP: 3.5 tsf (#2)		
-			10+	vertical, 45 deg, very soft clay 121.3-121.5' - Fracture, 45 deg, slickensided, undulating, white spots inside fracture	× × × × × × × ×	material 120.3-120.3' - clayey /silt (alternating) seam unbroken 120.7-120.8' - clayey /silt (alternating)	SC-4 collected _ 122.2-122.6'		
-	124.2		10+		× × × × × ×	seam unbroken 120.9-121.0' - clayey /silt (alternating) seam broken √	- - R25: 10:38-11:00		
125 <u>1</u> 39.6			0	_	× × × × × × × ×	121.6-121.7' - clayey /silt (alternating) - seam broken 121.8-121.9' - clayey /silt (alternating) seam unbroken	At 125.0': R-Scale = R3		
					<u> </u> *	I SCAIT UTIVIONETI			

2BB-258 Rev. 1



PROJECT NUMBER: BORING NUMBER: **BPA-41** 338884 SHEET 8 OF 9

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (686943.6 N, 2012431.0 E)

ELEVATION: 264.6 ft MSL (NGVD 29) DRILLING CONTRACTOR: D. Hedges, S&ME

	G EQUIPMEN	T ANI	D MET	THOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	R LEVELS : 26	6.4 ft b	gs	START : 6/15/06 12	:47	END : 6/17/06 14:46	LOGGER : LH
	<u> </u>			DISCONTINUITIES	၅	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
- - - - 130 134.6	R25NQ 5 ft 98%	72	10+ 1 0 5 0	125.4-126.0' - Fracture zone, horizontal, rough, planar, clay seams (0.01-0.02' thick), very soft, undulating 126.4' - Fracture, horizontal, rough, undulating 128.2-128.6' - Fracture zone, horizontal, smooth, planar, clay seams (0.01-0.03' thick), very soft	× × × × × × × × × × × × × × × × × × ×	122.1-122.2' - clayey /silt (alternating) seam unbroken 122.2-122.9' - clayey/silt (alternating) seam unbroken, has more silt layers at bottom than at top 123.0-123.3' - clayey /silt (alternating) seam broken 123.7-123.9' - clayey /silt (alternating) seam broken Siltstone At 124.2' - olive and dark reddish brown, dark greenish gray mottling, soft, laminated bedding, slightly weathered 125.4-126.0' - very soft	At 127.8': R-Scale = R3 R26: 11:09-11:26 At 130.0': R-Scale = R3-R4
- - - -	R26NQ 5 ft 104%	96	1 1	131.4-131.8' - Fracture zone, horizontal, rough, undulating, clay seams (0.01-0.02' thick), very soft with very soft siltstone alternating in laminated beds 132.9' - Fracture, horizontal, rough, undulating		131.4-131.8' - very soft - - - -	At 132.4': R-Scale = R3-R4 At 133.5': R-Scale = R3-R4
-	134.2		XXX	133.9-134.0' - Fracture, horizontal, smooth, planar, clay seams (0.01-0.02' thick), very soft	- × × × ×	133.9-134.0' - very soft	R27: 11:30-11:42
135 129.6 - - -	R27NQ 5 ft 100%	100	0 0 0	with very soft siltstone alternating in laminated beds	- X X X X	Sandstone 134.2-137.5' - olive gray and dark greenish gray, mottled dark reddish brown and greenish gray, soft, laminated to medium bedding, very fine sand to fine sand, subrounded to subangular, poorly sorted, fresh, very silty (30-45%)	At 136.4': R-Scale = R3-R4
-	-		0		× × × × × ×	 137.5-139.2' - olive gray and dark greenish gray, mottled dark reddish brown and greenish gray, soft, fresh 	At 138.6': R-Scale = R3-R4
140_ 124.6	139.2		1	139.9' - Fracture, horizontal, rough, planar	× × × × × × × ×	Siltstone 139.2-143.8' - dark reddish brown, reddish black mottling, very soft to	R28: 11:48-12:01 SC-5 collected
-	-		1	140.8' - Fracture, horizontal, rough, planar	× × × × × ×	soft, laminated bedding, fresh 139.2-139.6' - greenish gray mottling	139.9-140.8'
-	R28NQ 5 ft 100%	96	3	141.5' - Fracture, horizontal, rough, planar 141.6' - Fracture, horizontal, rough, undulating	- × × - × × - × ×	- -	At 141.2': R-Scale = R4
-	-		0	141.7' - Fracture, horizontal, rough, undulating	×	- -	At 142.5': R-Scale = R3
-	144.2		1	143.8' - Contact between siltstone and sandstone, 30 deg, sharp contact	- × × - × × - · · · ·	- Sandstone At 143.8' - dark reddish gray and light	R29: 13:00-13:20
145	-		0		0.0	reddish gray, soft to hard, laminated to medium bedding, fine sand, subangular, well sorted, fresh	R29: 13:00-13:20 At 145.0': R-Scale = R3-R4

2BB-259 Rev. 1



PROJECT NUMBER:

338884

BPA-41

SHEET 9 OF 9

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686943.6 N, 2012431.0 E)

ELEVATION: 264.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

	O EQUII WEI	I AIN	D IVIE	THOD : CME-550, NQ Double Barrel				ORIENTATION : Vertical
WATER	R LEVELS : 26	3.4 ft b	gs	START : 6/15/06 12:	47	END: 6/17/06 14:46	_	LOGGER : LH
	· · ·			DISCONTINUITIES	ტ	LITHOLOGY		COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (#)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
	R29NQ 5 ft 96%	96	0 0	- - - -	0.0	144.2-149.2' - reddish black and greenish gray mottling, very fine sand to medium sand, subangular to subrounded, poorly sorted to well sorted Conglomerate 145.0-145.3' - dark reddish gray and light reddish gray, mottled reddish		- - At 147.0': R-Scale = R4 - -
150_ 114.6	149.2		0 XXX 1	- -		black and greenish gray, very thin bedding, subangular to subrounded, fresh, poorly sorted to well sorted Sandstone 145.3-146.2' - dark reddish gray and light reddish gray, mottled reddish		R30: 13:35-13:53 _
-	R30NQ 5 ft 103%	94	0	- - - -	× × × × ×	black and greenish gray, soft to hard, laminated to medium bedding, very fine sand to medium sand, subangular to subrounded, well sorted, fresh Conglomerate 146.2-146.6' - dark reddish gray and		At 151.0': R-Scale = R4
-	154.2	152.7' - Contact between siltstone and sandstone, horizontal, rough, undulating 152.9' - Fracture, horizontal, rough, undulating 153.2-153.3' - Fracture zone, horizontal, rough, planes along a consequence (0.01.0.02' thick)	0	0		light reddish gray, mottled reddish black and greenish gray, very thin bedding, subangular to subrounded, fresh, poorly sorted to well sorted Sandstone		
155_ 109.6	-		4 0	rough, planar, clay seams (0.01-0.02' thick), very soft 154.9-155.1' - Fracture zone, horizontal and 30 deg, smooth, planar, planar	× × × × × × × × × ×	146.6-152.7' - dark reddish gray and light reddish gray, mottled reddish black and greenish gray, soft to hard, laminated to medium bedding, very fine sand to medium sand, subangular to subrounded, well sorted, fresh		R31: 14:04-14:20
-	R31NQ 5 ft 102%	100	0 1 0	- - - 158.1' - Fracture, horizontal, rough, planar 158.2' - Contact between siltstone and	× × × × × × × × × × × × × × × × × × ×	149.2-152.7' - light reddish brown, dark reddish brown, and very dark greenish gray, reddish black mottling, laminated to medium bedding, very fine sand to coarse sand, subangular to subrounded, poorly sorted, bands of coarser and finer material 150.7-151.5' - Conglomeratic material		- - - - - - - - - - - - - - - - - - -
160 104.6	159.2		0	sandstone, horizontal, planar, partially - convoluted		Siltstone At 152.7' - dark reddish brown, reddish black mottling, very soft to soft, laminated bedding, fresh At 154.2' - soft 155.9-156.9' - 30-50% very fine sand		R32: 14:29-14:46
-	R32NQ 5 ft 98%	98	0 0 0	- - - - -		coarsens with depth 156.9' - fines with depth Sandstone 158.2-164.2' - weak red and dark reddish brown, dark reddish brown mottling, soft, very fine sand to medium sand, subangular to subrounded, well sorted, fresh 159.2-164.2' - trace greenish gray		At 162.5': R-Scale = R3-R4 First water level = 26.4' bgs taken 6/17/06 at 15:38; second water level = 6.7' bgs taken 6/18/06 at 16:20 R-Scale performed after
165_ 99.6	164.2			- - -		- mottling Bottom of Boring at 164.2 ft bgs on 6/17/06 14:46		drilling on stored samples

2BB-260 Rev. 1



PROJECT NUMBER:

338884

BPA-42

SHEET 1 OF 5

SOIL BORING LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686687.3 N, 2012578.9 E)

ELEVATION: 264.3 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

DRILLING EQUIPMENT AND METHOD: CME-550, Tricone Bit, 24 Split Spoon, 140 lb. Automatic Hammer ORIENTATION: Vertical

				TIOD . CIVIL-330	, Incone Bit, 24 Split Spoon, 140 lb. Automatic Hammer ORIENTATION: Vertical
WATER DEPTH B			RADE (ft)		START : 7/10/06 08:30 END : 7/11/06 09:52 LOGGER : JS/JF SOIL DESCRIPTION COMMENTS
	INTERV		U (II)	STANDARD PENETRATION	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY SOIL NAME, USCS GROUP SYMBOL, COLOR, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	IIVI LIVV		ERY (in)	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,
		RECOV	#TYPE	6"-6"-6"	MOISTURE CONTENT, RELATIVE DENSITY OR ON SITE OF THE CONSISTENCY, SOIL STRUCTURE, MINERALOGY SINSTRUMENTATION
			#ITPE	(N)	
264.3	0.0				Top Soil
		100	SS1SS	0 0 7 40	\0.0-0.2' - Topsoil and fine to coarse angular gravel / - Clay (CL)
		10.0	33133	2-3-7-10 (10)	\ 0.2-0.8' - reddish brown, mottled white and black, moist, \ \ stiff, low to medium plasticity, 10-15% very fine to fine \ \ \ \ -
	2.0			` ′	sand
	2.5				Clay (CL) 2.5-3.5' - reddish brown, mottled yellow, black, whitish
_		12.0	SS2SS	24-36-50/5	green, moist, very hard, low to medium plasticity,
		12.0	00200	(86/11")	10-15% very fine to fine sand
	4.5				<u> </u>
5					
259.3	5.0				Clay (CL)
_		5.0	SS3SS	50/5	∖green, moist, very hard, low to médium plasticity, / _
_		0.0		(50/5")	\10-15% very fine to fine sand
_	7.0				_
_	7.5	10	00400		Soil sampling completed at 09:25 on 7/10/06
_	7.5 7.6	1.0	SS4SS/	50/1.5	Clay (CL) 7.5-7.6' - reddish brown, mottled yellow, black, whitish
_				(50/1.5")	\green, moist, very hard, low to medium plasticity,
_					\(\sqrt{10-15\% very fine to fine sand } \) = Begin Rock Coring at 7.6 ft bgs
_					See the next sheet for the rock core log
10 <u> </u>					
204.5					-
_					-
_					-
-					-
-					-
-					-
_					-
-					-
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15 <u> </u>					
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20					
$\overline{}$					<u> </u>

2BB-261 Rev. 1



PROJECT NUMBER:

338884

BPA-42

SHEET 2 OF 5

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686687.3 N, 2012578.9 E)

ELEVATION: 264.3 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

CORING		ORIENTATION: Vertical					
WATER	LEVELS: 9.	1 ft bo	S	START : 7/10/06 08	:30	END : 7/11/06 09:52	LOGGER : JS/JF
	(9)			DISCONTINUITIES	Ō	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
吊핔띪꽁	8필뿐	A O	문 문 문	THICKNESS, SURFACE STAINING, AND TIGHTNESS	S	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
- - - 10_	7.6 R1NQ 2.4 ft 96%	0	0 2 0		× > × > × > × > × >	Siltstone 7.6-9.5' - dark reddish brown, some blue gray mottling, very soft, highly weathered, fine grained 8.4' - clay seam Clay Seam 9.5-10.0' - highly weathered	Rock coring began at 09:35 on 7/10/06 R1: 09:35-09:42 on - 07/10/06 At 7.6-17.5': R-Scale = R0- R1 - SC-1 collected 8.5-9.5'
254.3 - - - - -	R2NQ 5 ft 86%	0	10+	10.7' - Fracture zone, crumbled rock zone 11.2' - Fracture, <5 deg, rough, undulating 11.7' - Fracture, <5 deg, rough, undulating 12.3' - Fracture, <5 deg, rough, undulating	× > × > × > × > × > × > × > × >	No Recovery 10.0-10.7' Siltstone At 10.7' - dark reddish brown, very soft trace mottling 10.7-20.0' - highly weathered 10.7-12.7' - dark purple, very soft, shattered, crumbling rock 12.7-15.0' - more competent rock than overlying material	R2: 09:48-10:05
15 249.3	15.0		0	- - -	× > × > × > × > × > × > × > × >		R3: 10:07-10:20
- - - -	R3NQ 5 ft 100%	0	10+	16.4-16.5' - Fracture, 40 deg, rough, undulating, bottom of soil like section 18.6' - Fracture, <5 deg, smooth, undulating 18.8' - Fracture, <5 deg, smooth, undulating	× > > × > > × > × > × > × > × > × > × >	18.1' - clay seam, 0.05' thick	
20_ 244.3	20.0		10+	19.0' - Fracture, <5 deg, smooth, undulating —	× > × > × > × >	20.0-23.5' - moderately weathered	- R4: 10:50-11:08
-	PANO		0		× > × > × > × > × >	·	
- - -	R4NQ 5 ft 100%	86	1	23.6' - Fracture, <5 deg, rough, undulating	× > > > > > > > > > > > > > > > > > > >	22.7' - clay seam 23.0' - clay seam 23.0-23.9' - numerous clay clasts (0.2-0.8) 23.5' - clay seam 23.5-40.0' - slightly weathered	- - - -
25239.3 	25.0		1		× × × × × × × × × × × × × × × × × × ×	25.0-51.4' - blue-green mottling, soft	R5: 11:18-11:45
- -	R5NQ		0		× > × > × > × >		-

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PROJECT NUMBER:	BORING NUMBER:					
338884	BPA-42	SHEET	3	OF	5	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686687.3 N, 2012578.9 E)

ELEVATION: 264.3 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

WATER LEVELS: 9.1 ft bgs START: 7/10/06 08:30 END: 7/11/06 09:52 LOGGER: JS/JF										
WATER	LEVELS : 9.	1 ft bo	S	START : 7/10/06 08	:30	END : 7/11/06 09:52	LOGGER : JS/JF			
	(%			DISCONTINUITIES	စ္တ	LITHOLOGY	COMMENTS			
Qz €	NA ∑		ES	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,			
돌은 , 빙	S.Y.F.	(%) 🛭	H. C	DEDTIL TYPE OPIENTATION POLICIINESS	1 💥	MINERALOGY, TEXTURE,	FLUID LOSS, CORING RATE AND			
F NOF	#P.00	Ø	ACT R F	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	MB(WEATHERING, HARDNESS, AND ROCK MASS	SMOOTHNESS, CAVING ROD			
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R O	FRACTURES PER FOOT	THICKNESS, SURFACE STAINING, AND TIGHTNESS	S	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.			
	5 ft	86	0		× ×					
_	86%			-	× × × ×	-	- At 28.1': R-Scale = R3-R4			
-			0	-	× ×	 -	- 10-14			
_			0	-	××	00 0 00 01	-			
l _			$\times \times \times$	_	××	29.0-29.8' - mottled purple and blue	_			
30	30.0		\bowtie		\times \times					
234.3	·				× ×		R6: 12:55-13:02 and 12:55-			
_			1	-	× ×		13:02 - At 30.6': R-Scale = R3-R4			
-				-	× ×	-	At 50.6 : K-Scale – K5-K4			
_			0	-	× ×	-	-			
-	Davio			-	× ×	-	-			
l _	R6NQ 5 ft	98	0	_	× ×					
	102%	50	0		××					
-				-	× ×		1			
-			0	-	× ×	-	At 33.5': R-Scale = R3			
-				-	× ×	-	1			
_			0	-	× ×	-	-			
35	35.0				×××					
229.3			0		× ×		R7: 14:02-14:18			
			U		× ×					
_				-	× × × ×	- 35.8-36.2' - fine sand sized clay clasts	1			
-			0	-	× × × ×	-	1			
-	R7NQ			-	××	36.9-37.8' - very soft to soft, very small	1			
-	5 ft	100	0	-	× ×	 white speckles and clay clasts 	-			
l _	103%			_	×××	_	<u>_</u>			
			0		Îx x	38.3-39.0' - white speckles, clay clasts	At 38.0': R-Scale = R3			
			U		\times \times	(.04 - 1.2)				
-				-	× ×		SC-2 collected			
40 -	40.0		0	-	××	-	39.1-40.0'			
40 <u> </u>	40.0		XXX	_	× ×	40.0-51.5' - fresh	R8: 14:26-14:48			
			0	-	××	-	14.20 14.40			
_				_	× ×		_			
			0		×××	41.0-42.2' - 10% clay clasts (.04)				
			U		× ×					
-	R8NQ			-	××		1			
-	5 ft	100	0	-	××	-	1			
-	100%			-	× ×	-	1			
_			0	-	× × × × × ×	-	At 43.3': R-Scale = R3-R4 _			
_				_	×××		_			
_			0		×××	44.0-45.0' - 10% clay clasts (.04)				
45	45.0		١		× ×		1			
219.3				_	××	45.0-50.0' - massive bedding	R9: 14:52-15:12			
-			0	·	××	- 45.0-45.1' - mottled white	1			
-				-	× ×	}	-			
-			0	-	× ×	-	-			
_				<u>-</u>	× × × × × ×	-	At 46.9': R-Scale = R4			
	R9NQ			_	Îx x		AL 40.9. N-30ale - R4			
					<u>1 </u>					
					1					
			_		_					

2BB-263 Rev. 1



PROJECT NUMBER:

338884

BPA-42

SHEET 4 OF 5

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686687.3 N, 2012578.9 E)

ELEVATION: 264.3 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				THOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS: 9.	1 ft bo	IS	START : 7/10/06 08: DISCONTINUITIES	<u>30</u>	END : 7/11/06 09:52	LOGGER : JS/JF
	ر%) (%)		<i>(</i> 0		.0G	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
_	5 ft 100%	100	0		× >		_
- - 50	50.0		0	- - -	× × × × × × × × × × × × × × × × × × ×	-	- - At 49.4': R-Scale = R3-R4
214.3			0	- - -	× > × > × > × >	50.0-51.4' - very dusky red, very fine to fine sand 51.4-51.5' - grades to sandstone	R10: 15:20-15:50 - - -
-	R10NQ 5 ft 100%	100	0	- - -		Sandstone At 51.5' - pale red, soft, very fine sand to fine sand, fresh, trace dark reddish brown siltstone clasts 52.2-52.7' - fine sand to medium sand,	- - -
55	55.0		0	- -		subangular 52.7-54.0' - light reddish gray, fine sand to coarse sand 54.6-55.5' - light reddish gray to reddish black, fine sand	At 54.0': R-Scale = R3-R4
209. 3 - -			0	- - -		55.5-56.0' - fine sand to medium sand 56.0-56.8' - light gray, fine sand to medium sand	R11: 15:55-16:25 At 56.0': R-Scale = R3-R4
- - -	R11NQ 5 ft 100%	100	0	- - -	× > × > × > × > × >	- Siltstone 56.8-85.0' - dusky red, soft, fresh 56.9-60.0' - white clay clasts (.04 to 08)	
60	60.0		0	- - -	× > × > × > × > × >		At 58.2': R-Scale = R3
204.3	55.5		0	- - -	× × × × × × × × × × × × × × × × × × ×	60.0-61.0' - dark reddish brown, blue-green mottling, clay clasts	R12: 16:35-16:57
- - -	R12NQ 5 ft 100%		0	- - -	× × × × × × × × × × × × × × × × × × ×	- - -	At 63.1': R-Scale = R3-R4
65_ 199.3	65.0		0	- - -	× > > > > > > > > > > > > > > > > > > >	- - -	R13: 08:10-08:29 on 07/11/06
- - -	R13NQ		0	- - -	× > > × > × > × > × > × > × > × > × > ×		SC-3 collected 65.0-65.9' At 66.5': R-Scale = R3-R4
				-	^ >		

2BB-264 Rev. 1



PROJECT NUMBER:	BORING NUMBER:			
338884	BPA-42	SHEET	5 OF 5	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686687.3 N, 2012578.9 E)

ELEVATION: 264.3 ft MSL (NGVD 29)

DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS: 9.	1 ft bg	IS	START : 7/10/06 08:	30	END: 7/11/06 09:52	LOGGER : JS/JF
	(9)			DISCONTINUITIES	G	LITHOLOGY	COMMENTS
QZ Û	AND ≪Y (%		ES	DESCRIPTION	C LO	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
ELEV SURF	SECO	۱۵۲	RAC PER I	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYME	AND ROCK MASS CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
	5 ft	100	0				
-	104%			-	× × × ×	68.0' - blue-green mottling	1
_			0	-	Îx x	Ē	At 68.7': R-Scale = R3-R4
_				-	× ×	-	71. 00.7 . TY Oddio TYO TY
70	70.0		0	_	××	_	1
194.3			XXX 0		× × × ×		R14: 08:36-08:56
			U		× ×		
_			0	_	× ×	_	
_				<u>-</u>	× × × ×	_	_
_	R14NQ 5 ft	98	0	-	x x	_	_
_	98%			-	× × × ×	_	_
_			0	-	× × × ×	_	-
-				-	x x	_	At 73.7': R-Scale = R3-R4
_			0	-	××	-	-
75 <u> </u>	75.0		~~~		× ×	74.7-75.0' - small clay clasts (<.04) 75.0-80.0' - dusky red, heavily mottled	At 74.7': R-Scale = R4 R15: 09:00-09:18
-			0	-	× × × ×	olive. vellow. blue-green	-
_				-	× ×	_ 75.1-77.4' - 25% <0.2 white clasts	-
_			0	-	× × × ×	_	-
_	R15NQ			-	× × × ×	-	1
_	5 ft 100%	100	0	-	x x	77.4-79.2' - trace very fine to fine sand	At 77.6': R-Scale = R3-R4
_			_	-	× ×	=	
-			0	-	$\stackrel{\times}{\times}$	-	1
			0	-	× × × ×	_ 79.2-80.0' - significantly less mottling	1
80	80.0		U	_	× ×		
184.3			0	_	× ×	80.0-85.0' - dark reddish brown to very dusky red, trace blue-green mottling	R16: 09:23-09:52
_				_	× × × ×	- udsky red, trace blue-green mottling	
_			0	<u>-</u>	× ×	=	_
_	DAONO			-	××	_	_
_	R16NQ 5 ft	100	0	-	× × × ×	_	At 82.2': R-Scale = R3-R4 At 84.4': R-Scale = R3-R4
_	100%			-		_	First water level = 9.1' bgs
-			0	-	× ×	83.5-85.0' - trace very fine to fine sand	taken 7/11/06 at 12:00;
-				-	× × × × × × × × × × × × × × × × × × ×	-	second water level = 7.8' bgs taken 7/12/06 at 12:21
85	85.0		0	-	Îx x	-	·
179.3	03.0				××	Bottom of Boring at 85.0 ft bgs on	R-Scale performed after drilling on stored samples
-				-	1	7/11/06 09:52	
-				-	1	-	
-				-	1		1
				-	1		
				_		_	

2BB-265 Rev. 1



PROJECT NUMBER:

338884

BPA-43

SOIL BORING LOG

SHEET 1 OF 8

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687805.9 N, 2012031.0 E)

ELEVATION: 269.7 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

DRILLIN	IG EQUII	PMENT	AND MET	THOD : CME-750	Tricone Bit, 24" Split Spoon, and 140 lb. Automatic Hammer			ORIENTATION : Vertical				
WATER	LEVELS	S: 18.6 ft	bgs		START : 6/13/06 10:00 END : 6/1	9/06						
DEPTH B	ELOW EX	KISTING C	RADE (ft)	STANDARD	SOIL DESCRIPTION	ŋ		COMMENTS				
	INTERV	AL (ft)		PENETRATION TEST RESULTS		SYMBOLIC LOG						
		RECOV	ERY (in)	12011120210	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR		(F	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND				
			#TYPE	6"-6"-6"-6"	CONSISTENCY, SOIL STRUCTURE, MINERALOGY	MB	(TSF)	INSTRUMENTATION				
				(N)		Š	Ь					
269.7	0.0	10.0	SS1SS	2-3-3-4 (6)	Topsoil 0.0-0.3' Silty Sand (SM) 0.3-1.0' - brownish yellow, mottled red to brown, moist to wet, medium dense, 60% sand			- - -				
_	2.0				Fat Clay (CH)	1		_				
- - -	2.5 4.5	22.0	SS2SS	13-22-24-38 (46)	1.0-1.3' - light gray, mottled reddish orange, moist, firm, high plasticity, root fragments Fat Clay (CH) 2.5-2.9' - light brownish yellow, mottled orange and brown, wet, fine, high plasticity, 30% sand Clay (CL) 2.9-3.4' - light gray, orange mottling, moist, very stiff,		2.5	PT-1 collected - 3.0-5.0' -				
5					high plasticity, 30% sand Silty Sand (SM)	ļ						
264.7	5.0	12.5	SS3SS	41-50/5 (50/5")	3.4-4.3' - pale yellow, moist, dense to very dense, very fine, 50% sand Sifty Sand (SM) 5.0-6.0' - light gray, orange mottling, wet, dense, very fine, low to medium plasticity, 75% sand			Too friable for PP				
_	7.0				into, low to modalin placedity, 1070 saina	-		DT 2 collected				
-	7.5				01 (01)	1		PT-2 collected 7.0-9.0'				
-	7.5	20.0	SS4SS	7-32-34-31 (66)	Clay (CL) 7.5-9.2' - dark reddish brown, mottled greenish-gray, moist, stiff, low to medium plasticity, trace very fine sand; stained fracture, iron oxide stained root traces		4.5+	Offset: 2.4' S56E of BPA-43 Lab Results USCS: SP-SM				
_	9.5					Ĭ'''		_				
10								_				
259.7 - -	10.0	4.0	SS5SS	50/4 (50/4")	Clay (CL) 10.0-10.3' - dark reddish brown, mottled greenish-gray, moist, stiff, low plasticity, trace very fine sand; stained fracture, iron oxide stained root traces	- - - -		Too friable for PP				
-	12.0				-	-		-				
- - -	12.5	4.0	SS6SS	50/4 (50/4")	Silt (ML) 12.5-12.8' - dark reddish brown, mottled greenish-gray, moist, very stiff, low plasticity, trace clay and very fine sand, platey when broken	- - - -		Too friable for PP -				
15					-	1		Soil sampling completed at 12:20 on				
254. 7 - - -	15.0 \ <u>15.3</u>	3.0	SS7SS	50/3 (50/3")	Silt (ML) 15.0-15.3' - dark reddish brown, mottled greenish-gray, moist, very stiff, low plasticity, trace clay and very fine sand, platey when broken Begin Rock Coring at 15.3 ft bgs See the next sheet for the rock core log			6/13/06 Too friable for PP				
- - - - - 20						-		- - - -				

2BB-266 Rev. 1



PROJECT NUMBER:

338884

BPA-43

SHEET 2 OF 8

ROCK CORE LOG

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687805.9 N, 2012031.0 E)

ELEVATION: 269.7 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, NQ Double Barrel

				THOD : OME-700, NQ Double barrel			ONENTATION: Vertical
WATER	LEVELS : 18	3.6 ft b	ogs	START : 6/13/06 10	:00	END: 6/19/06 13:10	LOGGER : JV
	<u> </u>			DISCONTINUITIES	_O	LITHOLOGY	COMMENTS
oz Ê	CORE RUN, LENGTH, AND RECOVERY (%)		Ś	DESCRIPTION	LOG	ROCK TYPE, COLOR,	
DEPTH AND ELEVATION BELOW SURFACE (ft)	Z Y Z	(%	FRACTURES PER FOOT		SYMBOLIC	MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
HA SA	A T T S	(%) Q	FG	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	BO	WEATHERING, HARDNESS,	SMOOTHNESS, CAVING ROD
판취직품	S A S	g	FRA	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	Σ	AND ROCK MASS CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
		ш.	шш				
-	15.3		1	15 6' Fracture 25 day amouth undulating	××	 Siltstone At 15.3' - dark reddish brown, mottled 	Rock coring began at 13:50
-			'	15.6' - Fracture, 25 deg, smooth, undulating 15.9-16.5' - Fracture, 15 deg, staining, healed	× × × ×	greenish-gray, very soft, some very	on 6/13/06
l _				15.5-16.5 - Fracture, 15 deg, stairing, ficaled	××	_ fine to fine sand	R1: 14:30-14:46 on
			1	16.7' - Fracture, <10 deg, smooth, undulating	x x	15.3-26.9' - highly weathered to	06/13/06
_	R1NQ			10.7 Tradiato, 410 dog, 311100th, and adding	× × × ×	completely weathered	At 15.5-18.5': R-Scale = R0 R1
-	4.7 ft	0			× ×	_ 16.5-20.0' - mottled greenish-gray and	SC-1 collected
l _	111%		0	17.8' - Fracture, <10 deg, black stains, tightly	× ×	black, black grains visible	16.3-17.2'
				healed	$\times \times$		
			0	17.9' - Fracture, <10 deg, black stains, tightly	× ×		
-			_	healed	18 8	<u>-</u> T	At 19.0': R-Scale = R1-R2
-			3	19.0' - Fracture, <10 deg, smooth, undulating, stains	×××	10.5.20.01 1000.05.7	-
20	20.0			19.8' - Fracture, 25 deg, smooth, undulating, —	× ×	19.5-20.0' - less sand	
249.7			\otimes	black stains	× ×		R2: 15:00-15:18
-			1 XQX.X	19.9' - Fracture, horizontal, smooth, undulating	× ×	-	_
-					- × ×	_	-
l -			1		×	_	
					$\times \times$		At 21.5': R-Scale = R2
_	R2NQ			22.0' - Fracture, <10 deg, smooth, undulating	× ×	22.1-22.2' - clay seam, medium to low	_
-	5 ft	0	4	22.2' - Fracture, 35 deg, smooth, undulating	× ×	plasticity, 0.05' thick	-
_	96%			22.7' - Fracture, horizontal, smooth,	\times \times	-	_
			2	undulating, black stains	× ×	22 Al alay as are 0.051 think	
			-	22.9' - Fracture, 80 deg, smooth, undulating, black stains	× × × ×	 23.4' - clay seam, 0.05' thick 23.5' - black staining 	
-				23.9' - Fracture, <5 deg, smooth, undulating	$1 \times 1 \times 1$	24.0' - pitted, possible solution cavities	_
-			0		× ×	-	At 24.5': R-Scale = R2
25	25.0		\sim	_	× ×		
244.7			4	25.1' - Fracture, horizontal, smooth, undulating	××	25.0' - green mottling, pitted	R3: 15:36-16:00
I -			4	25.5' - Fracture, 20 deg, smooth, undulating	× ×		
-				25.6' - Fracture, 5 deg, smooth, undulating,	$\times \times$	26.1-26.4' - clay and rock fragments,	At 25.5-27.0': R-Scale = R0-
-			3	black stains	×	0.35' thick, rock fragments	R1 -
_				25.7' - Fracture, 5 deg, smooth, undulating, black stains	× ×	. •	
	R3NQ			26.4' - Fracture, 40 deg, smooth, undulating,	× × × ×	26.9-28.3' - cavities (0.3'), sandy clasts, pinkish, harder	
_	5 ft 100%	62	1	black stains	1× ×	26.9-62.3' - fresh	At 27.5': R-Scale = R2
-	100 /0			26.6' - Fracture, horizontal, smooth, planar,	\times \times	_	-
-			1	black stains	××	- 28.3-30.0' - green mottling, soft, some	_
_				27.3' - Fracture, 60 deg, smooth, undulating, black stains	× ×	medium to coarse sand, rounded to	_
I -				28.2' - Fracture, 65 deg, smooth, undulating	× ×	subangular, no cavities	At 29.0': R-Scale = R3
20	20.0		0		\times \times	_	_
30 <u> </u>	30.0			_	- × ×		R4: 16:07-16:25
			0		$\begin{array}{c} 1 \times \times \\ \times \end{array}$	_	_
					××		At 30.5': R-Scale = R3
_					× ×	31.0-31.1' - fine sandy lens	
-			0		$\times \times$	31.4-31.5' - sandy lens	
-	D.416				× ×	_ 31.6-31.7' - sandy lens	-
I _	R4NQ 5 ft	96	0		× ×	31.8-32.7' - dark reddish brown, soft,	_
	102%				× ×	50-60% very fine to fine sand, siltstone clasts (0.02' diameter)	
I -					××	_ Silvionio diadio (0.02 diallictor)	_
-			1	22 61 Expetition 40 doct accept the conduction	¶ŝ Â	_	At 33.5': R-Scale = R3-R4
_				33.6' - Fracture, 40 deg, smooth, undulating	× × × × × ×	_	At 33.0 : N-30ale - N3-N4
					X X		
35	35.0		1		××		1
234.7	JJ.U		\sim	-	$\overset{\times}{\times}\overset{\times}{\times}$		
1					1 1		

2BB-267 Rev. 1



PROJECT NUMBER:

338884

BPA-43

SHEET 3 OF 8

ROCK CORE LOG

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687805.9 N, 2012031.0 E)

ELEVATION: 269.7 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, NQ Double Barrel

WATER	LEVELS : 18	3.6 ft b	gs	START : 6/13/06 10	:00	END : 6/19/06 13:10	LOGGER : JV
	(9)			DISCONTINUITIES	1	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)		rES T	DESCRIPTION	CLOG	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
EVTH AND EVATION ELOW JRFACE (ft	E RU STH, OVEF	(%) O	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	SYMBOLIC	MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
SEC SURF	SORI	RO	-RAC	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYME	AND ROCK MASS CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
	014		1	34.8' - Fracture, horizontal and 25 deg,	× >	- 34.7-34.8' - soft, very fine sand, sandy	R5: 08:30-08:48 on _
			•	smooth, undulating]× >	silt lens	06/15/06
_			1	35.3' - Fracture, horizontal and 5 deg, smooth, undulating	× > × > × >	_	At 36.0': R-Scale = R3
l _				36.6' - Fracture, 85 deg, smooth, undulating,	× >	_	
_	R5NQ 5 ft	88	0	0.3' long, healed above 0.1', angle decreases to 70 deg	× >	At 37.2' - clasts increase in size and	_
_	96%				×	frequency, 0.1-0.5' long	_
-			0		 ^.^.	-	-
_					××	-	At 39.0': R-Scale = R2 _
-			1		×	-	SC-2 collected 39.2-39.8'
40 <u> </u>	40.0		$\times\!\!\times\!\!\times$	39.7' - Fractures (2), 0-5 deg, 80 deg, smooth, undulating	- ^^ }	40.0-45.0' - green mottling, fine	R6: 08:58-09:18
			0	dildulating	-{× }	grained	-
-					- (×)	-	-
-			0		- ×	-	At 41.5': R-Scale = R3
-	R6NQ				()	-	-
-	5 ft 98%	98	0		×	-	-
-	33,0				×	-	-
-			0		1× ;	-	-
_			4	44.2' - Fracture, 40 deg, smooth, undulating	× >	-	At 44.0': R-Scale = R3
45	45.0		1	The Traditio, 10 dog, different, and diating	× ×	_	1
224.7			0	_	×	45.0-50.0' - green mottling, fine	R7: 09:45-10:06
			U	1×		grained with very fine sand	At 45.5': R-Scale = R3-R4
_			1		× >	_	
_			·]× >	_	
_	R7NQ 5 ft	100	0		l̂x 3	<u>-</u>	
_	106%				×××	- -	At 40 0k D 0 k D0
_			0		×	_	At 48.0': R-Scale = R3
_					<u>``</u>	-	-
			0		- 	-	_ At 49.5': R-Scale = R3
50 <u> </u>	50.0		$\times\!\!\times\!\!\times$	_	× >	_	R8: 10:25-10:45
-			0		×		-
_					× > × > × >	_ 50.7-51.0' - soft, arkose silty sand clasts 0.03-0.1' long	-
-			1	51.4' - Fracture, 55 deg, smooth, undulating	× >	-	-
1 -	R8NQ					-	-
1 -	5 ft 102%	82	0		× > × > × >	_ 52.7' - no apparent bedding, increase	
1 -					× >	in very fine sand content	At 53.0': R-Scale = R3
1 -			0		×	53.6-54.5' - no apparent bedding,	
1 -			10+	54.2' - Fracture, 60 deg, smooth, undulating]^; ;	greenish-gray silty sand clast 0.04' long and sand stringers 0.01-0.03'	1
55	55.0		10+	54.5-54.8' - Fracture zone, smooth, undulating, <0.25' thick clay infilling	× > × > × > × >	wide	
214.7			~~~	-0.23 trick day irining	××		
					1		

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PROJECT NUMBER:

338884

BPA-43

SHEET 4 OF 8

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687805.9 N, 2012031.0 E)

ELEVATION: 269.7 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS : 18	8.6 ft b	gs	START : 6/13/06 10	00:0	END: 6/19/06 13:10	LOGGER : JV
				DISCONTINUITIES		LITHOLOGY	COMMENTS
gz €	CORE RUN, LENGTH, AND RECOVERY (%)		ES	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	: RU TH,	(%) О	CTURES R FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	Ğ	MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND
	ORE	σI	FRAC PER F	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	YMB	AND ROCK MASS CHARACTERISTICS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
Ошшо	072	ď					D0: 40:55 44:45
-			0	54.8' - Fracture, 5 deg, smooth, planar	- × :	54.6' - greenish-gray, sand stringer at 80 degrees, very fine silty sand	R9: 10:55-11:15
-					× :	55.0-60.0' - fine grained	At 56.0': R-Scale = R3
-			0		× :	x ≸ 56.6-57.0' - soft, greenish-gray, very	1
-	R9NQ				- × :	fine sandy zone	1
-	5 ft 94%	90	0		- ×	57.6-60.0' - soft, interbedded	At 57.5': R-Scale = R3
-	0170				- × ;	greenish-gray, very fine sandy silt at	1
-			0		- ×	0-30 degrees 58.5-60.0' - rounded, clasts, 0.01' long	1
-					-X	X	Not enough clay for PP
60	60.0		1	59.6' - Fracture, 5 deg and 50 deg, smooth,	- × :	×-	1
209.7	00.0		(XXX	undulating, clay infilling -	- × ;	59.7-60.0' - clay and rock fragments; medium plasticity	R10: No time recorded
-			0		- × :	60.0-62.3' - trace green mottling, fine grained, some very fine sand, increase	1
-					- × :	sand from previous run, sandstone	At 61.0': R-Scale = R3
-			0		√x i	clasts up to 0.5' long, interbedded silty	1
-	R10NQ				- x	sand stringers	1
-	5 ft 103%	92	0		1:::	Sandstone 62.3-64.0' - dark gray, medium	1
-	103 /0			63.0' - Fracture, 70 deg, smooth, undulating	- :::	bedding, very fine sand, fresh, silty, 35	1
-			2	-	-	L degree bedding angle 63.2-64.0' - green and red iron oxide	At 63.5': R-Scale = R3
-					× :	√ banding Γ	1 1
-	CE 0		1	64.5' - Fracture, horizontal and 5 deg, smooth,	- × :	\$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	1
65 <u> </u>	65.0		XXX	slickensides, undulating –	√x i	Siltstone	R11: 13:05-13:27
-			0	65.5' - Contact between siltstone and	 	64.0-65.5' - green and reddish brown mottling, very fine sand, fresh, fines,	1 1
-				sandstone, sharp, distinct	-	fissile zones of fines, interbedded with	SC-3 collected
-			1		-	\sandy zones, laminated, iron oxide banding, 0.5' thick	65.9-67.0' _ At 66.5': R-Scale = R3-R4
-	R11NQ			66.8' - Fracture, 60 deg, smooth, undulating	- :::	Sandstone	1
-	5 ft 102%	100	0		- ∷:	. – 65.5-74.5' - greenish gray, reddish brown mottling, soft, very fine sand,	1
-	102 /0				┨∷:	fresh, silty, iron staining, banded	1
-			0		†∷ ∶	66.7' - reddish brown siltstone clast 66.8' - 0.05' thick yellowish brown	1
-					- ∷:	band, <5 degrees	1
70	70.0		0		1:::	69.0' - black mottling 69.6' - black mottling	1
70 <u> </u>	70.0		~~	_	†∷ ∶	70.0' - banded, coarsens with depth,	R12: No time recorded
-			0		1:::	increased feldspar sand	1
-					-	<u>:</u> -	At 71.0': R-Scale = R3
-			0		-	71.4' - iron oxide staining, fine to	1
-	R12NQ				- ∷::	medium sand bands 0.05' thick at 0-5 degrees	1
-	5 ft 88%	88	1	72.4' - Contact between sandstones, sharp	┨∷:	72.4-74.5' - gray, fine sand to medium	1
-	0070			72.7' - Fracture, 75 deg, smooth, undulating	- ∷::	sand, moderate induration 72.9-73.3' - fine grained dark greenish	1
-			0		1:::	gray band, 0-5 degrees	1
-			1	74.01 Freeting CE des and defend and the	 :::	<u>:</u> -	At 74.0': R-Scale = R3-R4
75	75.0		\bowtie	74.2' - Fracture, 65 deg, undulating, partially tightly healed	× ;	*	1 1
194.7	7.0.0		XXX,	-	- ×	_	
						l .	

2BB-269 Rev. 1



PROJECT NUMBER:

338884

BPA-43

SHEET 5 OF 8

ROCK CORE LOG

ORIENTATION : Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687805.9 N, 2012031.0 E)

ELEVATION: 269.7 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, NQ Double Barrel

COMING	D EQUIT WILL	II AIN	D IVIL	THOD: CME-750, NQ Double Barrel		ORIENTATION: Vertical
WATER	LEVELS : 18	3.6 ft b	gs	START : 6/13/06 10	:00	
	(%			DISCONTINUITIES	g	LITHOLOGY COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS BY AND ROCK MASS CHARACTERISTICS DROPS, TEST RESULTS, ETC.
2000	822	ď	田田	THICKNESS, SURFACE STAINING, AND TIGHTNESS		
- - -	R13NQ		1	76.4' - Fracture, 65 deg, smooth, undulating, cemented, silty	× : : : : : : : : : : : : : : : : : : :	74.5-77.3 - very dark greenish gray, reddish brown mottling, very soft, fresh, 20% very fine sand 75.6-75.9' - pitted <1/4
- - - -	5 ft 106%	100	0 0 1	79.0' - Fracture, 55 deg, smooth, undulating	- × ;	77.3-77.9' - dark reddish brown, greenish gray mottling, very soft to soft, laminated to very thin bedding, fresh, fine grained with very fine sand, bedding on 30 degree angle Sandstone At 78.5': R-Scale = R3-R4
80 189.7 - - - -	80.0 R14NQ 5 ft 98%	98	0 0			At 77.9' - very dark gray, mottled green and black, soft to hard, laminated to medium bedding, fresh, silty, very fine sand, bedding on 30 degree angle 80.0-85.7' - dark reddish brown, black mottling, soft to hard, very fine sand to fine sand, silty 81.5-84.2' - darker reddish brown stained clasts 1/4 to 1/2 long
85_ 184.7	85.0		0	- -		84.2' - banding at 30 degrees, 1/4 to 3/4
-	R15NQ		0	85.7' - Contact between siltstone and sandstone, sharp 85.9' - Fracture, 40 deg, slickensided, planar, smooth 87.0' - Contact between siltstone and	×	along bedding, laminated at 30 degrees starting at 84.65', trace black clasts <1/4
- - -	5 ft 102%	60	3	sandstone, 20 deg, slickensided, planar, smooth, sharp 87.2' - Fracture, 20 deg, slickensided, undulating, smooth 87.3' - Fracture, 5 deg, slickensided, undulating, smooth	× × × × × × × × × × × × × × × × × × ×	Siltstone 85.7-86.0' - greenish gray and dark reddish brown, very soft, fresh, fine grained, banded, 0.05 wide bands, fissile, 30 degree bedding At 87.5': R-Scale = R3 SC-4 collected 88.2-88.9'
90 179.7	90.0		0	87.4' - Fracture, 5 deg, slickensided, undulating, smooth 87.8' - Fracture, 30 deg, slickensided, undulating, smooth 88.2' - Fracture, 50 deg, slickensided,	× × × × ×	86.0-87.0' - very dark gray, mottled greenish gray, white, and black, hard to thin, bedding, medium sand, fresh Siltstone
- - - -	R16NQ 5 ft 94%	94	0 0	undulating, smooth 89.0-89.1' - Fracture zone, 30 deg and 80 deg, slickensided, undulating, smooth 89.2' - Fracture, 20 deg, smooth, undulating	× × × × × × × × × × × × × × × × × × ×	hat of y greening ray and redustry pink, very soft, banded, very fine grained, laminated 0.05' thick at 30 degrees 87.0-88.2' - fresh 88.2-89.0' - highly weathered 88.2-89.0' - clay and rock fragments 88.2' - dark gray, clay rock fragment seam 89.0-89.8' - fresh, some very fine sand
95 <u>174.7</u>	95.0		0	<u> </u>	× : × : × :	∡ [∥



PROJECT NUMBER:

338884

BPA-43

SHEET 6 OF 8

ROCK CORE LOG

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687805.9 N, 2012031.0 E)

ELEVATION: 269.7 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, NQ Double Barrel

WATER	LEVELS : 18	8.6 ft b	gs	START : 6/13/06 1	START : 6/13/06 10:00				LOGGER : JV
	(%			DISCONTINUITIES		ွှ 📘	LITHOLOGY		COMMENTS
ON (#)	CORE RUN, LENGTH, AND RECOVERY (%)	_	CTURES FOOT	DESCRIPTION	_ [SYMBOLIC LOG	ROCK TYPE, COLOR,		SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	E R.L. STH, OVEI	R Q D (%)	STUF	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	3	BOL	MINERALOGY, TEXTURE, WEATHERING, HARDNESS,		FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
SELEV SURF	SOR	3 Q E	FRA(PER	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS		λM	AND ROCK MASS CHARACTERISTICS		DROPS, TEST RESULTS, ETC.
	011	_	1		- ×		Sandstone	Т	R17: 11:10-11:31 _
			'	95.5' - Fracture, 5 deg, smooth, undulating	×	×	89.8-90.0' - greenish gray, reddish		
			1]××	: ×	brown mottling, hard, very thin bedding, very fine sand, fresh,		At 96.0': R-Scale = R3-R4
				96.6' - Fracture, 15 deg, smooth, planar, pink	×××	3	gradational contact	П	
	R17NQ 5 ft	100	0	encrusting, thin	××	: х	Siltstone At 90.0' - dark reddish brown, green		
	103%	100]×	: X	mottling, very soft, fresh, some very		
			0		××	×	fine sand 90.2-90.7' - siltstone clasts, 1/8 to 1/4		At 98.0': R-Scale = R3-R4
			O .]× ×	×	diameter, angular		
			0		× ×	×	90.5-91.0' - green mottling 93.5-94.1' - heavy green mottling		
100	100.0			_	_l× ×	×	Sandstone		
169.7			1	100.2' - Fracture, 5 deg, smooth, undulating]×	: X	94.1-94.3' - greenish gray, fresh, very fine sand, gradational contact		R18: 12:10-12:30
			'	-	-××	×	Siltstone		
			1	101.4' - Fracture, 65 deg, smooth, undulating	×	×	At 94.3' - dark reddish brown, green mottling, very soft, fresh		
			'	101.4 - Fracture, 03 deg, Smooth, undulating	×××	: ×	95.5' - black clasts, very soft,1/8		
	R18NQ 5 ft	90	0		ļ× ×	×	diameter 97.5-97.7' - Lighter brown zone with		At 102.0': R-Scale = R3-R4
	106%	30	U		→× ×	×	abundant dark red brown to black	Γ	
			1]×	×	clasts - 99.0-99.4' - heavy green mottling		
			'	103.9' - Fracture, 70 deg, smooth, undulating	×	X	99.4-99.6' - green, very fine sandy silt		
			0	103.9 - Fracture, 70 deg, Smooth, undulating	××	: ж	band, very soft, 30 degree bedding 99.6-99.7' - black band, very soft, 30		At 104.0': R-Scale = R3-R4
105	105.0			_	××	×	degree bedding		
164.7			$\bigotimes_{\mathcal{O}}$: - ×		101.6-102.1' - increased very fine sand in sand stringers 0.05' thick	l	R19: 12:29-13:10
					ļ× ×	×	102.1' - laminated alternating siltstone		
			2	106.1' - Fracture, horizontal, slickensided,	- ×	: х	and sandy siltstone, 30 degree bedding		At 106.0': R-Scale = R3-R4
				planar, smooth 106.2' - Fracture, 30 deg, slickensided, planar,	\perp ×	: ×	Siltstone		
	R19NQ 5 ft	86	0	smooth	- × ×		At 102.7' - fresh, greenish gray silt		
	92%	00			- × ×	×	103.1-103.7' - reddish brown and		
_			0		ļ× ×	×	greenish gray, very soft, laminated bedding, banded		
					××	: X	104.7' - sand lense, gradational		At 108.5': R-Scale = R3
			0		××	: ×	contact, greenish gray, mottled reddish brown, soft		
	110.0		\bowtie	_	$-\stackrel{\times}{\overset{\times}{_{\times}}}$: ×	Sandstone		
159.7			0		×	: х	105.0-105.4' - gray, mottled black and reddish brown, soft to hard, very fine		R20: 13:30-13:50
-					×××××	X	sand, fresh, minor staining		
-			0		-×	: X	Siltstone 105.4-116.3' - dark reddish brown,		
	B				_ ×	: ×	very soft, fresh, with green banding,		
-	R20NQ 5 ft	100	0		- ×	: ×	little sand, banding along bedding at 30 degrees		_
-	108%				- × ×	: ×	106.3' - green mottling, banding		_
_			0		- x	×	disappears, trace very fine sand 108.8' - heavy green mottling,		At 440 Eli D. Cool D.4
-					- × ×	X	laminated banding		At 113.5': R-Scale = R4
_			0		→× ×	X	110.0-115.0' - dark reddish brown, soft, 20-30% very fine sand		_
115 <u></u> 154.7	115.0		×××	-	⊢× ×)	110.9-111.5' - black mottling		_
134./			XXX		Ť	Ť			
					\perp				

2BB-271 Rev. 1



PROJECT NUMBER:	BORING NUMBER:					
338884	BPA-43	SHEET	7	OF	8	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687805.9 N, 2012031.0 E)

ELEVATION: 269.7 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, NQ Double Barrel ORIENTATION : Vertical

			<u> </u>	THOD . CIVIE-750, NQ DOUBLE BATTEL				ORIENTATION : Vertical
WATER	LEVELS: 18	8.6 ft b	gs	START : 6/13/06 10	00:0		END: 6/19/06 13:10	LOGGER : JV
	~			DISCONTINUITIES	١,	ים	LITHOLOGY	COMMENTS
o - €	CORE RUN, LENGTH, AND RECOVERY (%)		S	DESCRIPTION	7	SYMBOLIC LOG	ROCK TYPE, COLOR,	
DEPTH AND ELEVATION BELOW SURFACE (ft)	N. Y.	9	FRACTURES PER FOOT		٩ ٩	2	MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING,
TA VA	STEN	Q D (%)	FS	DEPTH, TYPE, ORIENTATION, ROUGHNESS,		2	WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
	SHOP	g	RA	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	3	≥ ≻	AND ROCK MASS CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
	076	IĽ.		,,				
-			*8*		-X		111.8-112.2' - sandy zone, very fine to fine	R21: 14:15-14:35
-					-√×		114.0' - thin (1/8) green sand,	-
_			0			::	laminated, 60 degree bedding	1 _
			ľ		1:	∷	\ 114.7-115.0' - sand content increases	
_	R21NQ				1:	∷	to 50%	
-	5 ft	98	0		1	∷⊦	Sandstone	-
_	98%				4:	∷⊦	116.3-118.4' - weak red, greenish gray mottling, hard, very fine sand to fine	_
			1].	::[sand, fresh, medium bedding	
			'	118.4' - Contact between siltstone and	1×	×	Siltstone	SC-5 collected
-				sandstone, 30 deg, sharp	⊢× ×		118.4-120.0' - greenish black, fresh,	118.4-119.1'
-			0	119.2' - Contact between siltstone and sandstone, sharp	-√×	×	 banded black and dark gray; very soft, 	At 119.5': R-Scale = R3-R4
120	120.0			- Janastone, snarp 	_l×		20-30% very fine sand, laminated	
149.7			0]:	::	bedding at 30 degrees	R22: 14:55-15:15
			U		1:	∷[Sandstone 120.0-121.1' - greenish gray, mottled]
-					- :_ - : −	∷إ ⊧	. 120.0-121.1 - greenish gray, mottled	-
_			1		- ×	×	sand to fine sand, fresh, red and green	-
_					_ ×	×	∖banding with silt, laminated to thin	<u> </u>
	R22NQ				×		banding at 30 degrees	At 122.0': R-Scale = R3
1 7	5 ft 100%	100	0		T× ×	×	Siltstone	_
-	100 /0				\dashv ×	×	At 121.1' - very dark greenish gray, very soft, fresh, bed contact at 30	-
_			0		-I× ×		degrees	_
					_× ×		121.4' - reddish brown and yellowish	
					×	×	brown 1/8 bands	At 124.0': R-Scale = R3-R4
105	405.0		0		√×	×	Siltstone	
125 <u> </u>	125.0			_	⊢× ×	×.	121.8-125.2' - dark reddish brown,	R23: No time recorded
			0		- ×	×	green mottling, very soft, fresh 124.2' - sandy zone, very fine sand at	- 1723. 140 time recorded
					×	×	30 degrees 0.05' wide	
					$\mathbb{I}_{\times}^{\times}$		124.5' - sandy zone, very fine sand at	
_			0		⊢× ×	×	30 degrees 0.05' wide	_
-	R23NQ				-I×̂	4	125.0-125.2' - dusky red, mottled	At 127.0': R-Scale = R3-R4
_	5 ft	92	1	127.2' - Fracture, 65 deg, smooth, undulating	$-\mathbf{I} \times$	Х-	black and green, soft, 20-30% very fine sand, black mottling, stained	At 121.0 : N-3cale = N3-N4
	98%				↓ ×	×	Sandstone	
					×	×	125.2-125.3' - dark greenish gray,	_
-			0		- ×	×	fresh, very fine sandy lens	-
-					- × ×	X	Siltstone	At 129.0': R-Scale = R3-R4
-			0		-X	×	125.3-130.0' - dusky red, mottled	AL 129.0 . N-Scale - NS-N4
130_	130.0				Ĵŝ	<u>E</u> _	black and green, soft, fresh, 20-30% very fine sand, black mottling, stained]
139.7				_	T	ΞΤ	128.0-130.0' - increased sand content	R24: 08:30-08:45
-			0		1:	∷⊦	\to 40%	-
-					1:	∷⊦	129.8-130.0' - sandy zone	-
-			0		1:		Sandstone	a. a. a. a
]:		130.0-135.9' - light greenish gray, hard, fine sand to medium sand, fresh	At 131.0': R-Scale = R3-R4
1 7	R24NQ				1:	∷[131.0-131.2' - dark reddish brown,]
-		100	0		1:	∷ŀ	fine grained silty lens, very soft to soft,	
-	103%				4:	∷⊦	very fine sand	At 133.0': R-Scale = R4
_			0		1:	∷L	131.4' - black sandy clast 1/4	AL 133.0 . N-30ale - K4
					1:	::	diameter 131.6-133.2' - some staining	
1					1:	∷↾	131.6-133.2 - some staining 133.2-133.6' - 30 degree bedding,	1
40-			0		1:	∷⊦	0.04' thick greenish zone at bottom	-
135 <u> </u>	135.0		XXX	_	:	∷⊦	— 134.0-134.6' - bedding at 30 degrees	-
134.7					†	+		
					1			
								ļ.

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PROJECT NUMBER:	BORING NUMBER:					
338884	BPA-43	SHEET	8	OF	8	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687805.9 N, 2012031.0 E)

ELEVATION: 269.7 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS : 18	3.6 ft b	gs	START : 6/13/06 10	:00	END: 6/19/06 13:10	LOGGER : JV
				DISCONTINUITIES		LITHOLOGY	COMMENTS
gz €	Ž AND (%)		ES	DESCRIPTION) C	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND
	ORE	οD	RAC ER F	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	YME	AND ROCK MASS CHARACTERISTICS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
Ошшо	Olk	2		THOUSE SOLUTION STATE TO THE TENT ALSO	· · ·		R25: 09:08-09:23
-			1	-		_ 135.1' - becomes finer with depth	R25: 09:08-09:23
_				135.9' - Contact between siltstone and sandstone, 30 deg, sharp	× >	Siltstone At 135.9' - dark reddish brown, mottled	At 136.0': R-Scale = R4
-			0	sandstone, 30 deg, snarp	× >	greenish gray and black, very soft,	1
-	R25NQ			-	× > × > × >	fresh, trace very fine sand, contact at 30 degrees	1
-	5 ft 94%	94	0			2 30 degrees	1
-	21,0			-	× >		1
-			0	•	× >	138.3-138.9' - small (1/8) white clasts	1
-				-	× >	139.0' - sandy lens, red brown silt,	1
140	140.0		0 >>>>		× >	medium grained gradational contact with siltstone	1
129.7	140.0		~~~	_	× > × > × >	140.0-145.0' - dusky red, mottled	R26: 09:34-10:04
-			0	-		green and black, fine grained 140.5-140.6' - mottled greenish gray	1
-				-	(140.0 140.0 Motion gradingly	1
-			0	-	× >	<i>†</i>	1
-	R26NQ				× >	142.0-142.4' - heavily mottled green	1
-	5 ft 105%	100	0	•	× >	†	1
-	10070			-	× > × > × >	}	At 143.0': R-Scale = R4
-			0		x	}	1
-				-	(x)		1
145	145.0		0	·	× >	f	1
124.7	143.0		$\times\!\!\times\!\!\times$	_	× >	— 144.8' - greenish gray linear feature 0.6' long at a 55 degree angle	R27: 12:35-13:18
-			0		× >	145.0-150.0' - weak red, trace very	1
-					×	 fine sand 145.3-145.4' - some staining 	1
-			0		x	146.2' - 0.15' long horizontal green	1
-	R27NQ	 !		-	× >	 stringer with some very fine sand and silt (<1/8' wide) 	1
-	5 ft 103%	100	0	-	× >	146.5' - heavy green mottling	At 147.3': R-Scale = R4 _ SC-6 collected
-	10070				× >	147.5-148.8' - 1/16 diameter black clasts	148.7-150.0'
-			0	·	× >	f	First water level = 18.6' bgs _ taken 6/20/06 at 08:52;
-					× > × > × >	}	second water level = 19.0'
150	150.0		0			149.6-150.0' - white fine to medium	bgs taken 6/21/06 at 07:50 _ R-Scale performed after
119.7	130.0		$\times\!\!\times\!\!\times$		+	grained	drilling on stored samples
-				-	1	- Bottom of Boring at 150.0 ft bgs on 6/19/06 13:10	1
-				-	1	F 3, 15,755 15.15	1
-				•	1	<u> </u>	1
-				-	1	<u> </u>	1
-					1	†	1
-					1	†	1
-					1	†	1
-					1	†	
155					1	†	1
114.7					1_	_	<u> </u>
					1	<u> </u>	

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PROJECT NUMBER: BORING NUMBER: 338884

BPA-44

SHEET 1 OF 5

SOIL BORING LOG

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (687543.3 N, 2012170.4 E)

ELEVATION: 266.3 ft MSL (NGVD 29) DRILLING CONTRACTOR: K. Canuel, S&ME

DRILLIN	IG EQUII	PMENT A	AND MET	HOD : CME-750	Tricone Bit, 24" Split Spoon, and 140 lb. Automatic Hammer ORIENTATION : Vertical
WATER	LEVELS	s : 14.9 ft	bgs		START : 6/28/06 08:46 END : 6/29/06 11:17 LOGGER : JS
DEPTH E	BELOW EX	(ISTING G	RADE (ft)	STANDARD	SOIL DESCRIPTION 0 COMMENTS
	INTERV	AL (ft)		PENETRATION TEST RESULTS	0 0
		RECOVI	ERY (in)		SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND
			#TYPE	6"-6"-6"-6"	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
266.3	0.0			(N)	\[\frac{\pi}{\pi} \] \[\tag{Topsoil}
-	- 0.0				\0.0-0.1' - Topsoil, grass - \-\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
-	-	18.0	SS1SS		Silty Sand (SM) 0.1-0.7' - brown, moist, very loose, low to medium
-	-			(4)	□\plasticity, 30-40% fines, fine to medium sand, more □
-	2.0				fines with depth _ -
-	2.5				\\\\ 0.7-1.5' - yellow, moist, high plasticity, none dilatancy,
-					firmer with depth, 20-25% fine sand with depth Clay With Sand (CL)
-	-	19.0	SS2SS	5-9-11-13	2.5-2.9' - reddish brown, some whitish mottling (1 PT-1 collected
-	-	19.0	33233	(20)	\zone), moist, stiff, low to medium plasticity, slow to rapid dilatancy, 25% very fine to fine sand, micaceous - 3.0-5.0'
	1				Sandy Lean Clay (CL)
5 261.3	5.0				2.9-4.1' - reddish brown, orange mottling, moist, very stiff, medium plasticity, slow dilatancy, grayer in sandy
-	-				_∬lens at 3.17-3.33', medium dark, 30% clayey sand, 70% ∥_ 1 ///4
-		8.0	SS3SS		\ clay, up to 30% very fine to fine sand in clay; \ - \ interfingered, gradational \ - \ - \
-	7.0			(50/5.5")	
-	7.0				5.0-5.7' - reddish brown, thready greenish-white mottling, moist, stiff, low to medium plasticity, slow to
-	7.5				rapid dilatancy, very hard in last 1, 15% very fine sand
-					Clay (CL) 7.5-7.9' - reddish brown, thready greenish-white
-	1	5.0	SS4SS		\mottling, moist, hard, low to medium plasticity, slow to / -
-	9.5			(50/3.5")	rapid dilatancy, 15% very fine sand
10	9.5				Drillers Remark: Drilled to 11.0' bgs before
256.3	10.0	3.0	SS5SS,		Clay (CL) beginning rock coring
-	10.2 11.0			50/2 (50/2")	\langle 10.0-10.2' - reddish brown, thready greenish-white mottling, moist, hard, low to medium plasticity, slow to \int \frac{1}{2} \langle Soil sampling completed at 10:00 on 6/20/06
-	1			(00/2)	rapid dilatancy, 15% very fine sand
-	1				Begin Rock Coring at 11.0 ft bgs See the next sheet for the rock core log
-	1				See the flext sheet for the fook core log
-	1				11
-					11
-	1				11
_	1				11
15					1
251.3					7 1
					11
] [
-]
_]
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-]
_	-				
20_					
			1		

Rev. 1



PROJECT NUMBER: BORING NUMBER: 338884

BPA-44

SHEET 2 OF 5

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (687543.3 N, 2012170.4 E)

ELEVATION: 266.3 ft MSL (NGVD 29) DRILLING CONTRACTOR: K. Canuel, S&ME

CORING	EQUIPMEN	T AN	D ME	THOD : CME-750, NQ Double Barrel		ORIENTATION : Vertical
WATER	LEVELS : 14	.9 ft b	gs	START : 6/28/06 08	:46	46 END : 6/29/06 11:17 LOGGER : JS
	(%			DISCONTINUITIES	၂ ပ္	LITHOLOGY COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	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 ROCK TYPE, COLOR, SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
- Land Barbara - Land	R1NQ 5 ft 100%	86	0 0 1	13.4' - Fractures, 70 deg, undulating, several parallel healed fractures, visible 14.7' - Fracture, 30 deg, undulating, hairline	- × - × - × - × - × - × - × - × - × - ×	Siltstone 11.0-15.8' - dark reddish brown, mottled green, purple, black, very soft, moderately weathered, fine grained with up to 30% very fine sand, more sand with depth Rock coring began at 10:30 on 6/28/06 R1: Began at 10:30 on 6/28/06 At 12.5': R-Scale = R2
251.5	16.0		10+	fracture	- × × · · · · · ·	X X 15.4-15.5' - clay seam X 15.7-15.8' - clay seam, very soft, R2: 11:03-11:19
-	R2NQ		0	16.6' - Fracture, 60 deg, rough, undulating, black stains	-	Sandstone At 15.8' - light gray to very pale brown, mottled white, black, red, yellow, poorly sorted, fine sand to coarse sand 15.8-1.0' - moderately weathered
20246.3	5 ft 100%	92	0 10+	19.1-19.2' - Contact between siltstone and sandstone, at contact between matrices; clay seam 19.3-19.8' - Fracture, vertical	- : : : : : : : : : : : : : : : : : : :	X
-			10+		- × - × - × - ×	soft, very fine to fine sand, 25% silt Soft, very fine to fine sand, 25% silt 18.7' - soft, medium to coarse grained Siltstone At 19.2' - dark reddish brown, mottled green, purple, fine grained with little to
_	R3NQ 5 ft 104%	54	0			19.2-21.0' - slightly weathered 21.0-23.9' - mottled purple and green, moderately weathered, very fine to fine grained, picks up to 15% very fine At 23.3': R-Scale = R2-R3
25241.3	26.0		10+	25.1' - Fracture, horizontal, smooth, undulating 25.3-25.4' - Fracture, very weak rock, bedrock	- × - × - ×	X X 21.4-21.5' - clay seam, very soft X X 23.9-25.0' - reddish gray, heavily X Mottled green, vellow, and purple.
-			4	flakes and pieces 25.5' - Fracture, 5 deg, smooth, undulating, black stains, tight fit 25.8' - Fracture, 5 deg, smooth, undulating, black stains, tight fit	- × - × - × - ×	very soft; would be very stiff on clay very soft; would be very stiff on clay consistency table 23.9-25.0' - clay seam 25.0-26.0' - mottled purple and green, At 26.0-26.3' R-Scale = R0-R1 At 26.6': R-Scale = R3-R4
-	R4NQ 5 ft 100%	96	0	26.0-26.3' - Fractures (4), horizontal, smooth, undulating, some black staining	× × × × × × × × × × × × × × × × × × ×	X Yellow, and black, very soft to soft,
30_ 236.3			0		- × - × - × - ×	slightly weathered, very fine to fine significant should be a significant sho
	31.0				× × ×	<u>* </u>



PROJECT NUMBER: BORING NUMBER: **BPA-44** 338884 SHEET 3 OF 5

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (687543.3 N, 2012170.4 E)

ELEVATION: 266.3 ft MSL (NGVD 29) DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, NQ Double Barrel ORIENTATION : Vertical										
				·			ORIENTATION : Vertical			
WATER	LEVELS : 14	1.9 ft b	gs	START : 6/28/06 08	:46	END : 6/29/06 11:17	LOGGER : JS			
	08			DISCONTINUITIES	SYMBOLIC LOG	LITHOLOGY	COMMENTS			
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	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.			
_			0		× × × ×	31.0-41.0' - less mottling, soft, very fine to fine grained with up to 25%	R5: 12:58-13:16			
-			0		× × × × × ×	very fine sand 31.0-46.0' - fresh -	-			
-	R5NQ 5 ft 98%	98	0		- × × × × × × × × × ×	_	At 32.9': R-Scale = R3 -			
35			0		× × × × × ×		SC-3 collected 34.2-35.3'			
231.3	36.0		2		× × × × × × × ×	- 35.3-35.6' - fine to medium grained sand				
-			2	36.1' - Fracture, horizontal, undulating, tightly healed 36.3' - Fracture, 50 deg, undulating, tightly	× × × × × ×	-	R6: 13:30-13:50			
-	R6NQ		1	healed 37.2' - Fracture, horizontal, undulating, long, tightly healed		- 37.3-41.0' - very fine grained with no to very little sand				
-	5 ft 100%	100	0	37.5-41.0' - Fractures, capillary microfractures	× × × × × ×	-	At 38.1': R-Scale = R3 - -			
40 <u></u> 226.3			0	· _	× × × × × ×		-			
-	41.0		0		- × × × × - × ×	purple; 5%; harder than matrix	- R7: 14:01-14:17			
-			0		1× × 1× ×	42.1' - mottled purple, dark yellow, and	- At 42.0': R-Scale = R3-R4			
-	R7NQ		10+	42.3' - Fracture, 50 deg, undulating, partial fracture, ~0.0002' wide 42.4-42.8' - Fracture zone, rough, stepped,	× × × × × ×	green, very soft, very fine grained with little sand				
-	5 ft 100%	80	3	some very hard white infilling, green and purple staining 42.8-43.1* Fracture zone (3), 60 deg and 80	× × × × × ×]			
45_ 221.3			1	deg, rough, undulating, some very hard white infilling, green and purple staining 43.4' - Fracture, 70 deg 44.8' - Fracture, 40 deg, smooth, undulating,	× × × × × × × ×	45.2-45.3' - clay seam, softer rock lens	-			
_	46.0		3	some white infilling, green and purple staining 45.4' - Fracture, horizontal, smooth, undulating, 0.03' relief, partially slickensided	× × × × × × × ×	Siltstone - 46.0-46.9' - dark gray, fresh, very fine	R8: 14:40-15:01			
-			0	(~50% of surface); bedrock fragments 46.0-46.9' - Fracture zone, horizontal, smooth, undulating, some slickensided surfaces, 0.1'	× × × × ×	grained, lighter and darker laminations Siltstone]			
-	R8NQ 5 ft	80	0	thick gray clay seam	× × × × × × × × × × × × × × × × × × ×	At 46.9' - dark reddish brown, soft, fresh, 30% very fine sand, coarse silt 47.3-48.8' - mottled green and black, fine grained, 25% very fine sand	At 47.5': R-Scale = R3-R4			
-	96%		1		× × × × × × × × × × × × × × × × × × ×	-	-			
50 216.3			1	-	× × × × ×. ×	49.9-50.3' - green mottling, fine grained	At 49.6': R-Scale = R3-R4			
	51.0		XXX		1.::					

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PROJECT NUMBER:

338884

BPA-44

SHEET 4 OF 5

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687543.3 N, 2012170.4 E)

ELEVATION: 266.3 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, NQ Double Barrel ORIENTATION : Vertical

				THOD . CIVIE-730, NQ DOUBLE BAITEI			
WATER	LEVELS: 14	.9 ft b	gs	START : 6/28/06 08	:46	END : 6/29/06 11:17	LOGGER : JS
				DISCONTINUITIES	O	LITHOLOGY	COMMENTS
EPTH AND LEVATION ELOW JRFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS,	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
DEPT ELEV BELO SURF	CORE LENG RECC	RQD	FRAC PER F	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMB	AND ROCK MASS CHARACTERISTICS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
_			0	50.4' - Fracture, horizontal, smooth, undulating, 0.02' relief	× ×	Sandstone 50.3-51.6' - dark reddish gray, some green mottling, soft to hard, very fine	R9: 15:13-15:21
_	Barra		0		 	sand to fine sand, fresh, 35% silt 51.1-51.6' - very dark gray, rust, white, gray, black mottling, interbedded	At 52.1': R-Scale = R3-R4
_	R9NQ 5 ft 100%	100	0		 	contact over ~0.1'; fine grained to 0.0002' Siltstone 51.6-51.8' - dark reddish brown, green	-
55_ 211.3			0	-	- : : : : : : : × ×	Sandstone 51.8-55.2' - gray, rust mottling, soft to	At 54.5': R-Scale = R3-R4
_	56.0		1	55.2' - Contact between sandstones, smooth to rough, undulating	× × × × × ×	hard, poorly sorted, fresh, abrupt contact at 20 degrees; multi-colored grains, 60% silica, 40% feldspar, fine	R10: 15:37-15:50
_			0		× × × × × ×	to coarse grains Siltstone 55.2-58.1' - dark reddish brown, trace	-
_	R10NQ 5 ft	100	0		- × × - × × - × ×	green mottling, soft, fresh, fine grained, 15% very fine sand 56.0-58.1' - increasing sand content	At 57.7': R-Scale = R3-R4
_	100%	100	0		: : : : : : : : : :	with depth Sandstone 58.1-60.3' - dark reddish brown, little mottling, very fine sand to fine sand,	_ At 59.2': R-Scale = R3-R4 _
60 206.3			1	60.3' - Contact between siltstone and	× × × × × ×	fresh, up to 25% silt, coarser with depth 59.8-60.3' - soft to hard, 35% medium	
_	61.0 R11NQ 1 ft 62.0 100%	50	2	sandstone, horizontal, rough, undulating 61.5' - Fracture, horizontal, smooth, stepped,			-
_	02.0 10070		1	0.03' relief 61.9' - Fracture, horizontal, smooth, stepped, 0.02' relief	× × × × × × × × × × × × × × × × × × ×	brown, mottled dark green and yellow, soft, fresh, very fine grained with trace to 10% medium sand grains, angular 61.0' - last 0.5' grayer	R11: 08:08-08:29 on 06/29/06 -
-	R12NQ 4 ft 98%	90	0		× × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × ×	62.0' - very dark gray, some yellow mottling, very soft to soft, banded, laminated in swirled patterns, very fine to medium grained with sandy lenses	At 63.6': R-Scale = R3-R4
65_ 201.3	96%		0	-	× × × × × ×	at 62.45-65.55'	SC-4 collected 64.7-65.9'
_	66.0		0	66.2' - Fracture, horizontal, smooth, undulating	× × × × × ×	66.0-67.6' - dark yellow and faint	R13: 08:44-09:05
_			2	66.5-66.6' - Fracture zone, horizontal and 20 deg, rough, undulating, bedrock fragments 67.3' - Fracture, horizontal, smooth, undulating	× × × × × × × ×	- green mottling, soft - -	
-	R13NQ 5 ft	84	0	67.6' - Fracture, horizontal, smooth, undulating	× × × × × × × × × × × × × × × × × × ×	67.6' - reddish brown, mottled green, purple and yellow, 25% very fine sand	
- 70	100%		0	-	× × × × × ×	- 69.2-69.8' - trace to no sand	-
70 <u> </u>	71.0		0	_	× × × × × × × ×	— 69.8-71.0' - Trace medium white sand grains	-
					<u> </u> *		

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PROJECT NUMBER:	BORING NUMBER:				
338884	BPA-44	SHEET	5	OF	5

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687543.3 N, 2012170.4 E)

ELEVATION: 266.3 ft MSL (NGVD 29) DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD: CME-750, NQ Double Barrel ORIENTATION: Vertical WATER LEVELS: 14.9 ft bgs START: 6/28/06 08:46 END: 6/29/06 11:17 LOGGER: JS DISCONTINUITIES LITHOLOGY COMMENTS CORE RUN, LENGTH, AND RECOVERY (%) 90 FRACTURES PER FOOT DESCRIPTION DEPTH AND ELEVATION BELOW SURFACE (ft) ROCK TYPE, COLOR, SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD <u>0</u> MINERALOGY, TEXTURE RQD(%) DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS WEATHERING, HARDNESS, AND ROCK MASS DROPS, TEST RESULTS, ETC. CHARACTERISTICS 71.0-74.0' - very fine to fine sand R14: 09:25-09:45 0 content increasing with depth At 71.6': R-Scale = R3-R4 0 R14NQ 5 ft 102% 95 0 Sandstone 0 At 74.0' - brown, mottled green, soft, fresh, very fine to medium sand 191.3 At 75.1': R-Scale = R3-R4 2 75.5-77.4' - dark gray to brown, very 76.0 75.7' - Fracture, horizontal, rough, undulating thin to thin bedding, fine sand to 76.0' - Fracture, horizontal, rough, undulating R15: 10:03-10:20 coarse sand, well sorted 0 77.1-77.4' - Fracture, 95 deg, rough, 1 undulating 77.4-77.6' - Fracture, 65 deg, rough, Siltstone At 77.6': R-Scale = R3-R4 77.4-77.5' - dark gray, soft, fresh, very R15NO fine grained undulating, compound fractures 0 98 5 ft Sandstone 100% 77.5-77.6' - gray, soft to hard, very thin bedding, fine sand to coarse sand, 0 subangular to subrounded, well sorted, fresh 80 At 79.9': R-Scale = R3-R4 $186.\overline{3}$ Siltstone 0 77.6-77.8' - dark gray, soft, fresh, very 81.0 fine grained 80.8' - Contact between siltstone and R16: 10:32-10:56 sandstone, sharp Sandstone 0 At 77.8' - gray, rust colored mottling, very fine sand to medium sand, well SC-5 collected sorted, fresh 81.8-83.0' 0 79.8-80.8' - coarsens Siltstone R16NQ At 84.6': R-Scale = R3 80.8-87.0' - dark reddish brown, green 0 5 ft mottling, soft, fresh, 5-40% very fine to 100% fine sand, varying amounts R17: 11:13-11:17 0 At 86.5': R-Scale = R3-R4 85 181.3 First water level = 14.9' bgs 85.2' - Fracture, horizontal, smooth, undulating 2 taken 6/29/06 at 14:35; 85.2' - Fracture, horizontal, rough, undulating, second water level = 15.25' 86.0 0.01' thick clay infilling bgs taken 6/30/06 at 12:30 R17NQ 100 0 1 ft 87.0 100% R-Scale performed after Bottom of Boring at 87.0 ft bgs on drilling on stored samples 6/29/06 11:17 90 176.3



PROJECT NUMBER:	BORING NUMBER:				
338884	BPA-45	SHEET	1	OF	6

SOIL BORING LOG

 PROJECT : PEC COLA, New Hill, NC
 LOCATION : (NAD 27) (686920.0 N, 2012313.3 E)

 ELEVATION : 265.9 ft MSL (NGVD 29)
 DRILLING CONTRACTOR : J. Little, S&ME

DRILLIN	G EQUIF	PMENT A	AND MET	THOD : BK-51, Tr		ORIENTATION : Vertical		
WATER	LEVELS	S: 14.5 ft	bgs		START: 8/3/06 13:12 END:	8/4/	06 12	
DEPTH B			GRADE (ft)	STANDARD	SOIL DESCRIPTION		၅၉	COMMENTS
	INTERV			PENETRATION TEST RESULTS	SOIL NAME LISCS CROLID SYMPOL COLOR		SYMBOLIC LOG	DEPTH OF CASING, DRILLING RATE,
		RECOVI	ERY (in)		SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR		30LI	DRILLING FLUID LOSS, TESTS, AND
			#TYPE	6"-6"-6" (N)	CONSISTENCY, SOIL STRUCTURE, MINERALOGY		SYMI	INSTRUMENTATION
265.9	0.0			(14)	→ Grass And Gravel		<i>3)</i> }}}	
-					_ \0.0-0.2' - fine to coarse gravel, angular	_/		-
-		10.0	SS1SS		Sandy Lean Clay (CL) 0 2-0 7' - reddish brown dry very stiff low to medium	Γ-		-
-	0.0			(24)	0.2-0.7' - reddish brown, dry, very stiff, low to medium plasticity, slow dilatancy, 25-30% very fine to medium	-		Very friable
-	2.0				sand, reworked native Lean Clay (CL)	- -		Drillers Remark: Moved over 4' North and began rock boring
-	2.5	3.0	SS2SS		\\0.7-0.8' - red, dry, hard, low to medium plasticity, slow	1/-	////	Soil sampling completed at 13:30 on 8/3/06
_	2.8			50/3 (50/3")	dilatancy, 10-15% very fine to fine sand Lean Clay (CL)	- إلا	1	
-				(30/3)	2.5-2.8' - red. drv. hard, low to medium plasticity, slow	-	1	-
_					dilatancy, 10-15% very fine to fine sand Begin Rock Coring at 2.8 ft bgs			-
5					See the next sheet for the rock core log	-	1	-
260.9							1	_
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PROJECT NUMBER:

338884

BPA-45

SHEET 2 OF 6

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686920.0 N, 2012313.3 E)

ELEVATION: 265.9 ft MSL (NGVD 29) DRILLING CONTRACTOR: J. Little, S&ME

CORING EQUIPMENT AND METHOD: BK-51, NQ Double Barrel ORIENTATION: Vertical WATER LEVELS: 14.5 ft bgs START: 8/3/06 13:12 END: 8/4/06 12:25 LOGGER: JS/LH DISCONTINUITIES LITHOLOGY COMMENTS 90 CORE RUN, LENGTH, AND RECOVERY (%) FRACTURES PER FOOT DESCRIPTION DEPTH AND ELEVATION BELOW SURFACE (ft) ROCK TYPE COLOR SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD SYMBOLIC MINERALOGY, TEXTURE RQD(%) DEPTH, TYPE, ORIENTATION, ROUGHNESS, WEATHERING, HARDNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS AND ROCK MASS DROPS, TEST RESULTS, ETC. CHARACTERISTICS 2.8' - Fracture, 10 deg, smooth, undulating, Siltstone Rock coring began on 2 At 2.8' - dark reddish brown, 20% green mottling, soft, 30% white R1: No time recorded R1NQ At 3.0': R-Scale = R2 inclusions 93* 2.5 ft 0 2.8-3.9' - moderately weathered At 4.1': R-Scale = R1 100% 3.9-5.3' - heavy green and purple mottling, moderately weathered, fine 260.9 5.3 0 grained with 10-15% very fine to fine R2: 14:35-14:44 5.4' - Fracture, horizontal, smooth, stepped sand. 5 5.3-10.3' - black mottling, very fine 5.6' - Fracture, 50 deg, smooth, undulating, grained, 5-10 % very fine sand, soft, 15% black stains At 6.2': R-Scale = R1-R2 5.8' - Fracture, 5 deg, smooth, undulating, 40% trace white inclusions, in first 0.3' 0 5.3-16.4' - fresh black stains 5.9' - Fracture, 10 deg, smooth, undulating, R2NQ 30-40% black stains 2 5 ft 98% 94 7.8-7.9' - Fractures (2), smooth, undulating, 25% black and gold stains At 8.6': R-Scale = R1-R2 0 0 10 255.9 10.3 R3: Began at 14:50 10.3-12.2' - trace black mottling, less 10+ red with depth, very soft with clay 10.7' - Fracture, 10 deg, smooth, undulating, seams <0.21' thick clay infilling 10.8-11.0' - clay seam, same color as At 11.5': R-Scale = R1-R2 10+ bedrock 11.8-11.9' - clay seam 12.2' - Fracture, horizontal, smooth. 12.0-12.1' - clay seam, 0.05' thick R3NQ undulating, 0.25 thick clay infilling 69 2 5 ft 12.8-15.3' - sand lenses, 10-30% very 12.5' - Fracture, 20 deg, smooth, undulating, fine to medium sand, subangular to 0.02' relief 12.8' - Fracture, 20 deg, rough, undulating, black stains, 0.01' relief, break in lense with up subrounded At 13.51 R-Scale = R2 2 At 14.0': R-Scale = R2 to 20% medium sand 14.3-15.1' - black and green mottling, 14.3-14.4' - Fractures, horizontal, hairline 0 very fine to fine grained, ~12.5-15.3' 15 partial fractures with white, green and black 250.9 15.3 5-10% very fine sand/ coarse silt mottling about 1-2 long 15.3-15.4' - alternating beds, grades R4:15:25-15:33 0 to sandstone lens 15.4-15.6' - 50% fine to medium to At 16.2': R-Scale = R2-R3 coarse sand 15.4-16.4' - 0-45% very fine to 0 medium sand, subangular to R4NQ subrounded 15.6-16.0' - 20% black mottling, 5 ft 98 0 At 17.9': R-Scale = R2-R3 99% siltstone Sandstone 1 16.4-17.0' - multi-colored, soft to hard, 18.7' - Fracture, 70 deg, rough, undulating, fine sand to coarse sand, subangular 0.02' relief to subrounded, fresh, well graded, gradational contact, 2 siltstone lenses At 19.5': R-Scale = R2-R3 0 20 245.9 20.3 Siltstone R5: 15:38-15:45 17.0-17.2' - dark reddish brown, green 20.4' - Fracture, horizontal, rough, undulating mottling, soft, fresh, 20% thready green mottling, 30% white inclusions 1 21.1-21.8' - Fracture, 70 deg, rough, undulating, yellow-orange stains in first 0.1', 1 then 95% black stains At 22.2': R-Scale = R2-R4 R5NQ



PROJECT NUMBER:

338884

BORING NUMBER:

BPA-45

SHEET 3 OF 6

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686920.0 N, 2012313.3 E)

ELEVATION: 265.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: J. Little, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

00111110	D EQUIT WEN	II AIN	D IVIL	HOD : BK-51, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS: 14	.5 ft b	ogs	START : 8/3/06 13:	12	END : 8/4/06 12:25	LOGGER : JS/LH
				DISCONTINUITIES)G	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
_	5 ft	100	0		1:::	_ Sandstone	
_	102%		0			At 17.2' - brown to dark reddish brown, soft to hard, laminated to medium bedding, fine sand to coarse sand, fresh, trace to 10% fine gravel, poorly	At 23.4': R-Scale = R2-R4
25 <u>2</u> 240.9	25.3		0	-		to well sorted At 21.2' - interbedded siltstone, sandstone, and conglomerate lenses,	At 25.0': R-Scale = R2-R4
_			10+	25.3-25.8' - Fracture zone, horizontal, smooth, undulating, dry	× × × × × ×	fine to coarse grained sand, fine gravel, subrounded to subangular Siltstone	R6: 16:20-16:30
_			0	220.2	× × × × × ×	At 25.8' - dark reddish brown, 15% - purple, green, and white mottling, fresh, very fine to fine grained, trace to	At 26.5': R-Scale = R2
_	R6NQ 5 ft 96%	92	2	27.3' - Fracture, horizontal, rough, undulating 28.0' - Fracture, horizontal, smooth, planar	× × × × × ×	15% very fine sand to coarse silt, soft	
			0		× × × × × ×	- -	At 28.9': R-Scale = R2
30			0	_	× × × ×	_	
235.9 - -	30.3		2	30.5' - Fracture, horizontal, smooth, planar 30.6' - Fracture, horizontal, smooth, planar	× × × × × ×	 30.3-46.1' - mottled greenish gray and reddish black, soft 	R7: 08:08-08:17 on 08/04/06
_			0		× × × × × ×	-	At 31.5': R-Scale = R2
_	R7NQ 5 ft 98%	91	0		× × × × × ×	-	
_			0		× ×	- 33.3-39.4' - trace medium sand to gravel sized white clasts	
35_ 230.9	25.2		0	_	× × × × × ×	-	_
230.9	33.3		0		× × × × × ×	-	R8: 08:23-08:32
-			0		× × × × × ×	-	
-	R8NQ 5 ft 99%	99	0		× × × × × ×	-	
-			0		× × × × × ×	_	
40_ 225.9	40.3		0	_	× × × × × ×	39.4-40.3' - highly mottled, very soft 40.3-41.5' - mottled olive	R9: 08:38-08:46
			0	0	× × × × × ×	-	
-	R9NQ		2	41.5' - Fracture, horizontal, rough, planar 41.8' - Fracture, horizontal, rough, undulating, black stains	X	41.5-51.8' - laminated bedding, laminated bedding 41.6-41.7' - clay seam, very soft, friable, some siltstone in it	
					××	made, some sitistone in it	

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PROJECT NUMBER:

338884

BPA-45

SHEET 4 OF 6

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686920.0 N, 2012313.3 E)

ELEVATION: 265.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: J. Little, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

WATER	R LEVELS: 14.5 ft bgs		gs	START : 8/3/06 13:	12	END: 8/4/06 12:25	LOGGER : JS/LH	
	(9)			DISCONTINUITIES	Ğ	LITHOLOGY	COMMENTS	
QZ €	Ä, AND 3Y (%	_	L KES	DESCRIPTION	СГО	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD	
		ď		THICKNESS, SURFACE STAINING, AND TIGHTNESS	SY	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.	
_	5 ft 100%	94	0		×××	41.8-43.3' - grades to sandstone	At 42.7': R-Scale = R2 _	
-			0			 Sandstone At 43.3' - dark reddish brown, soft, 	-	
-					1:::	fresh, sandstone lense, very fine	1	
45			0		1:::	 grained, subangular to subrounded, well sorted 	1	
220.9	45.3			_	1:::	_ ` ` ` ` ` ` ` `	P40: 00:40 00:47	
_			0		1:::	-	R10: 09:10-09:17 –	
]: :: :::	46.0-46.1' - grades to sandstone	1	
			0]:::	 46.1-54.2' - very dark gray, white, dark greenish gray, and pale red, soft to 		
	R10NQ				<u> </u> :::	hard, laminated to medium bedding, very fine sand to coarse sand, poorly		
_	5 ft 102%	100	0			sorted to well sorted	At 47.7': R-Scale = R2	
_	10276					46.1-47.7' - mottled dark reddish - brown		
_			0		 :::	46.4-48.7' - laminated bedding, laminated siltstone beds	_	
_						48.8-48.8' - shale bed, dark gray with	4	
50 <u> </u>	50.3		0	_	- ∷∷	20% sand	_	
-			0		- 1∷:	- 50.3-54.2' - begins to coarsen with	R11: 09:23-09:28 -	
_			U		1:::	_ depth	-	
-			0		∃ ∷:	_	At 51.5': R-Scale = R1	
-					:::	-	1	
_	R11NQ 5 ft	98	0	•	 :::	=		
	98%]::::		1	
			0]:::	_		
				54.2' - Contact between siltstone and	× × × ×	Siltstone	<u> </u>	
55	55.0		0	sandstone, 30 deg, smooth, undulating, tightly healed —	-l× ×	At 54.2' - dark reddish brown, mottled greenish gray and reddish black, soft,	_	
210.9	55.3		~~		× × × ×	_ fresh, laminated, fine grained	R12: 10:03-10:11	
_			0		× × × ×	sandstone beds alternating and on a 30-60 degree angle	_	
-					X X	-	_	
-			0		××	-	-	
-	R12NQ 5 ft	89	0		× × × ×	-	-	
-	100%	09	Ů		× ×	-	At 58.0' R-Scale = R1	
-			0		× ×	-	(performed at later date) -	
-					× × × ×	-	1	
60			2	FO. O. Frankura 40 dan resulta serial delete	× ×	59.5-60.3' - gravel sized white clasts	1	
205.9	60.3			59.8' - Fracture, 10 deg, rough, undulating, — black stains	× ×	- 60.3-70.3' - almost completely mottled	R13: 10:17-10:26	
			2	60.1' - Fracture, 10 deg, rough, slickensided, black stains	× × × ×	reddish black	11.10. 10.17-10.20	
				60.4' - Fracture, horizontal, rough, undulating	× × × × × × × × × ×	_]	
_			0	60.5' - Fracture, 30 deg, rough, undulating	X X	_		
_	R13NQ				× × × ×	-		
					 			

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PROJECT NUMBER:	BORING NUMBER:					
338884	BPA-45	SHEET	5	OF	6	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686920.0 N, 2012313.3 E)

ELEVATION: 265.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: J. Little, S&ME

CORING EQUIPMENT AND METHOD: BK-51, NQ Double Barrel ORIENTATION: Vertical

				HOD : BK-51, NQ Double Barrel	40	END 044/00 40 05	ORIENTATION : Vertical
WATER	LEVELS : 14	1.5 ft t	ogs	START : 8/3/06 13: DISCONTINUITIES	1	END : 8/4/06 12:25 LITHOLOGY	LOGGER : JS/LH COMMENTS
o ₇ €	ي اي اي		Ø	DESCRIPTION	LOG	POOK TYPE OCIOS	OOWNVILINIO
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
_	5 ft 100%	96	0		× :	*	At 62.9': R-Scale = R3-R4
-	10070		0		× : × : × :	} -	(performed at later date) -
65_ 200.9	65.3		0	-	× : × : × :	_	-
-	00.0		0		×	<u></u>	R14: 11:30-11:40 -
-			0		×		-
-	R14NQ 5 ft	100	0		× : × : × :	X -	- At 67.7' R-Scale = R2-R3
-	102%		0		×		(performed at later date)
70			0	-	× : × : × : × :		_
195.9	70.3		0		×	70.3-73.3' - trace very fine to fine sand	R15: 11:46-11:51 -
-			0		X	-	-
-	R15NQ 5 ft	99	0		× : × : × :		At 72.2' R-Scale = R3-R4 (performed at later date)
-	99%		0		- × ; - × ; - : : :	Sandstone 73.3-76.3' - dark reddish gray and	SC-1 collected - 73.3-74.2'
- - 75			0			white, soft to hard, very fine sand to coarse sand, fresh, finer grained beds and coarser grained beds, siltstone	-
190.9	75.3		0	-		lenses in coarser material, beds on 20 degree angle	R16: 12:00-12:07
-			3	76.3' - Contact between siltstone and sandstone, horizontal, rough, undulating,	× :	Siltstone 76.3-85.3' - dark reddish brown.	At 76.2' R-Scale = R4 (performed at later date)
-	R16NQ 5 ft	93	0	tightly healed 76.4' - Fractures (2), horizontal and 20 deg, smooth, undulating	×	mottled greenish gray and reddish black, soft, fresh 76.3-78.7' - gravel sized white clasts	At 77.0' R-Scale = R2-R3 (performed at later date)
-	100%		0	76.6' - Fracture, horizontal, rough, undulating	× :	3-2-1-1 G-2-1 G-2-	-
-					× :	-	-
80 <u> </u>	80.3		0	<u>-</u>	× :	-	R17: 12:14-12:25 -
-			0		× : × : - × :		-
-	R17NQ		0		× : × : × : × :	<u>}</u>	At 81.6' R-Scale = R2-R3 (performed at later date)
					× :		

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PROJECT NUMBER:	BORING NUMBER:					
338884	BPA-45	SHEET	6	OF	6	

 PROJECT : PEC COLA, New Hill, NC
 LOCATION : (NAD 27) (686920.0 N, 2012313.3 E)

 ELEVATION : 265.9 ft MSL (NGVD 29)
 DRILLING CONTRACTOR : J. Little, S&ME

CORING EQUIPMENT AND METHOD: BK-51, NQ Double Barrel ORIENTATION: Vertical WATER LEVELS: 14.5 ft bgs START: 8/3/06 13:12 END: 8/4/06 12:25 LOGGER: JS/LH DISCONTINUITIES LITHOLOGY COMMENTS CORE RUN, LENGTH, AND RECOVERY (%) DEPTH AND ELEVATION BELOW SURFACE (ft) FRACTURES PER FOOT **DESCRIPTION** ROCK TYPE, COLOR, SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD SYMBOLIC MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS RQD(%) DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS DROPS, TEST RESULTS, ETC. CHARACTERISTICS First water level = 14.5' bgs 104% taken 8/4/06 at 16:20; second water level = 11.4' 0 bgs taken 8/7/06 at 09:45 R-Scale performed during rock core logging 85 0 180.9 85.3 Total depth was adjusted for Bottom of Boring at 85.3 ft bgs on Recovery for last core run 8/4/06 12:25 90 175.9 95 170.9 100 165.9



PROJECT NUMBER:	BORING NUMBER:
338884	BPA-46

SOIL BORING LOG

SHEET 1 OF 5

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687760.6 N, 2011923.3 E)

ELEVATION: 268.0 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

DRILLING EQUIPMENT AND METHOD: CME-750, 2-15/16 Tricone Bit, 24" Split Spoon, and 140 lb. Automatic Hammer ORIENTATION: Vertical

WATER				TIOD . CIVIL-130	, 2-15/16 Tricone Bit, 24" Split Spoon, and 140 lb. Automatic Hammer ORIENTATION : Vertical START : 8/7/06 08:58 END : 8/8/06 16:24 LOGGER : AT/EM/LH
			RADE (ft)	074110400	SOIL DESCRIPTION COMMENTS
[INTERV		(.1)	STANDARD PENETRATION	
			ERY (in)	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,
		KLCOVI	#TYPE	6"-6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY
268.0 - - - -	2.0	8.4	SS1SS		Sandy Silt (ML) 0.0-0.4' - brown, dry to moist, soft, 40% very fine to fine sand Clay (CL) 0.4-0.7' - brownish yellow, dry to moist, soft, low to medium plasticity, slow to rapid dilatancy
- - - -	2.5	15.0	SS2SS	2-5-13-26 (18)	Clay (CL) 2.5-2.8' - brownish yellow, moist, soft, low to medium plasticity, slow to rapid dilatancy Clay (CL) 2.5-3.8' - reddish brown, mottled green and purple, dry to moist, stiff to very stiff, low to medium plasticity, slow
5263.0 - - -	5.0 7.0	10.2	SS3SS	36-50/5 (50/5")	to rapid dilatancy Clay (CL) 5.0-5.9' - reddish brown, mottled green and purple, dry to moist, hard, low to medium plasticity, slow to rapid dilatancy
- - -	7.5 9.5	6.0	SS4SS	50 (50")	Silty Sand (SM) 7.5-8.1' - very dark gray, dry to moist, hard, 30% silt; black organics throughout sample
10 258.0 - - -	10.0	13.2	SS5SS	22-25-50/3.75 (75/9.75")	Clay (CL) 10.0-11.1' - brownish yellow, moist, hard, low to medium plasticity, slow to rapid dilatancy
- - - -	12.5 14.5	3.5	SS6SS	50/3.5 (50/3.5")	Clay (CL) 12.5-12.9' - brownish yellow, moist to dry, hard, low to medium plasticity, slow to rapid dilatancy
15_ 253.0 · - - - - - - -	_15.0 _15.2 ∫	2.0	<u>SS7SS</u>	50/2 (50/2")	Clay (CL) 15.0-15.2' - brownish yellow, dry to moist, hard, low to medium plasticity, slow to rapid dilatancy Begin Rock Coring at 15.2 ft bgs See the next sheet for the rock core log
20_					

2BB-285 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BPA-46

SHEET 2 OF 5

ROCK CORE LOG

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687760.6 N, 2011923.3 E)

ELEVATION: 268.0 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, NQ Double Barrel

			<u> </u>	THOD : CIVIL-730, INQ DOUBLE Ballel			ONENTATION: Vertical
WATER	LEVELS: 19	9.8 ft b	gs	START : 8/7/06 08:	58	END: 8/8/06 16:24	LOGGER : AT/EM/LH
				DISCONTINUITIES	O	LITHOLOGY	COMMENTS
o ⊋ €	CORE RUN, LENGTH, AND RECOVERY (%)		Ø	DESCRIPTION	SYMBOLIC LOG	BOOK TYPE COLOR	
DEPTH AND ELEVATION BELOW SURFACE (ft)	N A K	(%)	FRACTURES PER FOOT	220.111111	윽	ROCK TYPE, COLOR, MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING,
E S S S	E STE	(%) _Q	F.O.	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	l l	WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
교리의문	RNI	Ø	RA(PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	≥	AND ROCK MASS CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
ОШВО		ď	ΗΔ	THORASO, CONTROL OF MINING, 7 MAD THORTHALOO			
-	15.2		1		×	Siltstone	Rock coring began at 12:58 _
_			'	15.6' - Fracture, horizontal, smooth, planar,	×	At 15.2' - dark reddish brown, mottled green and purple, soft to hard, fresh to	on 8/7/06
				black stains	×	slightly weathered, 15% very fine to	R1: No time recorded on
			1		×	fine sand; black thin linear features	08/07/06. –
-	DANO				×	X- (organics)	-
-	R1NQ 4.8 ft	64	0		×	2 15.6-15.8' - clay seam	-
_	94%	04	U		×	<u>A</u> _	_
					×	X	At 18.1': R-Scale = R1
-			0		×	*	(performed at later date)
-					×	}	-
_			0		- × :	1	_
20	20.0		$\times\!\!\times\!\!\times$		×	X	
248.0					×	20.0-23.4' - mottled reddish black,	R2: 08:50-08:59 on
-			1	20.6' - Fracture, horizontal, smooth, planar	× :	very soft, laminated bedding	08/08/06.
-					× ×	% -	-
l -			1	21.1' - Fracture, horizontal, smooth, undulating	×	%	_
			ı i		×	3	At 21.6': R-Scale = R2
_	R2NQ			22.1-22.3' - Fracture, 60 deg, rough,	×	% T	_
-	5 ft	100	1	undulating	×:	X t	-
_	103%				×	<u>}</u>	-
I _			2	23.1' - Fracture (2), horizontal and 45 deg,		2 2 2 2 4 4 2 2 2	_
				rough, undulating, black stains 23.4' - Contact between siltstone and	:::	Sandstone 23.4-27.6' - white, very dark gray, and	
-				sandstone, horizontal and 45 deg, rough,	1:::	dark greenish gray, very soft,	_
-			1	undulating, black stains	-{∷∷	laminated to medium bedding, very	-
25	25.0		XXX	24.6' - Fracture, horizontal, rough, planar,	↓ ∷∶	fine sand to medium sand, subangular	
243.0			0	beginning of top of siltstone lens in sandstone	:::	to subrounded, poorly sorted, fresh to	R3: 09:07-09:15
-			U		1:::	slightly weathered, stained dark reddish brown in bands on 20-50	
-					1∷ ∶	degree angles and horizontal, 0-40%	At 26.0': R-Scale = R1
-			0		- ::::	silt/clay	
l _					_]∷∷	24.6-24.9' - mottled greenish gray,	_
	R3NQ					siltstone lense	
-	5 ft 104%	49	1	27.6' - Contact between siltstone and	×	26.1' - 40-60% silt/clay and greenish	7
-	10470			sandstone, 20 deg, smooth, planar	×:	gray beds/banding on 20-30 degree	-
l -			1		×	× Siltstone	_
					×	At 27.5' - greenish gray, yellowish	
I -					×	brown, dark reddish brown, very soft,	1
20	000		2	29.3' - Fracture, horizontal, rough, undulating,	× i	> some laminated beds	7
30 238.0	30.0		XXX	black stains 29.6' - Fracture, 10 deg, rough, planar	×	27.6-30.0' - highly weathered	R4: 09:24-09:36
			2		××	28.7-29.0' - clay seam 29.2-29.4' - hard	117. 03.24-03.30
			_	30.5' - Fracture, 10 deg, rough, undulating 30.8' - Fracture, horizontal, smooth, undulating	×	29.6-32.1' - 0-20% very fine sand	
				50.6 - Fracture, horizontal, shibbin, undulating	٦× :	30.0-35.0' - mottled reddish black,	7
-			0		×	very soft to soft, fresh, no laminations	-
-	DANO				×	¾ -	-
1 -	R4NQ 5 ft	95	2	32.3-32.4' - Fracture (2), 20 deg, rough, planar	×	*L	_
	98%		-	, build	×	<u></u>	
-					- X	≆	-
-			0		×:	≱ -	-
I -					×	<u></u>	_
			0		× :	<u>A</u>	A 04 4 D 0 1 D0
35	35.0		U		×	X	At 34.4': R-Scale = R3
	50.0		$\overline{}$		×	*	

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PROJECT NUMBER:	BORING NUMBER:					
338884	BPA-46	SHEET	3	OF	5	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687760.6 N, 2011923.3 E)

ELEVATION: 268.0 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, NQ Double Barrel ORIENTATION : Vertical

COMING	LQOII WEN	IIAN	DIVIL	THOD : CME-750, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS : 19	9.8 ft b	ogs	START : 8/7/06 08:5	5 <u>8</u>	END : 8/8/06 16:24	LOGGER : AT/EM/LH
	(%			DISCONTINUITIES	26	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
-			0		× > × > × >	35.0-36.8' - very dark gray, soft, fresh, 0-40% very fine to medium sand, coarsens with depth, banded	R5: 09:49-09:58 _
- -	R5NQ 5 ft	99	0	36.8' - Contact between siltstone and sandstone, 30 deg, rough, undulating	× > × . : - : : :	Sandstone 36.8-41.4' - very dark gray, white, and pink, soft to hard, very fine sand to	- - -
-	101%		0			medium sand, angular to subrounded, well sorted, fresh, coarsens with depth 36.8-38.4' - 0-30% silt	- At 38.6': R-Scale = R2
40_ 228.0	40.0		1	39.2-39.4' - Fracture, 60 deg, rough, undulating, brown stains		- 40.0-41.4' - beds on 20 degree angle	- R6: 10:12-10:23
-			0			- 41.0' - laminated, black, shale bed	-
- -	R6NQ 5 ft	96	3	41.4' - Contact between siltstone and sandstone, 20 deg, rough, undulating, black stains 41.5' - Fracture, 20 deg, smooth, planar	× > × > × > × >	41.1' - laminated, black, shale bed Shale 41.4-41.6' - greenish gray, very soft, laminated bedding, fresh, 20 degree	- -
_	102%		0	41.9-42.3' - Fractures (4), rough, undulating, light brown stains and silt, (2) horizontal, (1) 70 deg, (1) 60 deg	× > × > × > × >	Siltstone 41.6-45.3' - dark reddish brown, mottled greenish gray and reddish	- - At 43.8': R-Scale = R3
45_ 223.0	45.0		0	-	× > × > × > × >	black, very soft to soft, fresh 42.3-45.0' - 0-10% very fine to fine sand	
_			0		-	Sandstone 45.3-52.0' - dark greenish gray and white, soft to hard, laminated to medium bedding, very fine sand to	- - - - At 46.2': R-Scale = R3
_	R7NQ 5 ft	99	0			coarse sand, angular to subrounded, fresh, poorly sorted to well sorted 45.3-45.8' - stained dark reddish	-
_	99%		1	48.1' - Fracture, 10 deg, smooth, planar		brown 47.6-48.1' - beds on 20 degree angle; 0-10% fine gravel 48.1-48.2' - siltstone lens (0.07' thick)	-
50 218.0	50.0		0	-		48.7-50.0' - stained dark reddish brown 49.4-49.9' - trace gravel 49.5' - gravel sized siltstone clast that	SC-1 collected 48.1-49.2'
-			2	51.0' - Fracture, 10 deg, rough, undulating 51.3' - Fracture, horizontal, rough, undulating	 	is red and black 50.0' - becomes finer with depth	-
-	R8NQ 5 ft	56	4	52.0-52.1' - Contact between siltstone and sandstone, horizontal, rough, undulating, clay	× > × > × >	Siltstone 52.0-54.2' - dark greenish gray, very	At 52.3': R-Scale = R3-R3.5
_	91%		2	is very soft, friable, 0.05' thick 52.5' - Fracture, 20 deg, smooth, undulating 52.7' - Fracture, 20 deg, smooth, undulating 53.0' - Fracture, 20 deg, slickensided,	× × × × × × × × × × × × × × × × × × ×	dark gray and gray, soft, laminated bedding 52.0-53.1' - fresh 53.1-54.2' - highly weathered	-
55	55.0		1	undulating 53.6-53.9 - Fracture (2), vertical and 20 deg, smooth, undulating, vertical is tightly healed	× > × > × >	53.1-53.6' - clay seam, siltstone alternating, very soft, friable, 0.5' thick	

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PROJECT NUMBER:

338884

BPA-46

SHEET 4 OF 5

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687760.6 N, 2011923.3 E)

ELEVATION: 268.0 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS : 19	9.8 ft b	ogs	START : 8/7/06 08:	58	END : 8/8/06 16:24	LOGGER : AT/EM/LH
	<u> </u>			DISCONTINUITIES	စ္က	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
		_	3	54.2' - Contact between siltstones, 30 deg, rough, undulating	× ×	Siltstone At 54.2' - dark reddish brown, soft,	R9: 12:55-13:10
-			0	55.2' - Fracture, horizontal, smooth, planar 55.5' - Fractures (2), horizontal, smooth, planar	- × × - × × - × ×	fresh 54.2-55.5' - mottled olive	-
-	R9NQ 5 ft 99%	89	0		- × × - × × - × ×	_ _	-
-			0		- × × - × × - × ×	58.4-60.0' - mottled greenish gray, long (0.08') white clasts (0.01' thick)	At 58.2': R-Scale = R2
60_	60.0		0		× × × × × ×		-
208.0			0	60.0-60.2' - Fracture, 60 deg, rough, undulating, tightly healed		60.0-81.0' - mottled greenish gray and reddish black, very soft to soft, very fine grained with high clay sized particle content, shaley	R10: 13:22-13:43 -
-	R10NQ		0		- × × - × × - × ×	- 60.0-60.5' - very fine to fine sand seam	-
-	5 ft 101%	100	0		- × × - × × - × ×	62.3-62.9' - fine gravel to coarse sand sized reddish black clasts 62.9-65.0' - laminated bedding	At 62.6': R-Scale = R1
_			0		× × × × × ×	-	-
65_ 203.0	65.0		0	-	× × × × × ×		R11: 13:57-14:23
-			1	65.4-65.7' - Fracture, 60 deg, smooth, undulating, greenish gray and black stains	- × × - × × - × ×	_	-
_	R11NQ	95	0		× × × × × ×	C7 4 70 01 - realthed allice	At 66.7': R-Scale = R2-R3 _
-	5 ft 97%	95	2		- × × - × × - × ×	- 67.4-70.0' - mottled olive	
-			2	68.8' - Fractures (2), horizontal and 45 deg, smooth, planar 69.3' - Fracture, horizontal, rough, planar	× × × × × × × ×	_	_
70 198.0 -	70.0		1	69.8' - Fracture, 20 deg, rough, undulating	× × × × × ×	70.0-71.0' - laminated bedding	R12: 14:33-14:53
-			10+	71.0' - Fracture, horizontal, rough, undulating 71.1-71.2' - Fracture zone, smooth, undulating, black stains	- × × × × × × × × × × ×	71.0-71.1' - clay seam, very soft, 0.05' thick	Driller's remark - lost about 5-8 gallons per foot
_	R12NQ 5 ft 95%	90	0		- × × × × - × ×		
-			0		- × × - × × - × ×		At 73.6': R-Scale = R3
75	75.0		0	_	× × × × × ×	_	SC-2 collected 70.0-71.0' -

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PROJECT NUMBER:	BORING NUMBER:			
338884	RPA-46	SHEET	5 OF	5

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (687760.6 N, 2011923.3 E)

ELEVATION: 268.0 ft MSL (NGVD 29) DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, NQ Double Barrel ORIENTATION : Vertical WATER LEVELS: 19.8 ft bgs START: 8/7/06 08:58 END: 8/8/06 16:24 LOGGER : AT/EM/LH

WAILIN	LEVELS: 19	J. Β Π C	gs	START : 8/7/06 08:	58	END: 8/8/06 16:24	LOGGER : AT/EM/LH
	(9)		DISCONTINUITIES		U	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
			0		- × >	75.0-81.0' - soft	R13: 15:10-15:28
-			0	76.1-76.5' - Fracture, 70 deg, rough, undulating	- × × - × × - × ×	-	
-	R13NQ 5 ft 100%	100	0		- × × × × × × × × × × × × × × × × × × ×	-	At 77.6': R-Scale = R3
	80.0		1	78.9' - Fracture, horizontal, rough, planar, few black stains 79.2' - Fracture, horizontal, rough, planar, few black stains —	- × × × × × × × × × × × × × × × × × × ×	-	- -
188.0 - -			0	DIACK Stall IS	× > × > × > × >	-	R14: 15:38-16:05
-	R14NQ		0		- × > - × - > - : : :	81.0-81.6' - grades to sandstone Sandstone 81.6-85.7' - very dark gray and white,	
-	5 ft 108%	100	0	83.0-83.2' - Fracture, 60 deg, rough, undulating	- - - - - - - -	soft to hard, thin to medium bedding, very fine sand to medium sand, subrounded to rounded, well sorted 81.6-85.0' - fresh 81.6-82.8' - stained dark reddish	At 82.4': R-Scale = R4
- - 85	85.0		0	_		brown 83.3-84.8' - siltstone lense	R15: 16:16-16:24
183. 0	R15NQ 2 ft		₩ 	_	- : : : - : : : - × >	85.0-85.7' - moderately weathered, red laminated beds on irregular angles Siltstone	First water level = 19.8' bgs taken 8/10/06 at 11:59
-	115% 87.0		10+ XXX	86.3-86.4' - Fracture zone, smooth, undulating 86.6' - Fracture, 20 deg, rough, undulating	- × > × >	85.7-86.3' - dark greenish gray, very dark gray and gray, soft, moderately weathered Siltstone	R-Scale performed during rock core logging
-					- - - -	86.3-87.0' - dark reddish brown, mottled greenish gray and olive, soft, moderately weathered Bottom of Boring at 87.0 ft bgs on 8/8/06 16:24	
90 178.0 -				_	- - - -	- -	
-					- - -	- - -	
-						- - -	
95				_		_	



PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-47	SHEET 1 OF 12

SOIL BORING LOG

 PROJECT : PEC COLA, New Hill, NC
 LOCATION : (NAD 27) (687003.1 N, 2012367.5 E)

 ELEVATION : 264.5 ft MSL (NGVD 29)
 DRILLING CONTRACTOR : Duggan, Trigon Engineering

DRILLING EQUIPMENT AND METHOD: B-57, Tricone Bit, 24 Split Spoon, 140 lb. Automatic Hammer ORIENTATION: Vertical

DRILLIN	RILLING EQUIPMENT AND METHOD: B-57, Tricone Bit, 24 Split Spoon, 140 lb. Automatic Hammer ORIENTATION: Vertical										
WATER	LEVELS	S :			START: 12/8/06 08:20	END : 12/	14/06	10:03 LOGGER : EM/JS			
DEPTH E	BELOW EX	KISTING C	RADE (ft)	STANDARD	SOIL DESCRIPTION			COMMENTS			
1	INTERV	AL (ft)		STANDARD PENETRATION TEST RESULTS			SYMBOLIC LOG				
		RECOV	ERY (in)	TEST NESOLIS	SOIL NAME, USCS GROUP SYMBOL, COLO MOISTURE CONTENT, RELATIVE DENSITY	OR,	ZLIC	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND			
			#TYPE	6"-6"-6"	CONSISTENCY, SOIL STRUCTURE, MINERAL	LOGY	MB	INSTRUMENTATION			
				(N)			λ				
264.5 - -						-		- -			
- - -						- - - -	-	- - - -			
-	3.8				Sandy Silt (ML) 3.8-4.2' - reddish brown, greenish gray mottling,	dry to		-			
5_		4.0	SS1SS	50/4 (50/4")	moist, hard, low to medium plasticity	/_					
259.5 - -	5.8			(00/4)		-		Soil sampling completed at 09:45 on 12/8/06			
-	6.3 \ 6.5 <i>[</i>	3.0	SS2SS	50/0	Sandy Silt (ML)	Г	ш				
-	0.5			50/3 (50/3")	6.3-6.5' - reddish brown, greenish gray mottling, moist, very hard, low to medium plasticity	dry to /	\mathbf{I}	-			
-					Begin Rock Coring at 6.5 ft bgs		\blacksquare	-			
-					See the next sheet for the rock core log	-	┨	-			
-						-	┨	-			
-						-	┨	-			
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10 <u> </u>						_	┨				
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PROJECT NUMBER:

338884

BORING NUMBER:

BPA-47

SHEET 2 OF 12

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687003.1 N, 2012367.5 E)

ELEVATION: 264.5 ft MSL (NGVD 29)

DRILLING CONTRACTOR: Duggan, Trigon Engineering

CORING EQUIPMENT AND METHOD : B-57, HQ Double Barrel ORIENTATION : Vertical

CORING	EQUIPMEN	II AN	D ME1	THOD : B-57, HQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS:			START : 12/8/06 08	:20	END : 12/14/06 10:03	LOGGER : EM/JS
	(9			DISCONTINUITIES	ტ	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
- - - - 10 254.5	6.5 R1HQ 7.0 0.5 ft 150% R2HQ 5 ft 96%	80	1 1 3 2	6.6' - Fracture, horizontal, rough, undulating, 0.0003' relief 7.0' - Fracture, 40 deg, rough, undulating 7.9' - Fracture, horizontal, rough, planar 8.0' - Fracture, 85 deg, crack does not go all the way through ~0.0003' thick, 0.3' long 8.4' - Fracture, horizontal, rough, undulating 8.9' - Fracture, horizontal, rough, undulating 9.0' - Fracture, horizontal, rough, undulating 9.1' - Fracture, horizontal, rough, undulating 9.3' - Fracture, horizontal, rough, undulating	× × × × × × × × × × × × × × × × × × ×	Siltstone At 6.5' - dark reddish brown, trace green mottling, very soft to soft, slightly weathered, very fine to fine grained, 5-10% very fine sand 7.0-10.0' - up to 25% fine sand 8.6' - large pinkish white clasts, up to 0.1' thick 9.0-12.0' - small clasts up to 0.02' thick	Rock coring began at 10:15 on 12/8/06 R1: No time recorded on 12/8/06 At 6.6': R-Scale = R2 At 6.9': R-Scale = R2 R2: 11:00-11:28 At 9.9': R-Scale = R3
-	12.0	\mid	2	11.3' - Fracture, 10 deg, rough, undulating 11.4' - Fracture, horizontal, rough, undulating	× × × × × × × ×	10.5' - 0.1' thick dark bluish gray clast 11.5' - large pinkish white clasts, up to 0.1' thick	At 11.0': R-Scale = R3.5-R4
-			0	12.8' - Fracture, rough, undulating, loose fit	× × × × × × × × × ×	11.9' - large pinkish white clasts, up to 0.1' thick 12.0-17.0' - reddish brown 12.0-15.0' - trace white clasts up to 1	R3: 12:17-12:41
15 249.5	R3HQ 5 ft 100%	94	1	15.0' - Fracture, rough, undulating, black staining 15.6' - Fracture, horizontal and 5 deg, smooth,	× × × × × × × × × × × × × × × × × × ×	- - - -	At 14.2': R-Scale = R3
-	17.0		1	undulating, <0.0002' thick clay infilling 16.9' - Fracture, 60 deg, rough, undulating,	× × × × × ×	-	At 16.4': R-Scale = R3 R4: 12:56-13:13
20244.5	R4HQ 5 ft 104% 22.0	70	0 3 2 10+ 2	<0.0002' thick white infilling, black staining 18.7-18.8' - Fracture zone, horizontal, smooth, undulating, 0.03' thick clay infilling 19.5' - Fracture, 10 deg, smooth, undulating, 0.03' thick clay infilling 19.8' - Fracture, 60 deg, smooth, undulating, black & yellow stains 20.1' - Fracture, 40 deg, smooth, undulating, <0.0001' thick white infilling, black stains 20.5-21.4' - Fracture zone, horizontal and 80.40 deg, rough, undulating, black stains,	- X X X X X X X X X X X X X X X X X X X	17.0-18.7' - 15% very fine sand 19.5-22.0' - 10-15% very fine sand	SC-12 collected 17.0-18.05' At 17.8': R-Scale = R2 At 18.1': R-Scale = R3
- - - 25 239.5 - -	R5HQ 5 ft 97%	55	3 2 4	smooth to rough, some with white clay coating (<0.0002'), ~0.1'-0.3' brown clay infill mixed with rock fragments 22.3' - Fracture, horizontal, smooth, undulating, 0.01' thick clay infilling, loose fit 22.5' - Fracture, 20 deg, rough, undulating, black stains, tight fit 23.3-23.4' - Fractures, horizontal, smooth, undulating, 0.01' thick clay infilling, loose fit 24.4' - Fracture, horizontal, rough, undulating, <0.0002' thick clay infilling, smooth & stepped at contact (upper side)	× × × × × × × × × × × × × × × × × × ×	22.0-22.3' - 35% fine sand Conglomerate 22.3-24.4' - dark reddish gray, slightly weathered, multicolored grains, medium sand to medium gravel, rounded to subrounded, silt matrix, hard; many scattered siltstone clasts 23.3-23.5' - siltstone lens	At 22.0': R-Scale = R3 R5: 13:24-13:53 At 23.9': R-Scale = R3 At 25.7': R-Scale = R4

2BB-291 Rev. 1



PROJECT NUMBER: BORING NUMBER: 338884

BPA-47

SHEET 3 OF 12

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (687003.1 N, 2012367.5 E)

ELEVATION: 264.5 ft MSL (NGVD 29) DRILLING CONTRACTOR: Duggan, Trigon Engineering

CORING EQUIPMENT AND METHOD : B-57, HQ Double Barrel ORIENTATION: Vertical

			DIVIE	HOD : B-57, HQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS :			START : 12/8/06 08 DISCONTINUITIES	:20 	END : 12/14/06 10:03 LITHOLOGY	LOGGER : EM/JS COMMENTS
- □	(%)		<i>(</i> 0		.0G		COMMENTS
AND ION SE (ft)	tUN, 4, AN	(%	JRES OT	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING,
VAT OW SFA(RE RIGIT	R Q D (%)	CTC	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	/BO	WEATHERING, HARDNESS, AND ROCK MASS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	A Q	FRACTURES PER FOOT	THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYN	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
	27.0		5	24.8' - Fracture, horizontal, smooth, stepped,	× ×	Siltstone	
_	27.0		XXX	<0.02' thick clay infilling, 0.05' relief (likely with in weak zone)	× ×	24.4-25.1' - dark reddish brown, very soft to soft, slightly weathered, very	R6: 14:08-14:45
_			5	25.1' - Fracture, horizontal, smooth, stepped,	× × × ×	fine to fine grained, one fine to	SC-1 collected
-				<0.01' thick clay infilling, bedrock fragments to 1/2 in size	$\mathbf{I} \times \mathbf{X}$	medium irregular sandstone lens 1	27.5-28.4'
_			0	25.3' - Fracture, 80 deg, rough, undulating,	× × × ×	24.8-25.1' - clayey lenses	At 28.4': R-Scale = R3 At 28.5': R-Scale = R2
_	R6HQ			black stains, 0.0007 relief 25.9' - Fracture, horizontal, smooth,	TŶ X	Sandstone	Al 20.5 . K-30ale - K2
	5 ft 95%	76*	2	undulating, <0.0001' thick clay infilling, loose	××	25.1-26.7' - dusky red, hard, slightly weathered, very fine to fine grained,	-
30 <u> </u>	95%			fit	× × × ×	10-20% silt	
-			2	26.7-26.9' - Fractures (3), horizontal, smooth,	$I \times X$	L Siltstone At 26.7' - dark reddish brown, very soft	-
-			$\vdash \vdash \vdash$	undulating, little relief 27.5' - Fractures, horizontal, smooth,	× × × ×	to soft, very fine to fine grained	_ At 31.1': R-Scale = R2
-			0	undulating	× × × ×	26.7-27.0' - slightly weathered 27.0-29.4' - green mottling,	At 31.3': R-Scale = R2
-	32.0		XXX	29.4' - Fracture, horizontal and 5 deg, loose fit	- x x	moderately weathered, harder with	R7: No time recorded
-			0	30.0' - Fracture, horizontal, rough, undulating, 0.0009' relief, loose	× ×	depth, 0-15% very fine sand Conglomerate	-
-				30.1' - Fracture, 10 deg, smooth, undulating, loose fit	× ×	29.4-29.6' - soft, subrounded to	At 32.9': R-Scale = R2
-			0	30.4' - Fracture, horizontal, smooth, planar	× ×	rounded, moderately weathered,	-
_	DZLIO			, , , , , ,	× ×	multicolored grains, siltstone matrix; 20-25% fine to coarse sand	At 33.9': R-Scale = R3
_	R7HQ 5 ft	92	2		××	Siltstone	-
35 <u> </u>	106%			34.7-34.9' - Fractures (3), horizontal and 5	× × × ×	At 29.6' - dark reddish brown, green mottling, very soft to soft, very fine to	_
			0	deg, middle break at 5 deg. and has clay coating, <0.0002' thick, loose	× ×	 fine grained; trace very fine sand 	_
_					x x	29.6-30.4' - moderately weathered 29.6-31.8' - trace white clasts to 1/2	_
_			4	36.5' - Fracture, 70 deg, rough, undulating,	X X	_ 29.7-29.9' - large clast	-
_	37.0			tight fit	$\mathbf{I} \times \mathbf{x}$	30.4-51.0' - fresh 32.0-37.0' - soft, fine sand increase to	-
_			$\underset{1}{\boxtimes}$	36.7' - Fracture, horizontal and 5 deg, rough,	× × × ×	10-15% in last 2'	R8: 08:24-08:51 on 12/9/2006 -
_				undulating, tight fit 37.0' - Fracture, horizontal and 5 deg, rough,	× × × ×	37.0-42.0' - dark reddish brown, trace purple and green mottling, soft, darker	-
_			1	undulating	× × × ×	with depth; very fine sand increases	_
_			·	37.2' - Fracture, horizontal and 5 deg, rough, undulating	lx x	with depth from 5-10% to 20%; scattered white irregular clasts to 3/8	_
	R8HQ 5 ft	100	0	37.8' - Fracture, horizontal, smooth, undulating	×××	with 5-10%, most in the last 2'	_
40	100%	100	Ŭ	38.8' - Fracture, horizontal and 5 deg, rough, undulating, tight fit	× ×		
224.5			0		Îx x		_
			١		××	1	
			0		× ×	1_	At 41.0': R-Scale = R3
	42.0				× × × ×	1	At 41.5': R-Scale = R3
			0		\times \times	42.0-47.0' - trace purple and green	R9: 09:13-09:48
]			_		× ×	mottling 42.0-42.6' - 20-25% very fine sand	At 42.7': R-Scale = R2-R3
			4	42.4.42.41 Freetures I	× × × ×	with 0.2-0.3' thick very fine to fine irregular sand lens, light gray	Driller Remark: bit plugging
			4	43.4-43.4' - Fractures, horizontal, smooth, undulating	\times \times	42.6-46.0' - trace sand	up, mostly in last 2-3' At 43.0': R-Scale = R2-R3
	R9HQ	70	2	43.7' - Fracture, horizontal, smooth, planar	× × × ×		
45	5 ft 100%	70	3	43.9' - Fracture, horizontal, smooth, undulating, slickensided, over 60% of surfaces	× × × ×	[-
219.5				44.1' - Fracture, horizontal, smooth,			SC-2 collected
			3	undulating, slickensided over 10% of surface 44.3' - Fracture, horizontal, smooth, undulating	- × × - × × - × ×	[44.5-45.3' -
-				44.5' - Fracture, horizontal, smooth, undulating	× ×	46.0-47.0' - 20% very fine sand	-
					1 **		_

2BB-292 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BPA-47

SHEET 4 OF 12

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687003.1 N, 2012367.5 E)

ELEVATION: 264.5 ft MSL (NGVD 29)

DRILLING CONTRACTOR: Duggan, Trigon Engineering

CORING EQUIPMENT AND METHOD : B-57, HQ Double Barrel ORIENTATION : Vertical

COKING	EQUIPIVIEN	II AN	DIVIE	THOD : B-57, HQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS :			START : 12/8/06 08	:20	END : 12/14/06 10:03	LOGGER : EM/JS
	(%)			DISCONTINUITIES	90	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	(9	FRACTURES PER FOOT	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING,
ATI /	STH OVE	R Q D (%)	CTU	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY. INFILLING MATERIAL AND	BOL	WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
DEP ELE' BEL' SUR	COR	S O	FRA	THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYM	AND ROCK MASS CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
	47.0		1	45.3' - Fracture, horizontal, rough, undulating,	× ×		At 46.4': R-Scale = R3
_	47.0			0.0002-0.0003' relief	T× ×	47.0-51.0' - dark reddish gray to dark	R10: 09:59-10:26
-			1	45.8-45.9' - Fractures, horizontal and 5 deg, rough, undulating, ~1/4 of clay and chewed up	- × × × × × ×	gray, soft, transition siltstone to sandstone (approximately 35%	-
-				rock fragments to medium to coarse sand size 46.0' - Fracture, 40 deg, slickensided,	× ×	siltstone and 65% sandstone with silty	1
-			2	undulating	- × ×	– matrix)	At 48.2': R-Scale = R3 At 48.4': R-Scale = R3
_	R10HQ			47.2' - Fracture, horizontal, rough, planar 47.9' - Fracture, horizontal, 2 long hairlike	× ×	-	-
-	5 ft	93	0	fracture	- × ×	-	-
50 <u> </u>	99%			48.7' - Fracture, 30 deg, rough, undulating, — <0.0003' relief	× ×		_
_			0	<0.0003 relief48.9' - Fracture, horizontal, rough, planar,	××	-	1
-				parallel hairlike fracture 0.002' above	× ×	Sandstone	At 50.7': R-Scale = R3
-			0		-	 51.0-54.6' - gray to dark gray, soft to 	-
-	52.0				- :::	hard, fresh, fine to medium grained in a 0.4' lens then very fine to fine	R11: 11:03-11:24
-			0		- ∷∷	- grained	At 52.5': R-Scale = R2-R3
_					. ∷.	52.0-54.6' - very fine to fine grained	At 52.8': R-Scale = R2-R3 -
_			1	53.3' - Fracture, horizontal, rough, undulating,	- 1∷:	53.4' - 0.2' thick medium to coarse	-
_				<0.0003' relief; bottom surface has a gray silty/clayey coating-siltstone lens <<0.5 mm	1:::	grained lens	_
_	R11HQ 5 ft	100	0	thick	1:::	_	_
55	100%			<u>-</u>	× ×	Siltstone	
209.5			0]::::	54.6-55.0' - very dark gray, soft, fresh, up to 35% very fine sand, very thin	_
_			Ľ		<u> </u> ::::	bedding	_
_			0] :::	Sandstone - At 54.9' - gray to very dark gray, soft to	At 56.3': R-Scale = R2-R3
_	57.0		Ľ		<u> </u> :::	hard, fresh	_
			0]:::	54.9-55.6' - fine grained, 20 degree beds	R12: 11:36-11:59
]:::	55.6-57.0' - medium grained with 20%	
			0]:::	coarse grains in beds; some large grains appear mottled orange, trace	At 58.3': R-Scale = R3 -
			U]:::	red mottling	7 t 30.0 . T
	R12HQ	96			: : :	57.0-59.8' - some fine to medium grained beds with rust colored mottling	
60	5 ft 98%	90	0		1 × ×	58.0-59.2' - medium to coarse grained 🕝	1
204.5				_	× ×	59.2-59.8' - soft to hard, fine to medium grained, bedding at 20]
			0		× ×	degrees]
			2	61.2' - Fracture, horizontal, smooth, stepped,	× × × ×	Siltstone	At 61.25 D. Cools = D2
]	62.0		2	through a material that is almost slickensided]× ×	- 59.8-60.0' - dark reddish brown, trace green mottling, soft, fresh, siltstone	At 61.3': R-Scale = R2 - At 61.5': R-Scale = R3
_	-			in appearance (~30% of surface) 61.8' - Fracture, horizontal, smooth, undulating	\times \times	lens; very fine to fine grained; 15% very fine sand	R13:12:18-12:52
_			0	5.15 Fraction, fronzontal, ornootil, and dalling	× × × ×	Sandstone	-
_					× × × ×	60.0-60.2' - dark reddish brown, trace	At 62.8': R-Scale = R3 -
-			0		× ×	green mottling, soft to hard, fresh, sandstone lens; fine to medium	- At 63.7': R-Scale = R3
-	R13HQ				× ×	grained, abrupt contact at 20 degrees	
65	5 ft 103%	98	2		× ×	Siltstone At 60.2' - dark reddish brown, trace	
199.5	10070			64.9' - Fracture, 20 deg, smooth, planar, tight —	× ×	green mottling, soft, fresh, siltstone	SC-3 collected
-			1	fit 65.0' - Fracture, 20 deg, smooth, stepped	× × × ×	lens; trace sand 60.2-60.4' - convoluted sand lenses	65.1-66.0'
-			0	65.7' - Fracture, horizontal, smooth, undulating, shiny appearance	^ × ×	_ 55.2-55.4 - Convoluted Sand lenses	At 66.0': R-Scale = R2-R3
				unuulaling, siiiny appearance	₩		
$\overline{}$						•	

2BB-293 Rev. 1



PROJECT NUMBER: BORING NUMBER:

338884 BPA-47

ROCK CORE LOG

SHEET 5 OF 12

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687003.1 N, 2012367.5 E)

ELEVATION: 264.5 ft MSL (NGVD 29)

DRILLING CONTRACTOR: Duggan, Trigon Engineering

CORING EQUIPMENT AND METHOD: B-57, HQ Double Barrel ORIENTATION: Vertical WATER LEVELS: --START: 12/8/06 08:20 END: 12/14/06 10:03 LOGGER: EM/JS DISCONTINUITIES LITHOLOGY COMMENTS 90 CORE RUN, LENGTH, AND RECOVERY (%) FRACTURES PER FOOT **DESCRIPTION** DEPTH AND ELEVATION BELOW SURFACE (ft) ROCK TYPE, COLOR. SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND <u>0</u> MINERALOGY, TEXTURE 8 DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS WEATHERING, HARDNESS, AND ROCK MASS RQD(SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC. CHARACTERISTICS 60.8-61.2' - filled with red-brown <u>67</u>.0 At 66.6': R-Scale = R2-R3 siltstone R14: 13:03-13:27 62.0-67.0' - trace purple and green 0 mottling, some with white centers, very fine to fine grained; trace very fine At 68.0': R-Scale = R2-R3 sand; trace white clasts harder than 0 matrix 67.0-72.0' - massive appearance, R14HQ trace to 10% very fine sand At 69.2': R-Scale = R3-R4 100 0 5 ft 100% 70 $194\overline{5}$ 0 0 72.0 72.0-77.0' - soft to hard, fine grained, R15: 08:43-09:03 on 0 15-20% very fine sand 12/11/06 Drillers Remark: last 1.5' drilled very fast, soft. 0 SC-4 collected 72.5-73.2' R15HQ At 73.8': R-Scale = R3 88 0 5 ft At 74.4': R-Scale = R3 75 100% 189.5 2 75.7-76.6' - Fracture zone, horizontal and 80 deg, rough, undulating, 0.0003' thick clay infilling, 0.0002' relief, hard white coating ~0.0002' thick on both surfaces,(100% 2 77.0 R16: 09:16-09:43 coverage) 77.0-78.8' - trace to 10% clasts to 1/4 76.8-77.3' - Fracture, 80 deg, rough, 77.5' - soft to hard, becomes sandier, undulating, 0.0002' relief up to 60% fine to medium sand At 78.1': R-Scale = R3 3 78.7-78.9' - possible rip-up clast or 78.9-79.0' - Fractures, horizontal, along R16HQ infill of material in clayey lens possible bedding 5 ft 101% 82 3 78.7-78.9' - clay seams, only through 79.2' - Fracture, horizontal, rough, undulating, 80 ~ 20% of core, irregular. mixed with <0.0002' thick clay infilling, 1/2 relief <0.0002' At 79.9': R-Scale = R2-R3 184.5 weak rock seam 79.5' - Fracture, horizontal, smooth, SC-5 collected 78.9-82.0' - very fine to fine grained; trace to 10% white clasts to 1/4, 0 undulating, shiny appearance - mica rich 80.1-81.2 At 80.1': R-Scale = R2 harder than matrix 81.2' - Fracture, horizontal, smooth, undulating 79.1' - clay seam, 0.0002' thick 1 82.0 R17: 10:00-10:23 0 82.0-83.0' - 20% very fine sand At 82.9': R-Scale = R3 83.0-84.5' - trace very fine sand 0 At 83.5': R-Scale = R3 R17HO 92 0 5 ft 98% 84.5-90.5' - 20-25% very fine sand 85 and trace to 10% white fine to medium $179.\overline{5}$ sand (scattered) 0

2BB-294 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BPA-47

SHEET 6 OF 12

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687003.1 N, 2012367.5 E)

ELEVATION: 264.5 ft MSL (NGVD 29)

DRILLING CONTRACTOR: Duggan, Trigon Engineering

CORING EQUIPMENT AND METHOD : B-57, HQ Double Barrel

ORIENTATION : Vertical

		,		I HOD . B-37, HQ Double Ballel			ORIENTATION : Vertical
WATER	LEVELS:			START : 12/8/06 08	:20	END: 12/14/06 10:03	LOGGER : EM/JS
	~			DISCONTINUITIES	(J	LITHOLOGY	COMMENTS
ND ON E (ft)	UN, AND RY (%	(9	RES JT	DESCRIPTION	IC LO	ROCK TYPE, COLOR, MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
	87.0		2	86.2' - Fracture, 50 deg, white infilling, tightly	× ×		
_	5.10		0	healed 86.6' - Fracture, horizontal, rough, stepped, 0.0002' relief, tight	× × × × × ×	87.0-90.5' - grades into sandstone	R18: 10:37-11:00
_			0	86.6' - Fracture, horizontal and 5 deg, rough, stepped, microfracture pattern through out, tight fit, 0.0002' relief	× × × × × ×	-	At 88.1': R-Scale = R3-R4
90	R18HQ 5 ft 99%	99	0		× × × × × ×	-	At 89.0': R-Scale = R2
174.5 -	0070		0	-	× ×	Sandstone	
- -			0		- - - - - -	90.5-95.8' - dark reddish brown, trace green mottling, soft to hard, fresh, very thin to medium bedding	At 90.9': R-Scale = R3 -
-	92.0		0		<u> </u>	90.5-94.0' - 10-15% silt, decreases with depth	R19: 12:32-12:52
_						-	- At 00 4h D 0
-			0		- : : :	_	At 93.1': R-Scale = R3 At 93.5': R-Scale = R3
-	R19HQ 5 ft	100	0			94.0-95.8' - grades to very fine to fine grained with 20% silt	At 93.3 : N-State - N3
95 <u> </u>	100%			-	-:::		
109.5			0			95.2-95.8' - fine to medium white sand grains to .08; silt/siltstone lenses, irregular and horizontal	- -
_	97.0		0		× × × ×	Siltstone At 95.8' - dark reddish brown, trace	At 96.6': R-Scale = R2
_			2	97.2' - Fracture, horizontal, smooth, undulating, possible fossilized organics 97.6' - Fracture, horizontal, rough, undulating,	× × × × × ×	purple and green mottling, soft, fresh, very fine to fine grained, trace to 10% very fine sand, laminated	At 96.8': R-Scale = R3 R20: 13:06-13:39
_			0	9.6-98.9' - Fracture, 101201tal, 100glt, undualing, 0.5 mm relief, lower surface is 50% smooth and planar 98.6-98.9' - Fracture, 80 deg, hairline fracture,	× × × × × × × ×	96.7-97.0' - black mottling, trace hard white gravel and sand sized clasts; up to 15% fine to medium grained white	-
100	R20HQ 5 ft 100%	96	0	does not extend through core.	× × × ×	 sand 97.0-102.0' - trace yellow mottling, soft to hard, trace black laminations 97.0-98.0' - sandy lens; very fine to 	_
164.5 _			0		× × × × × × × ×	fine grained, trace very fine sand 98.0-102.0' - very fine sand increases with depth to 15% of matrix	At 100.6': R-Scale = R3
_	102.0		0	101.3' - Fractures, through ~10% of core 101.8' - Fractures, 50 deg, through ~10% of	× × × × × × × ×	- -	At 101.0': R-Scale = R3
_			0	core	- × × × ×	102.0-107.0' - soft to hard 102.0-105.0' - 5-15% very fine sand	R21: 13:54-14:31 SC-6 collected
-			1	102.9' - Fracture, horizontal, smooth, planar	× × × × × ×	increasing with depth	102.0-102.9' –
-	R21HQ		\vdash		$\times \times \times$	-	At 104.0': R-Scale = R3
105	5 ft 100%	100	0		× ×	_	At 104.45': R-Scale = R3
159.5	100%		0	-	× × × × × ×	105.0-108.7' - up to 20% very fine - sand	-
-					××	-	At 106.0': R-Scale = R3
					<u> </u> *	-	
					1		

2BB-295 Rev. 1



PROJECT NUMBER:

338884

BPA-47

SHEET 7 OF 12

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687003.1 N, 2012367.5 E)

ELEVATION: 264.5 ft MSL (NGVD 29)

DRILLING CONTRACTOR: Duggan, Trigon Engineering

CORING EQUIPMENT AND METHOD : B-57, HQ Double Barrel ORIENTATION : Vertical

	. = . /= . 0			HOD : B-57, HQ Double Barrel	00	END 40/4/100 40 00	ORIENTATION : Vertical	
WATER	LEVELS :			START : 12/8/06 08 DISCONTINUITIES	:20 T	END : 12/14/06 10:03 LITHOLOGY	LOGGER : EM/JS COMMENTS	
	(%)		,, i		.0G		COIVIIVIENTS	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.	
	107.0		0		× ×		At 106.4': R-Scale = R3	
_	101.0		0		× × × × × ×	-	R22: 14:57-15:32 At 107.7': R-Scale = R3	
_			1	400 71 Freetons havingstal and 50 day	× × × × × ×	400 7 440 21	At 108.2': R-Scale = R3	
110	R22HQ 5 ft 100%	81	2	108.7' - Fracture, horizontal and 50 deg, slickensided, undulating, 40% slickensided 109.6' - Fracture, 50 deg, slickensided, 50%	× × × × × ×	_ 108.7-110.2' - gray and green mottling, soft, very fine to fine grained with trace very fine sand	-	
110 <u> </u>	100 %		2	slickensided — slickensided, 30 % — slickensided — 109.8' - Fracture, horizontal, smooth, undulating	× × × × × ×	Siltstone 110.2-116.2' - black to greenish black,	SC-7 collected 110.1-111.2' -	
-	112.0		5	110.1' - Fractures (2), horizontal, slickensided, very smooth to slickensided 111.2' - Fracture, 30 deg, slickensided,	× × × × × ×	very soft to soft, very fine grained; trace of very fine sand; banded and laminated, 0-20 degree bedding, trace	-	
_	112.0		10+	slickensided may be fossilized organics 111.7' - Fracture, 20 deg, smooth, shiny appearance, looks like fossilized leaves	× × × × × ×	black laminae 110.2-112.0' - fresh 112.0-113.0' - moderately weathered	R23: No time recorded At 112.4': R-Scale = R3 At 112.5': R-Scale = R3	
_		R23HQ		1	111.8-112.0' - Fractures (3), horizontal and 10 deg, <0.0001' thick, gray clay infilling, smooth, rough, slickensided	× × × × × ×	113.0-114.6' - very soft to soft, fresh, becomes less banded and more mottled with red and yellow; very fine	ACTI2.5. N-Scale - NS _
- - 115	4.2 ft 95%	64*	1	112.2-112.5' - Fractures, horizontal and 10 deg, bedrock fragments, coarse sand to fine gravel sized; 1/4 gray clay seam mixed in	× × × × × ×	grained 114.6-114.9' - fresh, white, light, and	SC-8 collected 113.9-114.8'	
149.5	116.2		1	some slickensided pieces 112.8-112.9' - Fractures, horizontal and 5 deg, slickensided 113.9' - Fracture, 40 deg, smooth, undulating,	× × × × × ×	dark gray laminae; very fine grained 114.9-116.0' - fresh, trace very fine sand; becoming reddish brown at bottom	At 115.6': R-Scale = R3	
-	R23AHC 0.8 ft 117.0 81%	81	0	~20% slickensided 114.8' - Fracture, 40 deg, slickensided, undulating, ~60% slickensided	× × × × × ×	Siltstone At 116.2' - dark reddish brown, mottled green, purple, yellow, and gray, very	R23A: Began at 08:47 on 12/12/06 - At 116.7': R-Scale = R2-R3 R24: 09:12-09:46	
- -			0	115.1' - Fracture, horizontal and 5 deg, smooth, undulating	× × × × × ×	soft to soft, fresh, very fine to fine grained, trace very fine sand increases with depth	At 117.7' R-Scale = R4	
-	R24HQ		0		× × × × × ×	- 117.0-122.0' - soft, trace to 20% very fine sand	- At 119.0': R-Scale = R3	
120 <u></u> 144.5	5 ft 101%	99	2	- -		-	-	
_			0	120.8' - Fracture, horizontal, smooth, undulating, 1/2 relief, tight fit	× × × × × ×	120.8-121.3' - 0-5% very fine sand; yellow banding and red clasts, one	-	
_	122.0		0	120.9' - Fracture, horizontal, smooth, undulating	× × × × × ×	with a white hard center 122.0-127.0' - trace dark gray and	At 121.6': R-Scale = R3 R25: 10:05-10:30	
-			0		× × × × × ×	green mottling, very fine to fine grained, gray material a little finer grained than red; 0-5% very fine sand;	- At 123.0': R-Scale = R3	
-	R25HQ		0		× × × × × ×	 transitions to very dark gray to very dark greenish gray 	-	
125 139.5 -	5 ft 103%	100	1	<u>-</u>	× × × × × × × × ×	- 	At 125.0': R-Scale = R3	
					× × × ×			

2BB-296 Rev. 1



CORING EQUIPMENT AND METHOD : B-57, HQ Double Barrel

PROJECT NUMBER: BORING NUMBER: 338884

BPA-47

SHEET 8 OF 12

ORIENTATION: Vertical

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (687003.1 N, 2012367.5 E)

ELEVATION: 264.5 ft MSL (NGVD 29) DRILLING CONTRACTOR: Duggan, Trigon Engineering

00111110	D EQUIT WILL	11 / 11 1	D IVIL	THOD : B-57, HQ Double Barrel			ORIENTATION: Vertical
WATER	LEVELS:			START : 12/8/06 08	:20	END : 12/14/06 10:03	LOGGER : EM/JS
	(9)			DISCONTINUITIES	ڻ ق	LITHOLOGY	COMMENTS
oz €	CORE RUN, LENGTH, AND RECOVERY (%)		SI.	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	OUTE AND DEDTIL OF CASING
~ 글	RUN H, A	(%) Q	URE	DEDTIL TURE OF STATION FOLIOURIES	1 🚆	MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
H N O A	RE VGT	Q D	ACT R F(DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	MBC	WEATHERING, HARDNESS, AND ROCK MASS	SMOOTHNESS, CAVING ROD
DEPTH AND ELEVATION BELOW SURFACE (ft)	응교照	R	FRACTURES PER FOOT	THICKNESS, SURFACE STAINING, AND TIGHTNESS	S	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
			0	125.8' - Fracture, 55 deg, slickensided, planar,	× ×		At 126.4': R-Scale = R2-R3
-	127.0		XXX	<<0.5mm gap, very thin, very soft on rock	XX	Siltstone	R26: 10:49-11:14
-			0	scale	× ×	 127.0-128.9' - very dark gray to very 	At 127.3': R-Scale = R3
-					× ×	dark greenish gray, soft, very fine to fine grained with up to 20% very fine	-
_			2		×××	- sand; faint banding at 0 degrees	At 128.3': R-Scale = R3 -
_				128.7' - Fracture, 10 deg, smooth, undulating	× ×		_
	R26HQ			128.9' - Fracture, horizontal, smooth,	: : :	Sandstone At 128.9' - dark reddish gray, soft to	
130	5 ft 99%	91	0	undulating, tight fit	1:::	hard, fresh, fine sand, laminated to	<u> </u>
134.5				_	1:::	medium bedding	_
-			1	120 6! Exacture 20 deg empeth undulating	1:::	-	-
-				130.6' - Fracture, 20 deg, smooth, undulating	1:::	-	At 130.7': R-Scale = R3
-			0		 :::	F 404 0 404 01	-
-	132.0				1:::	131.6-131.6' - gray siltstone lens; abrupt contacts at 20 degrees	Doz 44 00 44 50
_			0		<u>]</u> :::	_ 131.6-136.3' - fine to medium grained	R27: 11:33-11:53
			_		[:::	132.0-136.3' - with lenses of 5-20%	SC-9 collected 132.0-133.1' -
] :::	 coarse grained material (up to several millimeters) 	At 133.1': R-Scale = R3
_			0		1:::		-
-	R27HQ				1:::	-	At 134.0': R-Scale = R5
l	5 ft	99	0		:::	-	-
135 <u> </u>	99%			_	┨∷∷	-	_
129.5			0		1:::	135.1-136.3' - medium sand to medium gravel, subrounded to	-
I _] ::::	subangular; some elongated pieces	_
_			0		 × ×	_ Siltstone	<u> </u>
	137.0				××	136.3-137.0' - weak red, soft to hard,	
					:::	fresh, fine grained; 40% very fine to	R28: 13:00-13:26
-			0		1:::	136.9-137.0' - siltstone clasts and	-
-					1:::	medium to coarse sand	-
-			0		∤∷ ∷	- Sandstone	-
-	DOOLIO					137.0-141.1' - dusky red to pale red, soft to hard, fresh, 70% very fine to	-
_	R28HQ 5 ft	90	0		. ∷.	 fine sand, 30% medium to coarse 	-
140	100%		_	_]:::	sand; gradual increases to up to 60%	
124.5			0		:::	medium to coarse sand with some grains up to 0.1'; begins gradual	At 140.3': R-Scale = R3
			0	140.7-141.1' - Contact between siltstone and]:::	transition to siltstone at 140.7	
				sandstone	× ×	Siltstone	At 140.8': R-Scale = R5 -
-	142.0		5	141.6' - Fracture, 10 deg, smooth, undulating	× ×	At 141.1' - dark reddish brown, very	-
-	142.0			141.7' - Fracture, horizontal, rough, undulating	××	 soft to soft, fresh, very fine grained; trace of very fine sand; banded and 	R29: 14:00-14:37
-			5	141.8' - Fracture, 10 deg, smooth, undulating 141.9' - Fracture, horizontal, rough, undulating	× × × ×	laminated, horizontal bedding	Driller's Remark: For 1st 5
-				141.9 - Fracture, nonzontal, rough, undulating 142.1' - Fracture, 30 deg, slickensided	×××	_ 142.0-147.0' - black and greenish	min. did not go down
-			0	142.2' - Fracture, horizontal, rough, undulating	× × × × × ×	gray mottling, up to 15% fine sand	-
1 _				142.2' - Fracture, horizontal, rough, undulating 142.4' - horizontal. small cracks	×××		_
	R29HQ			142.4 - nonzontal, small cracks 142.4' - Fracture, horizontal, smooth,	× × × ×		At 144.0': R-Scale = R4
145	5 ft 99%	92	0	undulating	Îx x		At 144.5': R-Scale = R5
119.5				142.7' - Fracture, horizontal, smooth, — undulating	1× ×		_
-			0	undulating	××	-	l -
-					× ×	}	-
					××		
					1		
					1		



PROJECT NUMBER:	BORING NUMBER:
338884	BPA-47

ROCK CORE LOG

SHEET 9 OF 12

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687003.1 N, 2012367.5 E)

ELEVATION: 264.5 ft MSL (NGVD 29)

DRILLING CONTRACTOR: Duggan, Trigon Engineering

CORING EQUIPMENT AND METHOD : B-57, HQ Double Barrel ORIENTATION : Vertical

			DIVIE	HOD : B-57, HQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS :			START : 12/8/06 08	:20	END : 12/14/06 10:03	LOGGER : EM/JS
_	(%) (%)			DISCONTINUITIES	90	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
			0		× ×		
- - - 150_ 114.5 -	R30HQ 5 ft 104%	86	0 0 7	150.0' - Fracture, horizontal, rough, undulating 150.1' - Fracture, horizontal, rough, undulating 150.3' - Fracture, horizontal, rough, undulating 150.3' - Fracture, horizontal, rough, undulating		147.0-152.0' - black and greenish gray mottling, fine grained sand contact gradually decreases from 25% to trace after 149.6'	R30: 14:56-15:31
- - -	152.0		0	150.5' - Fracture, horizontal, rough, undulating 150.8' - Fracture, horizontal, rough, undulating 150.9' - Fracture, horizontal, rough, undulating	- × × × × × × × × × × × × × × × × × × ×	152.0-157.0' - black and greenish gray mottling, soft, 15% fine grained sand; little to no mottling	At 151.5': R-Scale = R3-R4 R31: 15:54-16:22 At 153.0': R-Scale = R3
155_ 109.5 -	R31HQ 5 ft 96%	96	0	_	- × × × × × × × × × × × × × × × × × × ×	153.6-154.3' - up to 25% fine sand - 	At 154.0': R-Scale = R5
- - -	157.0		0 ××× 0		- × × × × × × × × × × × × × × × × × × ×	157.0-162.0' - dusky red, soft to hard, little to no sand	R32: 07:48-08:09 on 12/13/06 -
160 104.5	R32HQ 5 ft 102%	100	0 0	_	- × × × × × × × × × × × × × × × × × × ×	158.4-159.3' - gradually increase in sand content with up to 10% sand 159.3-162.0' - fine sand increases to 25%	At 158.0': R-Scale = R3-R4
-	162.0 R33HQ		0 0		- X X X X X X X X X X X X X X X X X X X	and band at 15 degrees 161.8-161.9' - 20% coarse sand with siltstone matrix Sandstone 162.6-164.2' - dusky red, hard, fresh, gradual increase in fine to medium grained sand up to 70% with 5-10%	R33: 08:30-08:55
165 99.5 -	R33HQ 5 ft 90%	70	3	164.2' - Contact between siltstone and sandstone, fairly sharp, 25 deg 164.9' - Fracture, horizontal, smooth, undulating 165.2' - Fracture, horizontal, smooth, undulating	- × × × × × × × × × × × × × × × × × × ×	coarse grained sand Siltstone At 164.2' - dusky red, mottled greenish gray and trace black, very fine to fine grained, trace to no sand 164.2-170.5' - fresh	SC-10 collected
						l	l

2BB-298 Rev. 1



PROJECT NUMBER: BORING NUMBER:

338884 BPA-47

ROCK CORE LOG

SHEET 10 OF 12

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687003.1 N, 2012367.5 E)

ELEVATION: 264.5 ft MSL (NGVD 29)

DRILLING CONTRACTOR: Duggan, Trigon Engineering

CORING EQUIPMENT AND METHOD : B-57, HQ Double Barrel ORIENTATION : Vertical

			D IVIL	THOD: B-57, HQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS :			START : 12/8/06 08	3:20	END : 12/14/06 10:03	LOGGER : EM/JS
	<u>@</u>			DISCONTINUITIES	- l 8	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
	167.0 R34HQ 5 ft 106%		3 0 0 7 2 1 1	165.5' - Fracture, horizontal, smooth, undulating 165.8' - Fracture, horizontal, smooth, undulating 166.4' - Fracture, horizontal, rough, undulating 167.0-167.2' - Fracture zone, rough, undulating, crumbled in to 4 pieces, multiple angles. 167.4' - Fracture, 40 deg, slickensided 167.6' - Fracture, horizontal, rough, planar 170.6' - Fracture, horizontal, rough, planar 170.6' - Fracture, 35 deg, smooth, undulating, rounded slickenside, 1/2 broken horizontal 170.9' - Fracture, 10 deg, rough, undulating, 1/2 slicken 171.0' - Fracture, rough, undulating, top 1/2 as 167.55' 171.2' - Fracture, rough, undulating, top 1/2 as 167.55'	- x x x x x x x x x x x x x x x x x x x	169.4-170.1' - very soft to soft, up to 15% very fine to fine sand 170.5-171.3' - moderately weathered 171.3-182.9' - fresh 172.0-177.0' - very soft to soft, up to 15% very fine to fine sand	R34: 09:12-09:50 At 168.0': R-Scale = R3 At 169.0': R-Scale = R5
- 175_ 89.5 - -	R35HQ 5 ft 100%	100	0 0	171.3' - Fracture, horizontal, smooth, undulating 171.9' - Fracture, horizontal, rough, planar 172.7' - Fracture, horizontal, smooth, undulating 173.5' - Fracture, horizontal, smooth, undulating undulating	- × × × × × × × × × × × × × × × × × × ×	X- X- X- X- X- X- X- X- X-	- - - - -
- - - - 180 84.5 -	177.0 R36HQ 5 ft 95%	95	0 1 0 1	178.4' - Fracture, 5 deg, smooth, undulating, 1 slicken 0.05' long - 181.1' - Fracture, horizontal, smooth, undulating	- × × × × × × × × × × × × × × × × × × ×	- 178.8' - 0.1' thick bands of siltstone with ~25% fine sand 179.0' - 0.1' thick bands of siltstone with ~25% fine sand 179.1' - 0.1' thick bands of siltstone with ~25% fine sand 180.2' - 0.1' thick bands of siltstone with ~25% fine sand 180.2' - 0.1' thick bands of siltstone with ~25% fine sand 180.3-182.0' - soft, up to 25% fine	R36: 13:31-14:01
- - - - 185 79.5 - -	R37HQ 5 ft 103%		1 0 0	182.3' - Fracture, horizontal, smooth, undulating 182.9' - Contact between siltstone and sandstone, sharp	- × - × - × - × · · · · · · · · · ·	sand; no greenish gray mottling 182.4' - 0.05' thick bands of 25% sand 182.7' - 0.05' thick bands of 25% sand 182.8' - 0.05' thick bands of 25% sand Sandstone 182.9-189.9' - dark gray and dark reddish brown, hard, fresh, thin to medium bedding 182.9-183.3' - 0.01-0.03' thick siltstone lenses (35% medium sand, 50% fine sand)	R37: 15:20-15:45

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PROJECT NUMBER: BORING NUMBER:

338884 BPA-47

SHEET 11 OF 12

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687003.1 N, 2012367.5 E)

ELEVATION: 264.5 ft MSL (NGVD 29)

DRILLING CONTRACTOR: Duggan, Trigon Engineering

CORING EQUIPMENT AND METHOD : B-57, HQ Double Barrel ORIENTATION : Vertical

			DIVIE	HOD : B-57, HQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS :			START : 12/8/06 08 DISCONTINUITIES	:20 	END : 12/14/06 10:03 LITHOLOGY	LOGGER : EM/JS COMMENTS
_ ₽	ر%) (%)		(n	DESCRIPTION	90		COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
-	187.0		0 *** 0			183.3-185.1' - fine gravel, - shaley/siltstone lenses up to 0.04' thick throughout	R38: 16:00-16:26
-			0		-:::	184.8-185.1' - shale clasts 185.1-186.8' - gradual change to more siltstone; faint banding of sand and silt bands ~0.02' thick; 50% sand at 185.1	At 188.0': R-Scale = R5
- 190	R38HQ 5 ft 102%	100	0			- to ~20% at 186.3 186.8-187.0' - small pebbles up to 0.02'; ~10% coarse sand/pebbles,	At 189.0': R-Scale = R3
74.5			0		× × ×	35% fine to medium, silty matrix thin lenses ~0.01' thick of very fine sand and siltstone/claystone; subangular	
_ 	192.0		0		× × × × × ×	- grains 187.0-188.7' - gradual change from 70% fine to medium sand to ~25% - ∫fine sand	
_			0		× × × × × ×	188.1-188.7' - faint banding 188.7-189.9' - silty matrix with 60% coarse grained sand	R39: 07:38-08:04 on 12/14/06
-	R39HQ 5 ft 100%		0		× × × × × ×	188.7' - large shaley siltstone clasts 189.1' - large shaley siltstone clasts 189.7' - large shaley siltstone clasts	
195 <u> </u>		87	3	194.2-194.3' - Fractures, horizontal, smooth, undulating 194.6' - Fracture, 10 deg, smooth, undulating	× × × × × ×	189.8' - large shaley siltstone clasts Siltstone	-
-			10+		× × × × × × × ×	to fine grained 189.9-192.0' - trace black mottling, soft to hard, ~10% very fine to fine sand; convoluted laminations of	
- -	197.0		10+	196.4-196.6' - Fracture, horizontal and 10 deg, highly fractured, crumbled 196.8' - Fracture, 45 deg	× × × × × ×	greater sand contact (up to 15%) 192.0-197.0' - hard, laminae of black, olive, and dark gray, ~15% fine sand	SC-11 collected 196.6-196.8'
- -			4	196.5 - Fracture, 45 deg, slickensided, perpendicular to 196.8' 197.1' - Fracture, 45 deg and horizontal, smooth, undulating, partially slickensided 197.3' - Fracture, horizontal, rough, planar 197.4' - Fracture, horizontal, rough, planar	× × × × × ×	with lighter colored bands having up to 25% 194.3-195.9' - increase in sand up to	R40: 08:25-09:07
_	R40HQ		0		× × × × × ×	- 35% _ 195.0-197.0' - very soft 195.9' - 0.01' thick sandstone lense	
200 <u></u> 64.5	5 ft 99%	87	2	199.9' - Fracture, horizontal, rough, undulating, — weak and fractioned in between	with 75% fine to coarse sand and fine to medium gravel 196.0' - very fine; little to no sand,	_	
_			2	199.9' - Fracture, horizontal, rough, undulating, weak and fractioned in between 201.2' - Fracture, horizontal, rough, undulating	× × × × × ×	laminated 196.4' - dark gray, very fine possible shale-crumbles, fissile	
_	202.0		0	201.3' - Fracture, horizontal, rough, undulating	× × × × × × × ×	 196.7' - becomes multi-colored breaking into sheets around fractures 197.0-202.0' - olive, gray, dusky red, trace black mottling, very soft to soft, 	R41: 09:30-10:03
- -			0		× × × × × ×	gradual increase in sand contact from 5-15% - 202.0-205.3' - soft to hard, gradual	
-	R41HQ 5 ft	100	0		× × × × × ×	increase in sand to ~35%; at 205.3' to up to 75% fine sand 203.5-205.3' - black, gray, and dusky	At 203.9': R-Scale = R3 At 204.5': R-Scale = R3
205_ 59.5 - -	101%		0	205.3' - Contact between siltstone and sandstone, sharp contact	× × × × - · · · ·	red laminae - -	At 205.5': R-Scale = R3 At 205.5': R-Scale = R3

2BB-300 Rev. 1



PROJECT NUMBER:	BORING NUMBER:					
338884	BPA-47	SHEET	12	OF	12	

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC

LOCATION : (NAD 27) (687003.1 N, 2012367.5 E)

ELEVATION : 264.5 ft MSL (NGVD 29)

DRILLING CONTRACTOR : Duggan, Trigon Engineering

CORING EQUIPMENT AND METHOD: B-57, HQ Double Barrel ORIENTATION: Vertical WATER LEVELS: --START: 12/8/06 08:20 END: 12/14/06 10:03 LOGGER: EM/JS DISCONTINUITIES LITHOLOGY COMMENTS CORE RUN, LENGTH, AND RECOVERY (%) ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS FRACTURES PER FOOT DESCRIPTION SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD SYMBOLIC RQD(%) DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS DROPS, TEST RESULTS, ETC. CHARACTERISTICS Sandstone R-Scale performed during 207.0 205.3-207.0' - dark gray, hard, fresh, rock core logging fine to coarse grained; dusky red mottling; subangular grains, mostly feldspar, laminated bedding Bottom of Boring at 207.0 ft bgs on 12/14/06 10:03 210 54.5 215 49.5 220 44.5 225 39.5



PROJECT NUMBER: BORING NUMBER: BPA-48

SOIL BORING LOG

SHEET 1 OF 11

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686889.5 N, 2012456.7 E)

ELEVATION: 264.8 ft MSL (NGVD 29)

DRILLING CONTRACTOR: Duggan, Trigon Engineering

DRILLING EQUIPMENT AND METHOD: 8-57, Tricone Bit, 24 Split Spoon, 140 lb. Automatic Hammer ORIENTATION: Vertical

			AND ME	HOD : B-57, THC	cone Bit, 24 Split Spoon, 140 lb. Automatic Hammer		ORIENTATION: Vertical
	LEVELS				START : 11/28/06 09:46 END : 12/7/0)6 1 	
DEPTH E			SRADE (ft)	STANDARD PENETRATION	SOIL DESCRIPTION	ဗွ 🏻	COMMENTS
	INTERV			TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,		DEPTH OF CASING, DRILLING RATE,
		RECOV	ERY (in)		MOISTURE CONTENT, RELATIVE DENSITY OR	ቯ [DRILLING FLUID LOSS, TESTS, AND
			#TYPE	6"-6"-6" (N)	CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	INSTRUMENTATION
264.8	0.0			(14)			
-	1				0.0-0.4' - dark reddish brown, moist, low plasticity, roots		-
-	1	24.0	SS1SS		Fat Clay (CH) \[\(\)\(0.4-0.7' - \) brownish yellow, moist, high plasticity \[\) \[\]		-
-	-			(4)	Silty Sand (SM)		-
-	2.0				_∖ 0.7-1.7' - yeÌlowísh reddish, few gray mottles, moist, / ∠	4	-
-	2.5				\soft, nonplastic to low plasticity \ Fat Clay (CH)	$\overline{}$	-
-	2.0				1.7-2.0' - red, dry, soft to stiff, nonplastic, fissile		-
-		4.0	SS2SS	50/4	Clay (CL) 2.5-3.1' - dark red, dry, very hard, medium to high	- 1	-
-				(50/4")	\plasticity -	- 1	-
-	4.5						<u>-</u>
5							
259.8	5.0				Clay (CL) 5.0-5.6' - dark red, moist, hard, medium to high		_
l _		4.0	SS3SS	50/4	plasticity		_
		4.0	33333	(50/4")			_
l _	7.0					- 1	_
	7.5				Clay (CL)		_
-	1	400	00400	4.07.50/0	7.5-8.4' - dark red, mottled gray and greenish gray in clay fractures, moist, hard		-
-	1	10.8	SS4SS	4-27-50/3 (77/9")		- 1	_
-	9.5			(1112)	1		-
10					1		Soil sampling completed at 17:20 on 11/29/06
254.8	10.0	3.0	SS5SS,		Clay (CL)	\mathbb{Z}	
_	10.3			50/3 (50/3")	10.0-10.3' - dusky red, dry to moist, hard, medium to high plasticity (wet), laminated pieces with fissile		-
-	1			(, , , , ,	structure	- 1	-
-	1				Begin Rock Coring at 10.4 ft bgs See the next sheet for the rock core log		-
-	1				See the flext sheet for the fock core log		-
-	1				1		-
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1							



PROJECT NUMBER: BORING NUMBER:

338884 BPA-48

SHEET 2 OF 11

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686889.5 N, 2012456.7 E)

ELEVATION: 264.8 ft MSL (NGVD 29)

DRILLING CONTRACTOR: Duggan, Trigon Engineering

CORING EQUIPMENT AND METHOD : B-57, HQ Double Barrel

ORIENTATION : Vertical

WATER	LEVELS :			START : 11/28/06 0	9:46	END: 12/7/06 14:50	LOGGER : RG/JS/EM
	(%			DISCONTINUITIES	ڻ و	LITHOLOGY	COMMENTS
QN (#)	N, AND 3Y (%	_	ZES T	DESCRIPTION	CLO	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
_	10.4 R1HQ		0		× ×	Siltstone	Rock coring began at 09:46 on 11/29/06
_	1.6 ft	70			× × × ×	10.4-36.6' - red, some black mottling (1/16-3/16"), fresh, fine grained, silts	R1: 09:46-10:13 on
	88% 12.0		0 ***		1× ×	with some clays, 0.2 to 1.3 rock clasts over 5-10% core	11/29/06 At 10.4-11.4': R-Scale = R3
_			1	12.3' - Fracture, natural break along laminated bedding	× × × × × × × ×	12.0-17.0' - at 14.4' very fine sand (5-10%) matrix increasing to coarse sands at base (20-35%); laminated	R2: 10:45-11:27
-			3	13.3' - Fracture, horizontal	× × × ×	bedding -	-
_	R2HQ	90	1	13.9' - Fracture, 1 deg and 2 deg, smooth, undulating	× × × ×	-	1
15	5 ft 100%	90	ı	14.4' - Fracture, 5 deg, smooth, planar	× ×		
249.8			2	15.1' - Fracture, 5 deg, smooth, planar]×	_	
_				15.7' - Fracture, 5 deg, smooth, undulating		-	
-	17.0		2	16.3' - Fracture, 10 deg, smooth, planar 16.5' - Fracture, horizontal, smooth, planar	× × × × × ×	-	- - -
_			2	17.5-17.6' - Fracture, horizontal, smooth, planar, along laminated bedding	× × × × × ×	-	R3: 12:11-12:52
_			0	planar, along laminated bedding]×	<u>-</u>	
_	R3HQ			19.2' - Fracture, horizontal, smooth, planar,	× × × ×	18.5-19.1' - light gray, increased sand matrix	-
20	5 ft 92%	80	2	along laminated bedding 19.5' - Fracture, horizontal, smooth, planar, —	× × × ×	- -	
244.8			2	along laminated bedding 20.1' - Fracture, horizontal, smooth, planar,	× × × × × ×	20.1-20.7' - light gray, increased sand matrix	-
_			0	along laminated bedding 20.3' - Fracture, horizontal, smooth, planar, along laminated bedding]×	- -]
-	22.0			along laminated bodaing	× × × ×	-	R4: 13:36-14:27
_			1	22.3' - Fracture, rough, stepped, ~0.002' relief	×	-	-
_			0		× × × × × × × ×	23.0-23.6' - 10-20% gravel sized clastics (rock pieces)	-
	R4HQ 5 ft	100	1		1× ×	_]
25_ 239.8	100%	100	'	24.6' - Fracture, horizontal, rough, planar	× × × ×	-]
259.0			2	25.3' - Fracture, 60 deg, rough, planar	× × × ×	25.4-26.2' - 15-20% medium to coarse	SC 2 collected
-				25.8' - Fracture, horizontal, rough, planar	× ×	grain sand matrix	SC-2 collected 23.6-24.7'
	27.0		1	26.4' - Fracture, horizontal, rough, planar	× × × ×	-]
_			0		× × × × × ×	27.0-36.6' - dusky red	R5: 15:18-16:06
-			0		× × × ×	-]
-	DELLO		$reve{}$		× × × ×	-	-
30_ 234.8	R5HQ 5 ft 100%	100	1	29.3' - Fracture, rough, stepped, ~0.0003-0.001' relief	× × × × × ×	- 	
234.0					××		

2BB-303 Rev. 1



PROJECT NUMBER:	BORING NUMBER:				
338884	BPA-48	SHEET	3	OF	11

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686889.5 N, 2012456.7 E)

ELEVATION: 264.8 ft MSL (NGVD 29)

DRILLING CONTRACTOR: Duggan, Trigon Engineering

CORING EQUIPMENT AND METHOD : B-57, HQ Double Barrel ORIENTATION : Vertical

CORING	EQUIFIVIEN	II AIN	DIVIE	HOD : B-57, HQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS :	-		START : 11/28/06 C	9:46	END : 12/7/06 14:50	LOGGER : RG/JS/EM
	Q.%		-	DISCONTINUITIES	90	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS,	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
DEPT ELEV BELC SURF	CORI	RQ	FRAC	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS		AND ROCK MASS CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
			1		× × ×		
-	32.0		0			-	
-	92.10		0		X	-	R6:16:31-17:06
-			1		× > × > × >	-	
-	R6HQ 5 ft	100	0		× > × > × >	-	
35 <u> </u>	100%		0	_	× > × > × >	 35.3-35.6' - 10-20% sandy matrix	-
-			0		× > × > × >	-	
-	37.0		0		× > × >	Sandstone 36.6-37.0' - greenish gray, very fine sand to fine sand, poorly sorted, fresh,	At 36.6-37.0': R-Scale = R2- R3 R7: 07:38-08:06 on
-			0		× > × > · · · ·	\thin bedding Siltstone \[\] 37.0-38.2' - dusky red to red,	11/30/06 At 37.0-38.2': R-Scale = R3 At 38.2-42.0': R-Scale = R2-
-	R7HQ 5 ft	100	0		 	laminated bedding, fresh, 10-20% sand matrix	R3 SC-1 collected 38.3-38.9'
40 <u> </u>	100%		0	-	- - - - - -	38.2-42.2' - greenish to blue-gray, fine sand to medium sand, fresh, well - sorted, thick bedding	-
-			0			-	
-	42.0		1	42.2' - Contact between siltstone and	× >	_ Siltstone	R8: 08:57-09:43
-			0	sandstone, planar, smooth-rough, fines along surface break.	× > × > × >	At 42.2' - dusky red to red, mottled black, fresh, fine grained, 5-10% fine to coarse gravel sized rock clasts	
-	R8HQ 5 ft	93	0		× × × × × × × × × × × × × × × × × × ×		
45_ 219.8	100%	3 3		-	× × × × × × ×		-
-			0		X	45.6-46.3' - clasts ranging from .088, ~10-20% as matrix in siltstone	
-	47.0		1		× > > > > > > > > > > > > > > > > > > >	47.0-57.0' - dusky red, laminations are	R9: 10:09-10:59
-			0		× > × > × > × >	undulating or wavy like	At 47.0-52.0': R-Scale = R3
-	R9HQ		0		× × × × × × × × × × × × × × × × × × ×		SC-3 collected 46.2-47.0'
50 214.8	5 ft 100%	100	1	-	× > × > × > × >	-	_
					 ×→		
Щ_						l	

2BB-304 Rev. 1



PROJECT NUMBER:	BORING NUMBER:				
338884	BPA-48	SHEET	4	OF	11

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686889.5 N, 2012456.7 E)

ELEVATION: 264.8 ft MSL (NGVD 29)

DRILLING CONTRACTOR: Duggan, Trigon Engineering

CORING EQUIPMENT AND METHOD : B-57, HQ Double Barrel ORIENTATION: Vertical WATER LEVELS: --START: 11/28/06 09:46 END: 12/7/06 14:50 LOGGER: RG/JS/EM DISCONTINUITIES LITHOLOGY COMMENTS CORE RUN, LENGTH, AND RECOVERY (%) DEPTH AND ELEVATION BELOW SURFACE (#) FRACTURES PER FOOT **DESCRIPTION** ROCK TYPE, COLOR. SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD SYMBOLIC MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS RQD(%) DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS DROPS, TEST RESULTS, ETC. CHARACTERISTICS 0 52.0 R10: 11:48-12:30 0 At 52.0-57.0': R-Scale = R3 0 R10HQ 0 5 ft 100% 100 55 209.8 0 0 57.0 R11: 13:10-13:52 1 SC-4 collected 57.7' - Fracture, horizontal, smooth, planar 57.0-57.7' At 57.0-62.0': R-Scale = R3 1 58.6' - Fracture, 60 deg, rough, planar R11HQ 5 ft 100% 0 100 60 204.8 60.1' - Fracture, horizontal, rough, planar 1 60.7-62.0' - 5-10% clasts ranging from .08 to .5 0 62.0 62.0-72.0' - fine grained throughout; R12: 14:47-15:30 0 laminations are undulating or wavy At 62.0-67.0': R-Scale = R3 0 R12HQ 5 ft 0 65 90% 199.8 0 0 67.0 R13: 15:58-16:32 1 At 67.0-72.0': R-Scale = R3 1 R13HQ 5 ft 100% 95 70 194.8



PROJECT NUMBER:

338884

BORING NUMBER:

BPA-48

SHEET 5 OF 11

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686889.5 N, 2012456.7 E)

ELEVATION: 264.8 ft MSL (NGVD 29)

DRILLING CONTRACTOR: Duggan, Trigon Engineering

CORING EQUIPMENT AND METHOD : B-57, HQ Double Barrel

ORIENTATION : Vertical

	2 2 4 5 11 11 2 11		D 111.E	THOD . B-37, HQ Double Ballel			ORIENTATION : Vertical
WATER	LEVELS:			START : 11/28/06 0	9:46	END : 12/7/06 14:50	LOGGER : RG/JS/EM
				DISCONTINUITIES	ניז	LITHOLOGY	COMMENTS
AND ION IE (ft)	UN, H, AND ERY (%	(%)	JRES OT	DESCRIPTION	JO LO	ROCK TYPE, COLOR, MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ff	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
_			0		× ×	-	-
-	-				× ×	-	-
-	72.0		2		× ×	-	-
-	12.0				××	72.0-72.4' - 30-40% sandy matrix,	R14: 16:50-17:25
-			0		 ^*	gradational contact	At 72.4-77.0': R-Scale = R3-
-					 ∷∷	Sandstone 72.4-77.0' - very fine sand to coarse	R4 _
-			0		- ∃∷:	sand, poorly sorted, fresh, interbedded	-
-	R14HQ			74.0' - Fracture, horizontal, rough, planar,	- ∷∷	_ siltstone	SC-5 collected
_	5 ft	88	1	break along laminated sand and fine bedding	- ∷∷	-	74.0-74.8'
75 <u> </u>	96%			_	.		_
189.8			1	75.3' - Fracture, horizontal, rough, planar	1:::	_	_
l _				, , , , , , , , , , , , , , , , , , , ,	<u> </u> :::	_	_
l _			1	76.2' - Fracture, horizontal, rough, planar]:::		_
	77.0		1	, , , ,] : : :		
				77.2' - Fracture, horizontal, rough, undulating	× ×	Siltstone	R15: 10:13-10:54 on
_			3	77.4' - Fracture, horizontal, rough, undulating	× × × ×	At 77.0' - gray mottling, undulating laminations	12/1/06 -
-				77.6' - Fracture, horizontal, rough, undulating	× × × ×	77.0-127.0' - fresh	-
-			0		× ×	- 77.7-78.3' - undulating laminations	-
-	R15HQ				× ×	– 78.8' - gray mottling	At 77.0-82.0': R-Scale = R3
-	5 ft	80	2	79.5' - Fracture, horizontal, rough, stepped	××		74.77.0 02.0.11 Codic 110
80 <u> </u>	96%			_	×××	gravel sized clasts	_
104.0			1	80.0' - Fracture, horizontal, smooth, planar, breaks along areas contains rock clasts	××		_
l _				80.4' - Fracture, horizontal, rough, stepped	××	80.5-82.0' - few pockets of gray mottling	_
l _			1	Od 41. Frankrija hadronskal amarath ulanan	××	_ meaning	_
l _	82.0		XXX	81.4' - Fracture, horizontal, smooth, planar, break along siltstone laminations	\times \times		_
					× × × ×	82.0-93.3' - dusky red, undulating	R16: 11:25-12:10
_			0		× ×	- laminations	
_					× ×	-	At 82.0-87.0': R-Scale = R3
-			0	•	× ×	<u> </u>	<u> </u>
-	R16HQ				×××	-	-
	5 ft	100	0		× ×	-	-
85 <u> </u>	100%			_	× × × ×	-	_
-			0		××	-	-
-					××	-	-
_			0		× ×	-	-
l _	87.0				× ×	_	_
l _			0		×××		R17: 14:00-14:30
]××		
I -					×××		At 87.0-92.0': R-Scale = R3
-]		0		××	Ī	<u> </u>
-	R17HQ				x x	f	-
	5 ft 100%	100	0		x x	+	<u> </u>
90 <u> </u>	100%			_	- (x x	-	_
—					l'''		
					1		
	1				_		ī.

2BB-306 Rev. 1



CORING EQUIPMENT AND METHOD : B-57, HQ Double Barrel

PROJECT NUMBER: BORING NUMBER: 338884

BPA-48

SHEET 6 OF 11

ORIENTATION: Vertical

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (686889.5 N, 2012456.7 E)

ELEVATION: 264.8 ft MSL (NGVD 29) DRILLING CONTRACTOR: Duggan, Trigon Engineering

		,	D IVIL	THOD: B-57, HQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS :			START : 11/28/06 0	9:46	END : 12/7/06 14:50	LOGGER : RG/JS/EM
	(%			DISCONTINUITIES)g	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (#)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
			0		× × ×	-	-
-	92.0		0		- × × × × × × × ×		-
_			0			-	R18: 15:45-16:28
_			2	93.2' - Fracture, horizontal, rough, planar, breaks along laminated bedding	× × × × × ×	- 93.3-94.0' - 20-30% well sorted sands	-
95	R18HQ 5 ft 100%	95	0	94.0' - Fracture, horizontal, rough, planar, breaks along laminated bedding		94.0-95.0' - 5-10% clasts, 0.2 to 0.3 in size	_
169.8			0	_	× × × × × ×	95.0-97.0' - 0-5% clasts -	-
-	97.0		1		× × × × × ×	-	
-			0		× × × × × ×	97.0-102.0' - dark reddish brown, 10-20% greenish gray mottling 97.9-98.1' - slightly coarse grained	R19: 09:00-09:10 - At 97.9': R-Scale = R3 -
_			0			_ 98.0-98.2' - soft, whitish pink clasts	- No 37.9 : NO Calle - NO
100_	R19HQ 5 ft 100%	100	0	_	× × × × × ×	98.9-99.0' - fine grained - -	_
164.8			0		× × × × × ×	- -	
-	102.0		0	102.0-103.0' - Fracture, microfractures filled	× × × × × ×	102.0-107.0' - dark reddish brown,	At 101.5': R-Scale = R3 R20: 09:40-10:29
-			0	with greenish gray infilling with mottling around	- × × × × × ×	fine grained, 0-35% medium grained sand, coarsens with depth 102.0-103.0' - greenish gray mottling	R20. 09.40-10.29 - -
-	R20HQ		0		× × × × × ×	-	-
105 <u></u> 159.8	5 ft 100%	100	0	-	× × × × × ×	-	
-			0		× × × × × ×	106.0-112.0' - soft to hard	At 105.1': R-Scale = R3 At 105.9': R-Scale = R3
-	107.0		0		× × × × × ×	-	- R21: 10:50-11:44
-			1	107.4' - Fracture, <5 deg, rough, undulating, 0.01' thick	× × × × × × × ×	-	-
-	R21HQ		0		× × × ×	_ 109.0' - up to 15% coarse grained	-
110 154.8	5 ft 98%	98	0		× × × × × ×	- sand 109.3' - very fine grained thin convoluted laminations	

2BB-307 Rev. 1



CORING EQUIPMENT AND METHOD : B-57, HQ Double Barrel

PROJECT NUMBER: BORING NUMBER: 338884

BPA-48

SHEET 7 OF 11

ORIENTATION: Vertical

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (686889.5 N, 2012456.7 E)

ELEVATION: 264.8 ft MSL (NGVD 29) DRILLING CONTRACTOR: Duggan, Trigon Engineering

WATER	LEVELS :			START : 11/28/06 0	9:46	END: 12/7/06 14:50	LOGGER : RG/JS/EM
	_ (%)			DISCONTINUITIES	ō	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
- - - - - -	112.0 R22HQ 5 ft	100	0 0 0		× × × × × × × × × × × × × × × × × × ×	111.0-112.0' - little to no greenish gray mottling, thin bedding, with 0.01-0.02' lenses of fine grained sand 112.0-117.0' - dark reddish brown, up to 5% greenish gray mottling, olive gray mottling 112.9-113.1' - dark reddish brown to black mottling, up to 0.02' thick throughout entire run, soft, very fine to fine grained	R22: 08:23-09:25
115 149.8 - - -	100%		0	115.8' - Fractures, microfractures with greenish gray infilling	× × × × × × × × × × × × × × × × × × ×	- - - - 116.3' - large greenish gray mottle	At 115.3': R-Scale = R3
- - -	117.0		0		× × × × × × × × × × × × × × × × × × ×	117.0-127.0' - little to no black mottling, greenish gray mottles are mostly large up to 0.15' thick, <10% coverage of core, coarsens with depth,	R23: 09:59-10:45 and 11:00-11:25 – At 117.8': R-Scale = R3 –
- - 120	R23HQ 5 ft 106%	100	0		× × × × × × × × × × × × × × × × × × ×	- 0-25%, very fine to fine grained sand 117.8' 118.9'	
144.8 - - -			0	121.0-122.0' - Fracture, 82 deg, closed (joint) fracture, up to 0.01' thick some sand grains	× × × × × × × ×	121.0' - soft	- - -
-	122.0		0	infilling 122.0' - Fracture, microfractures filled with sand surrounded by greenish gray material	× × × × × × × ×	122.0-124.1' - up to 20% very fine - sand	R24: 13:18-13:40
-	R24HQ	97	0		× × × × × × × ×	-	At 123.1': R-Scale = R2-R3
125 <u> </u>	5 ft 98%	91	1	— 125.5' - Fracture, horizontal and 5 deg, rough,	× × × × × × × ×	125.0' - dark reddish brown, multicolor mottling of olive gray, black, soft to	SC-6 collected
-	127.0		3	undulating 126.2' - Fracture, horizontal, smooth, undulating 126.3' - Fracture, horizontal, smooth.	× × × × × × × ×	hard, fine grained, laminations at 20 degree angle, some laminations up to - 0.02' thick contain up to 30% very fine to fine sand	125.5-126.2' - - -
- - - 130_ 134.8	R25HQ 5 ft 1 91%	50	10+	126.3 - Fracture, norizontal, smooth, undulating 126.6' - Fracture, horizontal, smooth, undulating, 0.01' thick clay infilling 126.7' - Fracture, microfractures filled with green gray material on it, brown clay 127.0-127.2' - Fracture zone, horizontal and 5 deg, stepped-laminated beds, but surfaces are smooth to slickensided and undulating	× × × × × × × × × × × × × × × × × × ×	Siltstone 127.0-136.5' - very dark gray, mottled yellow and red on core sides, trace very fine sand, some laminae in first 0.3', medium weak to medium strong 127.0-130.4' - slightly weathered	R25: 14:12-14:56



PROJECT NUMBER:

338884

BPA-48

SHEET 8 OF 11

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686889.5 N, 2012456.7 E)

ELEVATION: 264.8 ft MSL (NGVD 29)

DRILLING CONTRACTOR: Duggan, Trigon Engineering

CORING EQUIPMENT AND METHOD: B-57, HQ Double Barrel ORIENTATION: Vertical WATER LEVELS: --START: 11/28/06 09:46 END: 12/7/06 14:50 LOGGER: RG/JS/EM DISCONTINUITIES LITHOLOGY COMMENTS CORE RUN, LENGTH, AND RECOVERY (%) DESCRIPTION FRACTURES PER FOOT DEPTH AND ELEVATION BELOW SURFACE (ft) ROCK TYPE, COLOR, SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND <u>0</u> MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS RQD(%) DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC. CHARACTERISTICS 127.4-127.7' - Fracture zone, horizontal and 5 130.3-131.5' - 30% very fine to fine deg, stepped-laminated beds, but surfaces are sand At 131.0': R-Scale = R3 smooth to slickensided and undulating, more 130.4-156.0' - fresh 0 fractures 132.0 127.8' - Fracture, horizontal, smooth, 132.0-136.5' - very fine to fine sand R26: 15:36-16:30 undulating 0 content varies from 5-10% to 30-35%, gradational contact with underlying siltstone 0 At 133.7': R-Scale = R3-R4 R26HQ 5 ft 90% 90 0 135 129.8 0 0 136.5-136.9' - Fracture zone, highly fractured Siltstone 137.0 crumbled held together with clay infilling up to At 136.5' - dark reddish brown, soft, R27: 10:24-11:00 very fine to fine grained, black mottling 0.01' thick fracture surface up to 15% throughout core 0.02' thick 136.5-137.4' - some greenish gray mottling 0 R27HQ 0 5 ft 96 106% 140 $124 \, \overline{8}$ At 140.2': R-Scale = R3 0 At 141.0': R-Scale = R3 1 141.5' - Fracture, 10 deg, smooth, undulating 142.0 142.0-147.0' - reddish brown, mottled R28: 11:50-12:22 dark reddish black and greenish gray, At 142.2': R-Scale = R5 0 soft, very fine to fine grained 0 R28HQ 5 ft 100 0 At 144.4': R-Scale = R3 145 102% 119.8 0 0 147.0 147.0-147.6' - soft R29: 28 minutes 0 147.6-152.0' - dark reddish brown, At 147.6-152.0': R-Scale = trace purple (to1/4) and green mottling with a black thready center, soft, sand 0 content varies; 20% very fine to fine sand with lenses of medium grained At 148.9': R-Scale = R3 R29HQ sand ~1 thick 0 92 150 99% 114.8

2BB-309 Rev. 1



PROJECT NUMBER: BORING NUMBER: **BPA-48** 338884 SHEET 9 OF 11

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (686889.5 N, 2012456.7 E)

ELEVATION: 264.8 ft MSL (NGVD 29) DRILLING CONTRACTOR: Duggan, Trigon Engineering

DISCONTINUITIES COMMENT COMMEN	CORING	EQUIPMEN	IT AN	D ME	THOD : B-57, HQ Double Barrel			ORIENTATION : Vertical
DESCRIPTION PROXIME COURT PROVINCE	WATER L	LEVELS :				9:46	END : 12/7/06 14:50	LOGGER : RG/JS/EM
150.1-150.3-150.9-1-1-15-16-16-1-15-16-16-1-1-15-16-16-1-1-1-1		(%				92	LITHOLOGY	COMMENTS
152.0	DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, ANI RECOVERY (ø	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	SYMBOLIC LO	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.
R32HQ 165 100 0 0 100 0 100 0 100 0	155 109.8 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	R30HQ 5 ft 99% 157.0 R31HQ 5 ft 100%	99	0 0 0 0 0 0 1 1 0 0	hairline fractures through part of core 151.1-151.3' - Fracture 151.6' - Fracture, horizontal, rough, planar, 0.0003' relief, tight fit 151.9' - Fracture, 1 deg, rough, planar, 0.0003' relief, tight fit, trace dark orange spots to 1mm - 156.8' - Contact between siltstone and	××××××××××××××××××××××××××××××××××××××	151.1-151.6' - soft to hard, 0.5 thick sand lens, up to 20% very fine to fine sand in matrix 152.0-154.4' - soft to hard, up to 20-25% very fine to fine sand varies in matrix, 10% medium sand with several irregular lenses of medium sand to 30%, 1 thick 154.4' - soft to hard, irregular shape; remainder of core is dark reddish gray, very fine to fine grained with 20% fines, red mottling to over 30%, material is irregularly banded with lighter and darker gray, grades to sandstone 155.0-155.2' - trace red mottling in a sandier zone Sandstone 156.0-156.8' - reddish gray, soft to hard, fine sand to medium sand, fresh, brownish gray lenses and many coarser grains are light gray, thin bedding Siltstone 156.8-157.0' - dark gray, very soft, fresh, very fine grained At 157.0' - dark reddish brown, green mottling, very soft to soft, fresh, very fine to fine grained 157.9-159.3' - trace green mottles, soft, becomes more competent, 5-10%	At 150.7': R-Scale = R3 R30: 29 minutes At 153.0': R-Scale = R3-R4 At 156.3': R-Scale = R3 R31: 14:34-15:18 At 157.3': R-Scale = R2 At 158.3': R-Scale = R2 At 158.9': R-Scale = R2 At 158.9': R-Scale = R2 At 161.1': R-Scale = R3 R32: 15:52-16:28
	99.8	5 ft 100% 167.0 R33HQ 5 ft	100	0 0 1 1 0		-	black mottling to 1/4 159.3-160.0' - green mottling, very fine to fine grained 162.0-167.0' - trace green mottles to 1/4, soft to hard, very fine to fine grained 162.5-164.5' - soft, 10-15% very fine to fine sand with irregular 1 lenses of 20-25% sand 165.0-167.0' - very soft to soft 165.2-165.3' - patches of white clasts, to 1/4 in length, irregularly shaped 165.6-166.5' - white clasts increase to 15% 166.5-167.0' - white clasts increase to 50% of area, harder than matrix 167.0-167.3' - trace to 10% greenish white inclusions or mottles, soft, very fine to fine grained, trace very fine to fine sand 167.9-168.9' - trace to 10% greenish	At 162.7': R-Scale = R2 At 164.1': R-Scale = R2-R3 At 165.6-165.9': R-Scale = R2 R33: Finished at 16:40 At 168.7': R-Scale = R2 At 169.3': R-Scale = R3
						Ľ		

2BB-310 Rev. 1



PROJECT NUMBER:	BORING NUMBER:				
338884	BPA-48	SHEET	10	OF	11

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686889.5 N, 2012456.7 E)

ELEVATION: 264.8 ft MSL (NGVD 29)

DRILLING CONTRACTOR: Duggan, Trigon Engineering

CORING EQUIPMENT AND METHOD : B-57, HQ Double Barrel ORIENTATION : Vertical

AG/JS/EM IMENTS IMEN
PTH OF CASING, CORING RATE AND SS, CAVING ROD T RESULTS, ETC. 3:17 Cale = R3
CORING RATE AND SS, CAVING ROD T RESULTS, ETC. 3:17 Cale = R3
cale = R3
cale = R3
cale = R2-R3
_
9:09 scale = R3
d
_
):45
-
1:37
-

2BB-311 Rev. 1



CORING EQUIPMENT AND METHOD: B-57, HQ Double Barrel

PROJECT NUMBER: BORING NUMBER: 338884 **BPA-48** SHEET

ROCK CORE LOG

11 OF 11

PROJECT: PEC COLA, New Hill, NC LOCATION: (NAD 27) (686889.5 N, 2012456.7 E)

DRILLING CONTRACTOR: Duggan, Trigon Engineering ELEVATION: 264.8 ft MSL (NGVD 29)

ORIENTATION: Vertical WATER LEVELS: --START: 11/28/06 09:46 END: 12/7/06 14:50 LOGGER: RG/JS/EM DISCONTINUITIES LITHOLOGY COMMENTS 90 CORE RUN, LENGTH, AND RECOVERY (%) FRACTURES PER FOOT DESCRIPTION DEPTH AND ELEVATION BELOW SURFACE (ft) ROCK TYPE, COLOR, SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD SYMBOLIC MINERALOGY, TEXTURE, RQD(%) DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS WEATHERING, HARDNESS, AND ROCK MASS DROPS, TEST RESULTS, ETC. CHARACTERISTICS At 190.5': R-Scale = R3 0 At 191.5': R-Scale = R3-R4 192.0 192.0-197.0' - dusky red, black R38: 13:02-13:25 0 mottling, soft to hard, gradual increase in grain size (sand content) 192.0-193.0' - 10% sand At 193.0': R-Scale = R3 0 R38HQ At 194.0': R-Scale = R3 5 ft 100% 100 0 195 69.8 0 196.0-197.0' - 50% sand 0 197.0 197.0-202.0' - gradually becomes finer R39: 13:40-13:59 0 grained 197.0' - 50% fine to medium sand 0 R39HQ 0 5 ft 96 96% 200 64.8 0 201.1' - Fracture, 65 deg, tight fit 2 201.2' - Fracture, 65 deg, rough, undulating 202.0 201.3' - Fracture, horizontal, rough, undulating 202.0-203.8' - soft to hard, 10% fine R40: 14:24-14:43 sand, 0.05' thick beds of finer gravel 0 material 202.0-203.0' - dark reddish gray, mottled black and faint dark purple, At 202.9': R-Scale = R3 0 R40HQ 3.7 ft | 100 soft to hard, 10-20% very fine sand/coarse silt, faint bedding <.04 to 105% 0 .1 thick, trace medium grained white At 204.5': R-Scale = R3 sand, more in last 0.2' 205 59.8 Sandstone R-Scale performed during 1 203.8-205.7' - dark reddish gray, rock core logging. 205.7 205.4' - Fracture, horizontal, rough, undulating, mottled white, gray, and green, hard, 0.0003' relief, tight fit medium sand to coarse sand, fresh, siltstone interbeds and clasts - dark reddish brown, irregular, up to 15 thick, cover ~40% area, fine grained, Bottom of Boring at 205.7 ft bgs on 12/7/06 14:50 210 54.8



PROJECT NUMBER:	BORING NUMBER:				
338884	BPA-49	SHEET	1	OF	11

SOIL BORING LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687867.1 N, 2011965.5 E)

ELEVATION: 261.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: Whichard, Trigon Engineering

DRILLING EQUIPMENT AND METHOD: CME-55, Tricone Bit, 24" Split Spoon, 140 lb. Automatic Hammer ORIENTATION: Vertical

DRILLIN	IG EQUII	PMENT A	AND MET	HOD: CME-55,	Tricone Bit, 24" Split Spoon, 140 lb. Automatic Hammer	ORIENTATION : Vertical	
WATER	LEVELS	S :			START : 12/7/06 08:00 END :	12/12/	/06_16:15 LOGGER : RG/EM
DEPTH B	BELOW EX	KISTING G	RADE (ft)	STANDARD	SOIL DESCRIPTION		COMMENTS
	INTERV	AL (ft)		PENETRATION TEST RESULTS			DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		RECOVE	ERY (in)	TEOTINEOUETO	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR	1 2	DEPTH OF CASING, DRILLING RATE,
			#TYPE	6"-6"-6"	CONSISTENCY, SOIL STRUCTURE, MINERALOGY		DRILLING FLUID LÓSS, TESTS, AND INSTRUMENTATION
				(N)		ð	δ
261.9						1	
						1	
						1	
-						1	
-						1	
-						1	
-						1	
-						1	
5						1	
256.9	5.0				Clay (CL)		_
-		16.2	SS1SS	2-14-21	5.0-6.4' - dark red, dry to moist, stiff, nonplastic to low plasticity	1	
-	6.5			(35)	plasticity		
-	0.5					1	
-						1	
-						1	
-						-1	
-						1	
-						+	
-						-	
10 <u> </u>	10.0				_ Clay (CL)	-	-
-		3.5	SS2SS	50/3.5	10.0-10.3' - dark red, dry to moist, nonplastic to low plasticity, 5-15% very fine, poorly graded sand, very	Æ	
-		3.5	33233	(50/3.5")	\piasticity, 5-15% very fine, poorly graded sand, very \hard	/ -	
-	11.5					′ ┨	
-							
-						+	
-						+	
-						+	
-	14.0				Clay (CL)	1/2	
	•	7.0	00000	E0.	14.0-14.6' - dark red, dry to moist, nonplastic to low	A	//
15 <u> </u>		7.2	SS3SS	50 (50")	plasticity, very hard	\mathcal{A}	-
- 10.5	15.5			, ,		-	
-						+	
-						+	
-						4	
-						+	
-						4	Soil campling completed at 10:45 on 19/7/00
-						4	Soil sampling completed at 10:45 on 12/7/06
-	19.0	1.0	SS4SS/		─\ Clay (CL)	#	
-	19.0	1.0	00400	50/1	\19.0-19.1' - dark red, dry to moist	/4	
20_				(50/1")	Begin Rock Coring at 19.1 ft bgs	4	1
					See the next sheet for the rock core log		



PROJECT NUMBER:

338884

BPA-49

SHEET 2 OF 11

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687867.1 N, 2011965.5 E)

ELEVATION: 261.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: Whichard, Trigon Engineering

CORING EQUIPMENT AND METHOD : CME-55, HQ Double Barrel ORIENTATION : Vertical

CORING	EQUIPMEN	I AN	D ME	THOD : CME-55, HQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS :			START : 12/7/06 08	:00	END: 12/12/06 16:15	LOGGER : RG/EM
	<u> </u>			DISCONTINUITIES	U	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
20_ 241.9	R1NQ 1.9 ft 95% 21.0	83*	1	19.6' - Contact between siltstone and sandstone 19.6' - Fracture, smooth, undulating, 0.002' clay infilling, at siltstone-sandstone contract	× × ×	Siltstone 19.1-19.6' - dark red, soft, moderately weathered Sandstone 19.6-25.7' - white to pink, very soft, laminated bedding, fine sand to	Rock coring began at 14:04 on 12/7/06 R1: 14:04-14:10 — At 19.0-19.6': R-Scale = R3- R4 At 19.6': R-Scale = R0-R1
- - -			0			medium sand, moderately weathered, well sorted, moderately cemented, 30-40 degree laminations	At 20.3': R-Scale = R3-R4 R2: 14:40-14:52
- - 25 236.9	R2NQ 5 ft 100%	98*	0	- - -		- - -	At 23.1': R-Scale = R3-R4
- - - -	26.0 R3NQ		4 5	26.0' - Fractures (5), rough, stepped 27.1' - Fracture, horizontal, smooth, planar, 0.1' clay infilling 27.4' - Fracture, rough, stepped, 0.05' clay infilling	× × × × × × × × × × × × × × × × × × ×	Shale 25.7-26.0' - dark bluish gray, very soft, moderately weathered, fissile, micaceous, weak cementation Siltstone 26.0-28.5' - laminated bedding, moderately weathered, bedding on 20-30 degree angle	At 25.7-26.0': R-Scale = R2 R3: 15:02-15:17 SC-3 collected 27.1-27.2'
30_ 231.9_	5 ft 100%	58*	0 2	28.4' - Fracture, rough, stepped 28.9' - Fracture, 30 deg, rough, planar 29.0' - Fracture, horizontal, rough, planar, <0.002' clay infilling	× × × × × × × × × × × × × × × × × × ×	Clay (CL) 28.5-29.0' - light to dark gray, moderately weathered Siltstone 29.0-29.5' - dusky red, moderately weathered Sandstone	At 29.0-29.5': R-Scale = R1- R2 - SC-1 collected 30.0-30.5' -
-	R4NQ 5 ft 66%	38*	5	31.0' - Fracture		29.5-32.2' - light bluish gray, fine sand to medium sand, moderately weathered, well sorted Siltstone 32.2-36.3' - dusky red, 30-40% very fine to fine sand, well sorted 32.2-36.0' - moderately weathered	R4: 15:34-15:46
35_ 226.9	36.0		1	36.0' - Fracture, rough, stepped	× > × > × > × > × > × > × > × > × > × >	36.0-36.3' - slightly weathered Siltstone	
- - -	R5NQ 5 ft 100%	88	0		× × × × × × × × × × × × × × × × × × ×	36.3-37.3' - gray, very soft, slightly weathered Siltstone 37.3-49.4' - dusky red, 30-40% very fine to fine sand, well sorted 37.3-49.1' - slightly weathered	At 37.3-41.0': R-Scale = R3 R4

2BB-314 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BPA-49

SHEET 3 OF 11

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687867.1 N, 2011965.5 E)

ELEVATION: 261.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: Whichard, Trigon Engineering

CORING EQUIPMENT AND METHOD : CME-55, HQ Double Barrel ORIENTATION : Vertical

	, <u> </u>		<u> </u>	THOD . CIVIE-33, FIQ DOUBLE BAITEI			ORIENTATION . Vertical
WATER	LEVELS:			START : 12/7/06 08	3:00	END : 12/12/06 16:15	LOGGER : RG/EM
	_			DISCONTINUITIES	ניז	LITHOLOGY	COMMENTS
_ €	.9% .9%		S	DESCRIPTION	Ĭ	DOCK TYPE COLOR	
NO H	1 2 Z K	(9)	JRE OT	220011111111	- 임	ROCK TYPE, COLOR, MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING,
HA SA	N TES	(%) Q	FS	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	BOI	WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	A Q	FRACTURES PER FOOT	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	AND ROCK MASS CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
	071	ш.	шш			6.7.0.0.2.00	
-			1	39.0' - Fracture, rough, stepped, <0.002' clay infilling	_ × :	<u>}</u>	_
40				- Initiality	_ × :		
221.9					$\begin{bmatrix} \times \\ \times \end{bmatrix}$	1	
-	144.0		0		×	<u> </u>	_
-	41.0				⊣ × :	}-	R6: 16:30-16:43
l -			1		- × :	1	SC-2 collected
					× :	3	41.0-41.6'
I -					× :	₹	
-			2		- × :	†	-
-	DCNO			42.0' Fracture rough standed <0.002' day	- × :	<u>}-</u>	-
l _	R6NQ 5 ft	80	5	43.0' - Fracture, rough, stepped, <0.002' clay infilling	- ×	<u> </u>	
	100%	00		""""""""""""""""""""""""""""""""""""""	× :	1	
I -					× :	f 1	
l			3	44.4-44.7' - Fractures (2)	- ×	<u>-</u>	-
45 <u>-</u> 216.9				_	- ×∶	<u></u>	
216.9			1		_ x :	1	
I -	46.0		1		- × :	<u>f</u>	
I -	40.0			45.9' - Fracture, rough, stepped, <3 mm relief	⊤ ×∶	46.0-49.4' - dark dusky red, 25-30	R7: 08:41-08:58
-			3	46.1-46.5' - Fractures (3), rough, undulating	- × ;	degree laminations	At 46.0-49.4: R-scale = R3-
I _					- × :	1	R4 - Scale - R3-
					- V	}	• • • • • • • • • • • • • • • • • • • •
_			1		- × :	T	_
-	R7NQ			47.8' - Fracture, 30 deg, rough, planar, along	- × :	[_
-	5 ft	62	2	laminations 48.0' - Fractures (2), 31 deg, rough, planar	- ×	<u>}</u>	=
I _	100%			46.0 - Fractures (2), 31 deg, rough, planar	× :	1	
				49.2' - Fracture, 30 deg, smooth, planar, along	_X_:	49.1-49.4' - highly weathered	
50			10+	laminations	1///	Clay (CL)	_
211.9				49.4-51.0' - Fractures, along laminations	-{///	— 49.4-50.2' - dark brown, highly	SC-4 collected —
			10+		- × :	weathered	49.9-50.2'
	51.0				- × :	Siltstone	
I -					× :	At 50.2' - dusky red, soft 50.2-51.0' - highly weathered	R8: 09:21-09:41
-			1		- × :	51.0-69.7' - slightly weathered	At 51.0-56.0': R-scale = R3-
-				51.8' - Fracture, smooth, planar	- × ;	son singing nounces	R4 -
l _			0		_ × :	<u> </u>	SC-5 collected
					×	1	52.3-54.2'
I -	R8NQ			53.0-54.3' - Fractures	× :	f 1	_
-	5 ft	59	10+		- × :	<u>+</u>	-
-	100%		<u> </u>		- × ;	∤	
I _			4	54.3-54.9' - Fractures (3), horizontal, rough,	_ × :	1	_
55				planar, <0.001' clay infilling, along laminations	× :	<u> </u>	
206.9				55.1-55.9' - Fractures (5), along laminations	Tŝ i	├	_
-			4	55.1 55.5 Tradition (5), along tarrifications	- × :	}-	-
-	56.0				- × :	<u></u>	Fo 40 00 40 00
			3		× :	<u> </u>	R9: 10:00-10:28
				56.7-56.9' - Fractures (3), horizontal, rough,	×	56.7-56.9' - very soft	At 56.0-61.0': R-scale = R3-
1 -				planar, <0.001' clay infilling, along laminations	- × :	57.0-57.3' - very soft	R4 -
-			1	57.0-57.3' - Fractures (2), 1 deg, rough, planar,	- ×	- 10000	At 56.7-56.9': R-Scale = R2 At 57.0-57.3': R-Scale = R2
I -				along laminations	- ×	<u> </u>	A. J. U-J. J. N-SCAIE - RZ
	R9NQ	C-7	_	58.3-59.5' - Fractures (8), horizontal, rough,	×	59.3.59.01. von/ 00 ⁴	At 50 2 50 0h D Caala - DC
_	5 ft 100%	67	5	planar, <0.002' clay infilling, along laminations	- × :	- 58.3-58.9' - very soft	At 58.3-58.9': R-Scale = R2 -
⊢	100 /0			plantar, 10.002 day infilling, along larminations	∃ŵ.	<u> </u>	_
1					1		

2BB-315 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BPA-49

SHEET 4 OF 11

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687867.1 N, 2011965.5 E)

ELEVATION: 261.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: Whichard, Trigon Engineering

CORING EQUIPMENT AND METHOD : CME-55, HQ Double Barrel ORIENTATION : Vertical

CORING	EQUIPMEN	I AN	D IVIE	THOD : CME-55, HQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS:			START : 12/7/06 08	3:00	END : 12/12/06 16:15	LOGGER : RG/EM
	ৃত			DISCONTINUITIES	้อ	LITHOLOGY	COMMENTS
gz €	CORE RUN, LENGTH, AND RECOVERY (%)		ES	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
ATS N	N F, F, P	(%)	7.00	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	7 5	MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND
DEPTH AND ELEVATION BELOW SURFACE (ft)	NG N	R Q D (%)	FRACTURES PER FOOT	PLANARITY, INFILLING MATERIAL AND	MB	AND ROCK MASS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
2 2 2 2	822	œ	E E	THICKNESS, SURFACE STAINING, AND TIGHTNESS		CHARACTERISTICS	
_			4		- × :	- 59.3-59.5' - very soft, friable areas	At 59.3-59.5': R-Scale = R2
60				_	_ × :	_	
201.9			0		- × :	_	At 60.3': R-Scale = R3-R4
_	61.0				- x	_	
_			1	61.2' - Fracture, smooth to rough, planar,	- × ;		R10: 10:48-11:05
l _			·	<0.0007' clay infilling	_ × :		_
_			1	62.1' - Fracture, smooth, planar	_ × :		_
_			·		_ × :	1	_
_	R10NQ 5 ft	90	1	63.1' - Fracture, smooth, planar]× :	1	_
_	96%	90	']× :		
			0		×		
65			0		- × ;		
196.9				65.0' - Fracture, smooth, undulating, 9 mm	- X :		
_	66.0		2 ×××	relief 65.5' - Fracture, rough, planar	- × :	<u> </u>	
_					× :	:	R11: 11:39-11:54
_			0		×	:	
-					- × :		-
_			1		- × :	†	-
-	R11NQ			67.8' - Fracture, rough, undulating 68.1' - Fracture	- × :	†	At 66.0-76.0': R-scale = R3-
-	5 ft 100%	82	1	oo.1 Tradiare	- × ;	†	R4 -
-	100 /6				- × :	}	-
70 -			9	69.2-69.7' - Fractures (9), rough, planar, along laminations	- × :		-
70 <u> </u>				-	√x i	69.7-82.5' - fresh	
-			0		$- \hat{x} $	-	-
-	71.0				- × ;	}-	R12: 12:11-12:25
_			0		- × :	}-	SC-6 collected -
-					- × :	-	71.0-72.0'
-			0		- × :	+	-
-	R12NQ				- × :	1	-
_	5 ft	100	0		- × :	1	_
_	100%				_ × ;	}-	_
_			0		- × ;	_	_
75				_	- x̂	_	
186.9			0		- x		_
_	76.0				- x		
_			0		_ × :	76.0-82.5' - reddish gray to weak red, 20-30% very fine to fine sand, well	R13: 12:42-12:54
I _					- × :	sorted	
I -			0		X X	1	
					×	1	
	R13NQ	100			- × :	1	
	5 ft 100%	100	0		- X :	5	
_					<u>- × :</u>		-

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PROJECT NUMBER:	BORING NUMBER:				
338884	BPA-49	SHEET	5 OF	11	

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687867.1 N, 2011965.5 E)

ELEVATION: 261.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: Whichard, Trigon Engineering

CORING EQUIPMENT AND METHOD : CME-55, HQ Double Barrel ORIENTATION : Vertical

0011111	J LQOII IIILI	7.41	D IVIL	THOD : CME-55, HQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS:			START : 12/7/06 08	3:00	END : 12/12/06 16:15	LOGGER : RG/EM
	<u> </u>			DISCONTINUITIES	၂ ဗွ	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
80_ 181.9 -	81.0		0	-	- × × - × × - × × - × ×	- - -	At 76.0-86.0': R-Scale = R3- R4
-	R14NQ 5 ft	93	2	82.6' - Fracture, 40 deg, rough, planar 82.8' - Fracture, rough, planar	- × × - × × - × × - · · · ·	Sandstone 82.5-84.0' - dark bluish gray, fresh, very fine to fine, well sorted, faint laminations (fines)	R14: 13:12-13:26 - - - - -
85_ 176.9 -	100%		1 0	83.9' - Fracture, 30 deg, rough, planar 84.0' - Fractures, along weak siltstone bedding -		Siltstone At 84.0' - reddish gray to weak red, soft, fresh, 20-30% very fine to fine sand, well sorted 86.0-93.0' - fine gravel sized dark pink	- - - R15: 14:20-14:35
- - -	R15NQ 5 ft 100%	100	0 0		- × × × × × × × × × × × × × × × × × × ×	clasts	-
90 171.9 -	91.0		0	-	- × × × × × × × × × × × × × × × × × × ×	- - -	At 86.0-96.0': R-Scale = R3- R4 - R16: 14:49-14:59
-	R16NQ 5 ft	100	0 0		- × × × × × × × × × × × × × × × × × × ×	Sandstone 93.0-99.6' - pale reds, soft, medium	- - -
95_ 166.9	100%	100	0 0	-	-	bedding, fresh, medium grained, well sorted	- - -
- - -	96.0		0		-	96.0-98.0' - fine to medium grained	R17: 15:12-15:26 -
-	R17NQ 5 ft 96%	90	2		-	98.0-99.6' - bluish gray and black, medium sand to coarse sand, well sorted	- - -

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PROJECT NUMBER:

338884

BORING NUMBER:

BPA-49

SHEET 6 OF 11

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687867.1 N, 2011965.5 E)

ELEVATION: 261.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: Whichard, Trigon Engineering

CORING EQUIPMENT AND METHOD : CME-55, HQ Double Barrel ORIENTATION : Vertical

COMING	J LQOII WILIY	I AIN	DIVIL	HOD : CME-55, HQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS:			START : 12/7/06 08	3:00	END : 12/12/06 16:15	LOGGER : RG/EM
	(%			DISCONTINUITIES	g	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
100 161.9	101.0		2 1	99.6-99.8' - Fracture zone (3), rough, planar, <0.003' clay infilling, fractured siltstone 100.1' - Fracture, rough, planar, <0.001' clay infilling	- × × - × × - × × - × × - × ×	Siltstone At 99.6' - dusky red, soft, fresh	At 99.8-100.8': R-Scale =
- - -	R18NQ		0		- × × × × × × × × × × × × × × × × × × ×	- - 101.8-102.4' - 10-20% medium grained sand, well sorted	R18: 15:42-15:57
105 156.9	5 ft 100%	100	0 0	-	- × × × × × × × × × × × × × × × × × × ×	- - - -	103.0-104.0' - - - -
- - - -	106.0		0		- × × × × × × × × × × × × × × × × × × ×	106.0-111.0' - dusky red, soft, 20 degree laminations	R19: 08:38-08:52
- - 110 151.9	R19NQ 5 ft 100%	100	0 0	-	- × × × × × × × × × × × × × × × × × × ×	- - - -	At 106.0-111.0': R-scale = R3-R4
- - -	111.0		2	111.1' - Fracture, rough, stepped, ~5-10 mm relief	- × × × × × × × × × × × × × × × × × × ×	- - -	R20: 09:13-09:32
- - - 115	R20NQ 5 ft 100%	90	2	112.8' - Fracture, rough, planar, <0.003' clay infilling	- × × × × × × × × × × × × × × × × × × ×	113.0-116.0' - 10-15% very fine - -	At 112.9': R-Scale = R2 At 113.4': R-Scale = R3-R4
146.9 - -	116.0		0	115.7' - Fracture, 15 deg, smooth, planar, break along bedding plane	-	 - 116.0-121.0' - dusky red to weak red, - soft -	R21: 09:44-10:04
- - -	R21NQ 5 ft 100%	100	0		- × × × × × × × × × × × × × × × × × × ×	117.6-118.2' - 20-30% fine to coarse grained sand 	-

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PROJECT NUMBER:

338884

BORING NUMBER:

BPA-49

SHEET 7 OF 11

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687867.1 N, 2011965.5 E)

ELEVATION: 261.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: Whichard, Trigon Engineering

CORING EQUIPMENT AND METHOD : CME-55, HQ Double Barrel ORIENTATION : Vertical

CORING	EQUIFINEN	II AN	D IVIE	THOD : CME-55, HQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS:			START : 12/7/06 08	:00	END : 12/12/06 16:15	LOGGER : RG/EM
	<u> </u>			DISCONTINUITIES	စ္က	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
120 141.9	121.0		0	_	× × × × × × × × × × × × × × × × × × ×	- 119.3-120.0' - 20-30% fine to coarse grained sand -	At 119.0': R-Scale = R3-R4
- - - -	R22NQ 5 ft 100%	98	0 0		× × × × × × × × × × × × × × × × × × ×	Sandstone 122.2-124.8' - soft, medium sand to coarse sand, fresh, 20 degree laminated bedding	- - - - - - - - - - - -
125 136.9 -	126.0		2		× × × ×	- 124.3-124.8' - 5-10% up to 0.002' rock clasts Siltstone - 124.8-125.3' - dusky red, fresh Sandstone At 125.3' - reddish gray, fresh, very fine to fine sand, thin to massive	At 124.8-125.3': R-Scale = — R2 - R23: 11:14-11:25
- - -	R23NQ 5 ft 100%	100	0			bedding 126.0-133.9' - light bluish gray to bluish gray, soft, medium to coarse grained sand, well sorted	
130 131.9 -	131.0		0	-		- - -	- - - - R24: 11:46-12:00
- - -	R24NQ		0		-	- - -	
135_ 126.9	5 ft 100%	100	0 0	_	× × × × × × × × × × × × × × × × × × ×	Siltstone 133.9-138.8' - dusky red, soft, fresh, 5-10% red pinkish fine gravel sized clasts	At 133.9-136.0': R-Scale = R3-R4 - At 134.0': R-Scale = R3-R4
- - -	136.0		0	136.8-140.4' - Fractures (5), 15 deg and 20 deg, rough, undulating, along laminations	× × × × × × × × × × × × × × × × × × ×	136.0-138.8' - dusky red to light bluish gray, soft, 30-40% very fine to fine grained sand, well sorted, 25 degree bedding	R25: 12:14-12:35
-	R25NQ 5 ft 100%	100	0		× × × × × ×	- - -	- - - At 138.8': R-Scale = R3-R4 -
					-		•

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PROJECT NUMBER:

338884

BORING NUMBER:

BPA-49

SHEET 8 OF 11

ROCK CORE LOG

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687867.1 N, 2011965.5 E)

ELEVATION: 261.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: Whichard, Trigon Engineering

CORING EQUIPMENT AND METHOD : CME-55, HQ Double Barrel

00		. ,		THOD . CIVIE-33, FIQ DOUBLE Barrel			ORIENTATION : Vertical
WATER	LEVELS :			START : 12/7/06 08	3:00	END: 12/12/06 16:15	LOGGER : RG/EM
				DISCONTINUITIES		LITHOLOGY	COMMENTS
oz É	CORE RUN, LENGTH, AND RECOVERY (%)		m	DESCRIPTION	SYMBOLIC LOG		
DEPTH AND ELEVATION SELOW SURFACE (ft)	Ã.Α.Υ.	<u></u>	FRACTURES PER FOOT	DESCRIF HON	_ □	ROCK TYPE, COLOR, MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING,
AT V	INTERNAL	R Q D (%)	Τ̈́	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	Вď	WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
판한하지	SINGE	Ø	SAC ER F	PLANARITY, INFILLING MATERIAL AND	ΙË	AND ROCK MASS	DROPS, TEST RESULTS, ETC.
	822	ď	E E	THICKNESS, SURFACE STAINING, AND TIGHTNESS	S	CHARACTERISTICS	5.10. 0, 120. 12002.0, 2.10.
			0		1:::	Sandstone	
140			U		1:::	At 138.8' - soft, fine sand to medium	At 139.4': R-Scale = R3-R4
121.9				-	Ⅎ∷∶	— sand, fresh, poorly to well sorted, laminated to medium bedding,	_
-			0		- 1∷∷	laminated to medium bedding, laminae are soft to hard and	At 140.4': R-Scale = R3-R4 -
	141.0				<u>]</u> :::	- discontinuous	_
						139.6-139.7' - siltstone lens	R26: 12:58-13:10
-			0		∃ ∷:	140.0-140.1' - siltstone lens	-
-					- ∷∷	_ 141.0-143.7' - very fine sand to fine	-
_			0		_ :::	sand, well sorted	_
					1:::		
	R26NQ				7:::	-	At 143.0': R-Scale = R3-R4
-	5 ft	100	0		∃∷ ∷	=	-
-	100%				- ∷∷	_ 143.7-146.0' - fine to medium sand,	At 143.7': R-Scale = R3-R4 _
			0]:::	well sorted to poorly sorted, 5-15% <0.002' rock clasts	
145			U		7:::	<0.002 rock clasts	
116.9				_	†∷ ∶	_	
-			0		- ∷∷	_	-
_	146.0				4:::		
						146.0-150.2' - light to dark gray	R27: Finished at 08:40
			0		1∷ ∷	 146.1-146.2' - dark gray, fine sand and silt 	_
I -					∃∷ ∷	146.2-146.9' - very coarse sand to fine	At 146.9': R-Scale = R3
_			0		-1:::	- gravel	-
					_ ∷::	146.9-150.2' - coarse sand	_
	R27NQ				1:::		At 148.2': R-Scale = R3
_	5 ft 100%	100	0		1:::	-	71. 140.2.11 Godie 110 _
-	10070				∃∷ ∷	-	-
_			1	149.4' - Fracture, 30 deg, rough, undulating	↓∷ ∷	_	-
150				_]:::		SC-7 collected
111.9				150.2' - Contact between siltstone and	××	Siltstone	149.5-150.2' —
-	454.0		0	sandstone, 10 deg, sharp contact	- × ×	150.2-166.0' - very dark gray, mottled	-
-	151.0			, 3, 1	- × ×	- greenish gray, soft, fresh	R28: 09:00-09:26
_			0		_ × ×	_	R20. 09.00-09.26
					× ×		
					1× ×	=	_
-			0		- × ×	-	-
-	Books				- × ×	-	-
	R28NQ 5 ft	98	0		_ × ×	_	_
]	98%	90	ا ا		× ×		<u> </u>
-					- × ×	-	-
-			0		- × ×	-	-
155_				_	××	_	_
106.9					$\begin{array}{c} \times		
1	156.0		0		1× ×		_
-	100.0		$\sim\sim$		- × ×	-	R29: 09:43-10:04
-			0		- × ×	_	-
					× × × × × × × × × × × × × × × × × × ×	_	_
			[××		
			0		X X	-	-
-	R29NQ				- × ×	158.0' - pale olive green, very soft to	-
	5 ft	88	0		× × × × × ×	- soft	_
	98%						
					- × ×		<u> </u>

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PROJECT NUMBER:

338884

BORING NUMBER:

BPA-49

SHEET 9 OF 11

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687867.1 N, 2011965.5 E)

ELEVATION: 261.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: Whichard, Trigon Engineering

CORING EQUIPMENT AND METHOD : CME-55, HQ Double Barrel ORIENTATION : Vertical

CORING	S EQUIPMEN	T AN	D ME	THOD : CME-55, HQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS:			START : 12/7/06 08	3:00	END: 12/12/06 16:15	LOGGER : RG/EM
	(G)			DISCONTINUITIES	ပ္	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
160 <u>1</u> 01.9	161.0		2	159.7' - Fracture, 10 deg, rough, undulating 160.1' - Fracture, 10 deg, rough, undulating	X	- . 161.0-162.4' - hard, up to 20% fine	- - R30: 10:23-10:39
- - - -	R30NQ 5 ft 104%	98	0 0	162.9' - Fracture, horizontal, smooth, undulating	- X X X X X X X X X X X X X X X X X X X	sand	- - - -
165 96.9 - - - -	166.0 R31NQ		0 1 ××× 0 0	- 165.7' - Fracture, horizontal, rough, undulating	- X X X X X X X X X X X X X X X X X X X	165.0-166.0' - mottled olive green, gravel sized pinkish white clasts Siltstone 166.0-179.4' - dark reddish brown, soft, fresh 166.0-171.0' - mottled greenish gray, 5-10% very fine to fine sand	At 164.8': R-Scale = R3 — At 165.8': R-Scale = R4 — R31: 11:16-11:38 — —
170 91.9 -	5 ft 98%	98	0 0	-	- X X X X X X X X X X X X X X X X X X X	171.0-179.4' - soft to hard, 10-25%	- - - - R32: 12:12-12:32
- - - -	R32NQ 5 ft 105%	87	0 0		- X X X X X X X X X X X X X X X X X X X	171.4-171.9' - up to 65% fine to medium sand	At 172.0': R-Scale = R3 At 172.3': R-Scale = R3 -
175_ 86.9 - - -	176.0		7	174.7' - Fracture, horizontal, smooth, undulating 175.3' - Fracture, horizontal, smooth, undulating 175.7' - Fracture, horizontal, rough, undulating 175.8' - Fracture, 85 deg, rough, undulating	× × × × × × × × × × × × × × × × × × ×	 176.0-179.4' - mottled greenish gray	R33: 13:00-13:18
- - -	R33NQ 5 ft 100%	100	0		- X X X X X X X X X X X X X X X X X X X		At 177.0': R-Scale = R3 At 178.0': R-Scale = R3

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PROJECT NUMBER:

BORING NUMBER:

BPA-49 SHEET 10 OF 11

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687867.1 N, 2011965.5 E)

ELEVATION: 261.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: Whichard, Trigon Engineering

CORING EQUIPMENT AND METHOD : CME-55, HQ Double Barrel ORIENTATION : Vertical

00.1			<u> </u>	THOD . CIVIE-55, FIQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS:			START : 12/7/06 08	3:00	END: 12/12/06 16:15	LOGGER : RG/EM
	(DISCONTINUITIES	(J	LITHOLOGY	COMMENTS
oz €	CORE RUN, LENGTH, AND RECOVERY (%)		Ø	DESCRIPTION	SYMBOLIC LOG	DOCK TYPE COLOR	
DEPTH AND ELEVATION BELOW SURFACE (ft)	N A Y	(%)	FRACTURES PER FOOT	BEGOTAL FIGH	윽	ROCK TYPE, COLOR, MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING,
ΞĘĕ ĕĕ	E STE	(%) _Q	F.O.	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	BOL	WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
	ORU ECCEN	Ø	ZA ER	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	Σ	AND ROCK MASS CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
	035	ď		THICKNESS, SORFACE STAINING, AND HIGHTNESS	Ś	CHARACTERISTICS	, , , , , , , , , , , , , , , , , , ,
_			0		××		_
180					:::	Sandstone	
81.9				-	7:::	179.6-186.0' - reddish gray to dark	1
-			1	400 01 5 4 05 4 4 4 4 4 4	-1:::	gray, fine sand to medium sand, fresh,	-
-	181.0			180.6' - Fracture, 25 deg, smooth, undulating	-1:::	gradational contact with overlying siltstone	
			0		:::	_ 181.0-186.0' - hard, coarse sand	R34: 13:39-13:52
_			U		7:::	- 101.0 100.0 Hara, obaroo dana	1
-					-	-	-
-			0		-1:::	 182.3-182.9' - very coarse sand 	-
l _					_l:::		_
	R34NQ				1:::		
_	5 ft 98%	98	0		7:::	183.4-184.2' - very coarse sand	1 7
-	90 /6				- :::	-	-
_			0		_ ∷∷	_	-
185							
76.9					7:::		At 185.0': R-Scale = R3
-	400.0		0		- 1∷∷	195 6 196 0' yory coarse cand	At 185.1': R-Scale = R3 -
-	186.0		$\overline{\sim}$		× ×	185.6-186.0' - very coarse sand	R35: No time recorded
_			0		××	Siltstone - 186.0-203.0' - dark reddish brown,	SC-8 collected
					$\begin{array}{c} \times \times \times \\ \times \times \end{array}$	trace greenish gray mottling, soft,	186.0-186.8'
_					× ×	fresh, very fine to fine grained, little to	At 187.0': R-Scale = R3
-			0		- × ×	- no sand	-
-	Dostilo				$-\times$	187.0-188.2' - small white clasts	AL 400 0L D 0 L D 0 D 4
_	R35NQ 5 ft	100	0]× ×	_ 188.2-190.4' - large white clasts	At 188.0': R-Scale = R3-R4
	100%	100	0		× ×	· ·	
_					$I \times x$	=	1 7
-			0		- × ×	-	-
190				_	- × ×	_	
71.9			3		× ×		
	191.0		3	190.4' - Fracture, horizontal, rough, undulating	- × ×	190.6' - 0.04' thick clay seam	1
-	131.0				- × ×		R36: 14:55-15:14
-			0		- × ×	_	-
l _					\times \times	_	_
					$\begin{array}{c} \times		
_			0		$\begin{array}{c} \times \times \\ \times \times \end{array}$	=	1
-	R36NQ				- × ×	-	-
_	5 ft	100	0		_ × ×	_	-
l _	105%				× ×		_
			_		××		At 194.0': R-Scale = R4
195			0		- × ×	-	1
66.9				-	- × ×		-
			0		- × ×		1
	196.0				× ×	195.5' - up to 35% fine grained sand,	
1			$\times\!\!\times\!\!\times$		- × ×	soft to hard, faint laminations	R37: 15:33-15:50
1 -			0		- × ×	-	1
-					- × ×	_	-
1 -			0		X X	- 197.3-198.0' - up to 30% fine to]
					$\begin{array}{c} \times \times \times \end{array}$	medium sand	
1 -	R37NQ				$\neg \times \times$		1 1
-	5 ft	100	0		- × × × ×	-	-
	100%				_ × ×	_	At 198.8': R-Scale = R3 -
							<u> </u>
		_			_		

2BB-322 Rev. 1



PROJECT NUMBER:	JECT NUMBER: BORING NUMBER:							
338884	BPA-49	SHEET	11 OF 11					

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687867.1 N, 2011965.5 E)

ELEVATION: 261.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: Whichard, Trigon Engineering

CORING EQUIPMENT AND METHOD : CME-55, HQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS :			START : 12/7/06 08:	00		END: 12/12/06 16:15	LOGGER : RG/EM	
	-(%)			DISCONTINUITIES	g	L	LITHOLOGY	COMMENTS	
ON E	Ä, AND ≪ (3	_	ZES T	DESCRIPTION	CLO	, [ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG		MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.	
200			0	-	X X	X X		-	
61.9			0	_	× : × : × : × :		-		
_	201.0		0	-	× : × : × :	X X X	201.0-203.0' - soft to hard, up to 30% fine to medium sand	R38: 16:10-16:15	
_	R38NQ 2 ft 100%	100	0	_ 	× : × : × :	* * *		At 202.0': R-Scale = R4	
_	203.0				× :	<u>*</u>	Bottom of Boring at 203.0 ft bgs on	R-Scale performed during rock core logging.	
_				-		F	12/11/06 16:15]	
205 56.9				- 		Ļ	-		
-				-		ŀ]	
_				-		ŀ		-	
-				-		F]	
-				-		ţ]	
-				-		ŀ]	
210 <u></u> 51.9				_		F	-	_	
_				-		F]	
-				- -		ŀ]	
-				-		ŀ		-	
_				-		F]	
-				- -		ŀ]	
215 46.9						F	-	_	
_				-		\mathbf{l}		-	
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-				-		F]	
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PROJECT NUMBER: BORING NUMBER: 338884 BPA-50

SOIL BORING LOG

SHEET 1 OF 11

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687752.1 N, 2012057.2 E)

ELEVATION: 273.0 ft MSL (NGVD 29)

DRILLING CONTRACTOR: Whichard, Trigon Engineering

DRILLING EQUIPMENT AND METHOD: CME-55, 4-1/4 Tricone Bit, 24" Split Spoon and 140 lb. Automatic Hammer ORIENTATION: Vertical

			AIND IVIL I	TIOD : CIVIL-00,	4-1/4 Tricone Bit, 24" Split Spoon and 140 lb. Automatic Ham		06 4	10.47	ORIENTATION: Vertical
WATER LEVELS : DEPTH BELOW EXISTING GRADE (ft)			PADE (ft)		START: 11/28/06 14:20 END: 1 SOIL DESCRIPTION	2///	06	3:17	LOGGER : RM/RG COMMENTS
INTERVAL (ft)			NOPE (II)	STANDARD PENETRATION	SSIE DEGOMI HON	\dashv	SYMBOLIC LOG		DEDTILOF CASING DRILLING DATE
	RECOVERY (in)		TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,		-ICL			
		RECOV			MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY		IBOL	(TSF)	DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
			#TYPE	6"-6"-6" (N)	CONSISTENCY, SOIL STRUCTURE, MINERALOGY		SYN	PP (INSTRUMENTATION
273.0	0.0			,	Silty Sand (SM)	1			
-					0.0-0.5' - brown, moist, soft, fine grained, well-graded				-
-		19.8	SS1SS	3-2-3-5	Clay (CL) 0.5-1.7' - yellowish brown, mottled yellowish red, soft,	1		2	-
-				(5)	mottling increases with depth	#			-
-	2.0					+			-
-	2.5				Clay (CL)				-
-					— 2.5-3.0' - strong brown, dry to moist, soft, somewhat	/	<i>///</i>		-
-		21.0	SS2SS	4-5-9-11	\cohesive Clay (CL)	/ - {		2.5	-
-				(14)	3.0-4.3' - light gray, mottled yellowish brown, dry,	-{			-
	4.5				medium stiff	/T			-
5 268.0	5.0				Silt (ML)	+	Ш		_
200.0	0.0				5.0-6.6' - reddish brown, dry, very hard, laminated	\exists			-
-		19.2	SS3SS	25-32-50/5		4			-
-				(82/11")		4			-
-	7.0					4			-
-	7.5				0:14 (841.)	4			
_	7.5				Silt (ML) 7.5-7.9' - reddish brown, dry, soft, laminated	/=			_
_		15.0	SS4SS	11-25-50/3	Clay (CL)	′ - ∤			_
_				(75/9")	7.9-9.1' - reddish brown, mottled reddish gray, dry, very hard	1			
_	9.5				Tidiu	\triangleleft			_
10						4			
263.0	10.0 \ 10.5 /	5.0	SS5SS	50/5	Clay (CL) 10.0-10.5' - light reddish brown, mottled yellow to				_
				(50/5")	brown, dry, very hard				
						7			
						1			
-						1			-
_						1			-
-						1			-
15						1			Soil sampling completed at 08:34 on
258.0	15.0	1.5	SS6SS,		¬ Fine Sand (SW)	7			11/29/06
-	15.2			50/2	15.0-15.2' - yellowish brown, very dense, well graded,	/1			-
-				(50/2")	laminated Begin Rock Coring at 15.2 ft bgs	′ ┨			-
-					See the next sheet for the rock core log	\exists			-
-						+			
-						+			-
-						+			-
-						4			-
-						4			-
-						4			-
20_						4			
ldot		<u> </u>	1			L			



PROJECT NUMBER: BORING NUMBER:

338884 BPA-50

ROCK CORE LOG

SHEET 2 OF 11

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687752.1 N, 2012057.2 E)

ELEVATION: 273.0 ft MSL (NGVD 29) DRILLING CONTRACTOR: Whichard, Trigon Engineering

CORING EQUIPMENT AND METHOD: CME-55, HQ Double Barrel ORIENTATION: Vertical WATER LEVELS: --START: 11/28/06 14:20 END: 12/7/06 13:17 LOGGER: RM/RG DISCONTINUITIES LITHOLOGY COMMENTS 90 CORE RUN, LENGTH, AND RECOVERY (%) FRACTURES PER FOOT **DESCRIPTION** DEPTH AND ELEVATION BELOW SURFACE (ft) ROCK TYPE COLOR SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SYMBOLIC MINERALOGY, TEXTURE RQD(%) DEPTH, TYPE, ORIENTATION, ROUGHNESS, WEATHERING, HARDNESS, SMOOTHNESS, CAVING ROD PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS AND ROCK MASS DROPS, TEST RESULTS, ETC. CHARACTERISTICS Sandstone 15.2' - Fracture zone, rough, undulating Rock coring began on R1HQ 10+ At 15.2' - pale brown to brown, fine 11/29/06 1.4 ft sand to medium sand, highly R1: 5 min 26 sec 111% 0 weathered, angular to subrounded, Cutting in 3rd gear 16.5 weakly cemented, micaceous, At 15.2-16.5': R-Scale = R1 16.5-21.5' - Fracture zone, rough, planar 10+ laminated to thick bedding 17.0-17.3' - Fracture, 60 deg, rough, planar. R2: 10 min 40 sec black stains 10+ R2HQ 5 ft 0 10+ 100% 20 10+ 253.0 20.5-21.5' - light reddish brown, highly At 20.5-21.5': R-scale = R1 10+ weathered 21.5 21.5-25.4' - very pale to pale brown, R3: 15 min 10 sec 0 soft, fine sand to medium sand, moderately weathered, moderately to poorly sorted, subangular to subrounded, laminated bedding 0 R3HQ 97* 5 ft 1 100% 24.4' - Fracture, horizontal, rough, undulating At 24.8': R-Scale = R2 3 25.0' - Fracture, rough, undulating 25.2' - Fracture, horizontal and 45 deg, rough, 248.0 Weathered Clayey Siltstone At 25.4-26.2': R-Scale = R1planar 25.4-26.2' - olive gray, very soft, R2 3 25.5' - Fracture, horizontal, smooth, planar, moderately weathered 26.5 At 26.3-26.5': R-Scale = R0 Silt (ML) 26.2-26.5' - dark reddish brown, moderately weathered, soft, laminated 0.0003' greenish gray clay infilling At 26.5-27.4': R-Scale = R1 R4: 17 min 10 sec At 27.4-29.2': R-Scale = R2 Silt (ML) 26.5-27.4' - brown, moderately 10+ weathered 28.2' - Fracture, <30 deg, smooth, planar, R4HQ slickensided over 30-40% Siltstone At 28.6': R-Scale = R2 71* 1 5 ft 27.4-29.2' - reddish brown to dark 100% reddish brown, soft, moderately At 29.2-29.9': R-scale = R0 29.2' - Fracture, horizontal, smooth, undulating weathered, laminated At 29.3' PP: 1.0 tsf 30 27.8-28.2' - sand lens 1 SC-11 collected 243.029 3-29 8' Clay (CL) At 29.9-31.5': R-Scale = R2 29.2-29.8' - moderately weathered 0 At 30.4': R-Scale = R2 29.8-29.9' - slightly weathered 31.5 At 31.1': R-Scale = R2 Siltstone 31.3' - Fracture, horizontal, smooth, stepped, R5: 21 min. 0 sec At 29.9' - reddish brown to dark loose fit 2 At 31.5-32.2': R-scale = reddish brown, mottled greenish gray, 31.4' - Fracture, 1 deg, smooth, stepped, loose R2/R3 At 31.9': R-Scale = R1 29.9-34.3' - slightly weathered 32.1' - Fracture, horizontal, smooth, stepped, 2 At 32.2-32.5': R-Scale = R0 loose fit 31.3' - clasts At 32.3': R-Scale = R0 32.2-32.5' - very soft, soil-like 32.5' - Fracture, 30 deg. smooth, stepped. At 32.5-34.3': R-Scale = R2-R5HO 32.45-34.3' - dark reddish brown, loose fit 5 ft 99% 80 1 33.3' - Fracture, <20 deg, smooth, planar, R3 trace fine sand SC-12 collected weakly slickensided, tight fit 32.5-33.0' 35 At 32.9': R-Scale = R2-R3 3

2BB-325 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BPA-50 SHEET 3 OF 11

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687752.1 N, 2012057.2 E)

ELEVATION: 273.0 ft MSL (NGVD 29)

DRILLING CONTRACTOR: Whichard, Trigon Engineering

CORING EQUIPMENT AND METHOD : CME-55, HQ Double Barrel ORIENTATION : Vertical

			ORIENTATION : Vertical				
WATER	LEVELS:			START : 11/28/06 1	4:20	END : 12/7/06 13:17	LOGGER : RM/RG
	(9)			DISCONTINUITIES	ڻ	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
	852	œ	臣品	THICKNESS, SURFACE STAINING, AND TIGHTNESS		CHARACTERISTICS	
- - - - - -	36.5 R6HQ 5 ft 100%	100	0 1 0	33.7' - Fracture, horizontal, smooth, stepped, loose fit 34.2' - Fracture, 30 deg, smooth, planar 34.4' - Fracture, 20 deg, smooth, stepped, inclined, loose fit 36.2' - Fracture, horizontal, smooth, stepped, loose fit	× > × × × × × × × × × × × × × × × × × ×	Siltstone At 34.3' - gray to dark greenish gray, mottled white, soft, fresh, coarse grained fragments 36.5-37.5' - greenish gray, mottled dark reddish brown, soft Sandstone At 37.5' - dark greenish gray, fine sand to medium sand, poorly sorted, fresh	At 34.3-34.5': R-Scale = R2-R3 At 34.9': R-Scale = R2-R3 At 35.5': R-Scale = R2-R3 R6: 12 min 59 sec At 36.5-37.5': R-scale = R2-R3 At 37.5': R-Scale = R2-R3 At 37.5': R-Scale = R2-R3 At 37.7': R-Scale = R2-R3 At 39.1': R-Scale = R2-R3
40	41.5		0	39.6' - Fracture, horizontal, rough, undulating, _ loose fit			At 40.5': R-Scale = R2-R3 At 40.8': R-Scale = R2-R3 - R7: 21 min 23 sec
-			0		 	- -	At 42.2': R-Scale = R2-R3
- - -	R7HQ 5 ft 96%	93	1	42.9' - Fracture, 60 deg and 70 deg, rough, planar, inclined, loose fit 43.5' - Fracture, 30 deg and 40 deg, rough, stepped, <0.00003' greenish gray clay infilling	× × × × × × × × × × × × × × × × × × ×	- 42.8-43.5' - greenish gray, mottled gray and white Siltstone - At 43.5' - dark reddish brown, soft, fresh	- At 43.4': R-Scale = R2 - - -
45	46.5		1 1 ***	45.3' - Fracture, horizontal, smooth, stepped, tight fit 46.2' - Fracture, horizontal, smooth, stepped,	× × × × × × × × × × × × × × × × × × ×		At 44.8': R-Scale = R3 — At 45.5-46.5': R-Scale = R2- R3 —
- - - - - 50	R8HQ 5 ft 106%	99	1 2	0.0003' reddish brown clay infilling, loose fit 47.8' - Fracture, 70 deg, rough, planar, tight fit 48.6' - Fracture, horizontal, smooth, planar, loose fit 48.7' - Fracture, horizontal, rough, undulating, <0.00003' reddish brown clay infilling	× × × × × × × × × × × × × × × × × × ×	47.5-48.8' - mottled reddish brown, hard	R8: 21 min 36 sec At 47.1': R-Scale = R2-R3 At 47.5-51.5': R-scale = R2- R3
223.0	51.5		1	49.4' - Fracture, horizontal, smooth, stepped, tight fit 51.2' - Fracture, horizontal, smooth, planar, tight fit	× × × × × × × × × × × × × × × × × × ×		49.5-50.2' At 50.2': R-Scale = R2 R9: 27 min
- - - - - 55	R9HQ 5 ft 100%	100	2	51.9' - Fracture, horizontal, rough, undulating, tight fit 52.7' - Fracture, horizontal, smooth, planar 53.3' - Fracture, horizontal, rough, stepped, loose fit 54.1' - Fracture, horizontal, rough, stepped, loose fit	× × × × × × × × × × × × × × × × × × ×		At 51.5-53.8': R-Scale = R3 - At 52.3': R-Scale = R3
			U	-	× · >		-

2BB-326 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BPA-50

SHEET 4 OF 11

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687752.1 N, 2012057.2 E)

ELEVATION: 273.0 ft MSL (NGVD 29)

DRILLING CONTRACTOR: Whichard, Trigon Engineering

CORING EQUIPMENT AND METHOD : CME-55, HQ Double Barrel ORIENTATION : Vertical

00111110	EQUIPMEN		ORIENTATION : Vertical				
WATER	LEVELS:			START : 11/28/06 1	4:20	END : 12/7/06 13:17	LOGGER : RM/RG
	<u></u>			DISCONTINUITIES	G	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
60_213.0	810HQ 5 ft 100% 61.5	100	0 0 0 0 0 0	61.9' - Fracture, horizontal, rough, stepped, tight fit	× × × × × × × × × × × × × × × × × × ×	Sandstone 53.8-54.1' - light reddish brown to pale red, fresh, very fine grained, laminae siltstone, interbedded convoluted bedding, laminated bedding Siltstone 54.1-58.6' - dark reddish brown, mottled dark red and reddish gray, soft, laminated bedding, fresh, convoluted bedding Sandstone 58.6-61.5' - light reddish gray to dark reddish gray, soft, medium bedding, fine sand, subangular to subrounded, fresh, moderately sorted, 20 degree dip in bedding 59.5-61.5' - interbedded with siltstone Shale 61.5-61.6' - black to very dark gray, mottled white, laminated bedding, fresh, some grains are visible Sandstone At 61.6' - light gray, soft, laminated to medium bedding, fine sand, subangular to subrounded, fresh, cross-bedded in areas, poorly to moderately sorted, occasional coarse	SC-2 collected 55.9-56.5' At 55.9': R-scale = R3 R10: 18 min 18 sec At 57.4': R-Scale = R3 At 60.8': R-Scale = R2-R3 At 61.1': R-Scale = R2-R3 R11: 13 min 56 sec At 61.6-68.3': R-Scale = R2 SC-3 collected 61.5-61.9' At 62.6': R-Scale = R2 At 63.2': R-Scale = R2 SC-13 collected 63.1-63.9' At 64.0': R-Scale = R2
208.0	66.5		0			— sand intervals - - -	At 65.6': R-Scale = R2
-	R12HQ 5 ft 98%	97.8	0 1 0	68.3' - Contact between siltstone and sandstone, horizontal, rough, undulating, <0.0004" clay infilling, greenish gray stains	× > > × > > × > > × > > × > > × > > × > > × > > × > > × > > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > ×	- Siltstone At 68.3' - dark reddish brown to weak red, soft, fresh	R12: 17 min 38 sec At 67.1': R-Scale = R2-R3 SC-5 collected 67.1-67.7' At 68.3-71.5': R-Scale = R3 At 68.9': R-Scale = R3
70			1	69.9' - Fracture, 70 deg, rough, stepped	× > > > > > > > > > > > > > > > > > > >	-	 At 70.7': R-Scale = R3
-	71.5 R13HQ 5 ft 103%	96	2 4 0	71.5' - Fracture, 30 deg, rough, planar, inclined 72.2' - Fracture, horizontal, smooth, planar, loose fit 72.7' - Fracture, horizontal, smooth, planar, loose fit 72.8' - Fracture, horizontal, smooth, stepped, loose fit 72.9' - Fracture, horizontal, smooth, planar	× > > × > > × > > × > > × > > × > > × > > × > > × > > × > > × > > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × > × >	- - - - -	R13: 27 min 47 sec At 74.0': R-Scale = R3
75			0	73.0' - Fracture, horizontal, smooth, planar, tight fit —	× > × >	_	At 74.9': R-Scale = R3 —

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CORING EQUIPMENT AND METHOD: CME-55, HQ Double Barrel

0

tiaht fit

93.7' - Fracture, horizontal, smooth, planar,

R17HQ

5 ft 96%

95

94 | 1

PROJECT NUMBER: BORING NUMBER:

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SHEET 5 OF 11

ORIENTATION: Vertical

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687752.1 N, 2012057.2 E)

ELEVATION: 273.0 ft MSL (NGVD 29)

DRILLING CONTRACTOR: Whichard, Trigon Engineering

WATER LEVELS: START: 11/28/06 14:20 END: 12/7/06 13:17 LOGGER: RM/RG DISCONTINUITIES LITHOLOGY COMMENTS 90 CORE RUN, LENGTH, AND RECOVERY (%) FRACTURES PER FOOT DESCRIPTION DEPTH AND ELEVATION BELOW SURFACE (ft) ROCK TYPE COLOR SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND <u>0</u> MINERALOGY, TEXTURE RQD(%) SYMBOL DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS WEATHERING, HARDNESS, SMOOTHNESS, CAVING ROD AND ROCK MASS DROPS, TEST RESULTS, ETC. CHARACTERISTICS 0 At 76.1': R-Scale = R3 76.5 76.5-81.5' - dusky red to very dusky R14: 25 min 34 sec 0 At 76.5-81.5': R-scale = R2red, mottled greenish gray, soft At 77.1': R-Scale = R2-R3 0 At 78.2': R-Scale = R3 R14HQ 5 ft 86 0 79.0' - Fracture, horizontal, smooth, stepped, 100% 79.2' - clay seam, reddish brown, soft 80 79.1' - Fracture, horizontal, smooth, planar, 3 193.0 trace clay infilling, tight fit SC-4 collected 0 80 7-81 2' 81.2' - Fracture, horizontal, rough, stepped, 81.5 At 80.7': R-scale = R2-R3 loose fit 81.5-84.0' - dusky red, mottled R15: 24 min 19 sec greenish gray, laminated bedding, 2 81.5' - Fracture, horizontal, rough, stepped, At 82 11. R-Scale = R2-R3 tiaht fit irregular bedding on 20 degree angle At 82.4': R-Scale = R2-R3 82.5' - Fracture, horizontal, rough, stepped, 0 tiaht fit At 83.2': R-Scale = R2-R3 R15HQ 93 5 ft 1 84.0' - Fracture, 15 deg, rough, stepped, 84.0-86.5' - mottled greenish gray to At 84.0-86.5': R-scale = R2-100% inclined, tight fit dusky red, soft, laminated bedding, R3 84.5-84.9' - Fracture zone (3), smooth, stepped, <0.0004" clay infilling, weakly grades to fine grained sand At 84.5-84.9': R-Scale = R0 85 10+ 84.5-84.9' - very soft 188.0 slickensided At 85.4': R-Scale = R2-R3 0 At 85.8': R-Scale = R2-R3 86.5 Siltstone R16: 18 min 50 sec 86.6' - Fracture, horizontal, rough, undulating 86.5-95.8' - very dark greenish gray, At 86.5-91.5': R-Scale = R2soft, fresh R3 At 87.1': R-Scale = R2-R3 0 At 88.1': R-Scale = R2-R3 R16HQ At 88.7-88.9': R-Scale = R2 5 ft 100% 98 0 89.5-95.8' - reddish brown laminae 90 0 alternating with dark greenish gray At 90.0': R-Scale = R2-R3 $183\overline{0}$ laminae 0 At 91.1': R-Scale = R2-R3 91.5 91.5-95.8' - mottled reddish brown R17: 18min 24 sec 0

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At 92.8': R-Scale = R3

At 93.3': R-Scale = R3



PROJECT NUMBER: BORING NUMBER: 338884

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SHEET 6 OF 11

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (687752.1 N, 2012057.2 E)

ELEVATION: 273.0 ft MSL (NGVD 29) DRILLING CONTRACTOR: Whichard, Trigon Engineering

CORING	CORING EQUIPMENT AND METHOD : CME-55, HQ Double Barrel ORIENTATION : Vertical										
WATER	LEVELS :			START : 11/28/06 1	4:20	END : 12/7/06 13:17	LOGGER : RM/RG				
	(9)			DISCONTINUITIES	ڻ	LITHOLOGY	COMMENTS				
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.				
_				94.6' - Fracture, 50 deg and 60 deg, rough, stepped. loose fit	× >	-	At 95.2': R-Scale = R3 _				
- - - - - - 100	96.5 R18HQ 5 ft 104%	100	1 0 0	96.2' - Fracture, horizontal, smooth, planar, loose fit 98.6' - Fracture, 20 deg, smooth, stepped, tight fit	× >	Sandstone 95.8-96.0' - dark greenish gray, soft, fine sand, subangular to subrounded, fresh, moderately to poorly sorted Shale 96.0-96.5' - dark greenish gray, soft, fresh Siltstone 96.5-101.5' - very dark greenish gray, soft, fresh	R18: 16 min				
173.0 -	101.5		1	100.4' - Fracture, 20 deg and 80 deg, smooth, undulating, tight fit 100.9' - Fracture, 60 deg, rough, stepped	- × × × × × × × × × × × × × × × × × × ×	 101.0-101.5' - slightly coarser	- - -				
-	R19HQ		1 0	103.3' - Fracture, 50 deg and vertical, rough, stepped, ~1.1' long fracture	- · · · · · · · · · · · · · · · · · · ·	Sandstone 101.5-104.9' - weak to dusky red, soft, fine sand, subangular to subrounded, fresh, moderately to poorly sorted 102.6-103.1' - abundant siltstone clasts	At 101.4': R-Scale = R3 R19: 14 min 15 sec At 102.2': R-Scale = R3 -				
105 168.0	5 ft 100%	76	2	104.5' - Fracture, 60 deg and 60 deg, rough, undulating, tight fit — 104.9' - Contact between siltstone and sandstone, sharp, undulating	- : : : : : : : : : : : : : : : : : : :	Siltstone 104.9-106.0' - dusky red, mottled reddish gray, soft, fresh	SC-6 collected 106.0-106.3' - At 105.5': R-Scale = R3				
-	106.5		1	106.0' - Fracture, <10 deg and 20 deg, smooth, planar, weakly slickensided, grayish clay on 10-15% surface, loose fit 106.0' - Fracture, 60 deg and 20 deg, rough, planar, trace white infilling	× > × > × > × >	Shale - 106.0-106.3' - greenish black, soft, laminated bedding, fresh Siltstone - 106.3-108.0' - dark reddish gray, soft,	At 106.0-106.3': R-Scale = R0 - At 106.4': R-Scale = R3 R20: 24 min 33 sec				
-	R20HQ		2	107.4' - Fracture, horizontal, rough, stepped, 0.0003' clay infilling, reddish brown stains 107.7' - Fracture zone, 45 deg and 60 deg, rough, stepped, horizontal to inclined, tight fit	× >	reddish brown laminae 106.3-107.1' - fresh 107.1-108.0' - slightly weathered to	SC-7 collected 108.0-108.9' - At 108.3-108.6' PP: 1.0 tsf				
110_ 163.0	5 ft 100%	62*	0	108.4' - Fracture, horizontal, rough, stepped 108.9' - Fracture, horizontal, rough, stepped	- ×	Gravelly Clay (CL) 108.0-108.9' - dark reddish brown to reddish gray, soft, slightly weathered to moderately weathered, abundant	-				
_	111.5		5	110.7' - Fracture, horizontal, smooth, planar, <0.0002" clay infilling	× > × > × > × >	rock fragments Siltstone At 108.9' - dark reddish brown to	- -				
-			3	110.8' - Fracture, 60 deg and 50 deg, rough, stepped, horizontal to inclined, loose fit 110.8' - Fracture, horizontal, rough, stepped 111.0' - Fracture, 1 deg, rough, stepped	× > > > > > > > > > > > > > > > > > > >	reddish gray, soft 108.9-111.5' - slightly weathered to moderately weathered 111.5-116.5' - very thin bedding, fresh	R21: 23 min 15 sec At 112.3': R-Scale = R3				
-	R21HQ		0	111.1' - Fracture zone, rough, stepped 111.1' - Fracture, horizontal, smooth, stepped, loose fit	× > × > × > × >	-	- At 113.4': R-Scale = R3				
115_	5 ft 100%	86	0		× > × > × >	-	_				
					 						



PROJECT NUMBER: BORING NUMBER: 338884

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SHEET 7 OF 11

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (687752.1 N, 2012057.2 E)

ELEVATION: 273.0 ft MSL (NGVD 29) DRILLING CONTRACTOR: Whichard, Trigon Engineering

CORING EQUIPMENT AND METHOD : CME-55, HQ Double Barrel ORIENTATION: Vertical

		,		THOD . CIVIE-33, HQ DOUBLE BATTEL			ORIENTATION : Vertical
WATER	LEVELS:			START : 11/28/06 1	4:20	END: 12/7/06 13:17	LOGGER : RM/RG
				DISCONTINUITIES	(D	LITHOLOGY	COMMENTS
_ ₽	CORE RUN, LENGTH, AND RECOVERY (%)		S	DESCRIPTION	SYMBOLIC LOG	DOOK TYPE OOLOD	
NO H	N Z Z K	(%	RE	5200 Kiii 11011	닉	ROCK TYPE, COLOR, MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	유부	(%) Q	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	BO	WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
	N N N N N N N N N N N N N N N N N N N	a a	RA ER	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	ı	AND ROCK MASS CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
- шши	0.716	ш	шш		, 0,	5.2.2.10.100	
-	-				-Iŝ	3-	At 115 5h D Cools - D2
_			1		××	1_	At 115.5': R-Scale = R3
	116.5			116.3' - Fracture, horizontal, rough, stepped	_\×	3	
-				110.0 11dotale, nonzontal, rough, stepped	×	116.5-136.5' - brownish red, fresh	R22: 08:30-08:55
-	1		0		×	≩ −	At 116.5-121.5': R-scale = -
-	-				- × ×	X −	R1-R2 At 117.3': R-Scale = R1-R2
_			2		-× ×	117.7-117.9' - mottled gray	At 117.8': R-Scale = R3 -
			-	440 4l. Frankrich beriegental and Olden march	××	<u>y</u>	
	R22HQ			118.4' - Fracture, horizontal and 3 deg, rough, stepped, 0.001-0.003' relief	×	$\overline{\mathbb{F}}$	At 118.6-119.0': R-Scale =
-	5 ft	82	5	118.6' - Fracture, horizontal and 3 deg, rough,	- × ×	X- X-	R0-R1
1	98%		\vdash	stepped	- ×	≱ -	-
120_			2	119.0' - Fracture, horizontal and 2 deg, rough,	- ×		_
153.0				planar, (medium -hard), 0.07' thick laminated layering	×	<u>A</u> _	_
				layering	××	Ä	
-	101 5		0		⊢× ×	X	_
-	121.5		\sim		⊢× ×	y -	R23: 09:18-09:44
_			4	400 01 5 4 00 1	-Î	<u>}</u> _	1723. 03.10-03.44
l _			_	122.0' - Fracture, 60 deg, rough, planar 122.1' - Fracture, horizontal, rough, planar,]×	X	_
				laminated, platy bedding	×	X	
-	1		2	122.3' - Fracture, 1 deg, rough, planar,	×	* T	-
-	R23HQ	l		laminated, platy bedding	- Ŷ	}	-
-	5 ft	68	1	122.4' - Fracture, 2 deg, rough, planar,	- × ×	X - X -	_
	92%			laminated, platy bedding 122.5' - Fracture, 3 deg, rough, planar	×	1	
125				123.5' - Fracture, 4 deg, rough, planar	×	3	
148.0	1		1	124.5' - Fracture, horizontal, smooth, planar	×	}	
-	-				- <mark> </mark> ×	X −	-
-			3	125.7' - Fracture, 60 deg, smooth, planar,	-l× ×	X -	_
_	126.5		\bowtie	slickensided 126.1' - Fracture, 20 deg, slickensided, planar	× ×	<u>*</u> _	_
				120.1 - 1 facture, 20 deg, silckerisided, planai	×	3	R24: 10:18-10:35
_			2		××	X	At 126.5-131.5': R-scale = -
-	1			127.3' - Fracture, horizontal, rough, planar	⊢× ×	*	SC-9 collected
1 -	-		1		- ×	Y -	126.5'
1 -					Jŝ.	<u>}</u> _	_
1	R24HQ				×	3	
1 -	5 ft 100%	92	0		1× ×	⋨	1
1,00	100 /0				− ×	*	-
130 <u> </u>	-		0	_	-Jŝ	}	_
1-3.0			igsqcut		_l×	1 _	_
1					×	*	
1 -	131.5		0		٦× ×	⋨	1
1 -	.01.0				Ŧŝ.	}	R25: 10:59-11:18
1 -	-		0		⊢×́	7	-
1 -					-× ×	***************************************	SC-8 collected
1			0		××	1_	132.4-133.2'
1 -			"		Îŝ.	3	_
-	R25HQ				1×	₹	-
1 -	5 ft	100	0		⊢× ×	X	-
-	100%		\vdash		- × ×	≱ -	_
135			0	_	Î× ×	<u>4</u>	_
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PROJECT NUMBER:

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BORING NUMBER:

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SHEET 8 OF 11

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687752.1 N, 2012057.2 E)

ELEVATION: 273.0 ft MSL (NGVD 29)

DRILLING CONTRACTOR: Whichard, Trigon Engineering

CORING EQUIPMENT AND METHOD : CME-55, HQ Double Barrel ORIENTATION : Vertical

				HOD : CME-55, HQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS :			START : 11/28/06 1	4:20		LOGGER : RM/RG
	<u> </u>			DISCONTINUITIES	ő	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
- - - - 140 133.0	136.5 R26HQ 5 ft 100% 141.5	100	0 0 0 0 0 0	142.1' - Fracture, 10 deg, smooth, stepped, yellowish brown stains 142.2' - Fracture, horizontal, smooth, undulating, loose fit	× > > > > > > > > > > > > > > > > > > >	135.0-136.5' - 10-20% very fine to fine well sorted sand Siltstone 136.5-138.7' - dark gray, fresh Sandstone At 138.7' - light bluish gray, medium sand, well sorted, fresh, interbedded siltstone laminae to thin beds, 20-60 degree bedding Shale 142.1-142.2' - dark gray to black, fresh, fissile Siltstone 142.2-148.0' - dark reddish brown, fresh, 5-10% very fine to fine sand matrix	R26:11:37-11:57 At 136.5-138.0': R-scale = R3 At 138.7-142.1': R-Scale = R2-R3 R27: 12:56-13:17 At 142.1': R-Scale = R0-R1 At 142.8': R-Scale = R3-R3.5
145 128.0 -	146.5		0	<u>-</u> -	× > × > × > × > × > × > × > × > × > × >	145.7-146.5' - 10-20% 0.0003-0.001' clasts (by volume)	 At 145.2': R-Scale = R3- R3.5
- - - -	R28HQ 5 ft 100%	100	0 0		× > × > × > × > × > × > × > × > × > × >	147.0-148.0' - grades to sandstone Sandstone 148.0-155.4' - light bluish gray, very fine sand to fine sand, fresh, well sorted thick bedding	R28: 13:54-14:10 At 147.2': R-Scale = R3 At 148.8': R-Scale = R3
150 123.0 - - -	151.5		0				
- - - - 155	R29HQ 5 ft 100%	100	0 0 0			sorted	Set a (4th) 5' casing section to 20.5' At 152.1': R-Scale = R3.5 At 153.8': R-Scale = R3.5 At 154.4': R-Scale = R3.5
			U	-			

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PROJECT NUMBER:

338884

BORING NUMBER:

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SHEET 9 OF 11

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687752.1 N, 2012057.2 E)

ELEVATION: 273.0 ft MSL (NGVD 29)

DRILLING CONTRACTOR: Whichard, Trigon Engineering

CORING EQUIPMENT AND METHOD : CME-55, HQ Double Barrel ORIENTATION : Vertical

CORING	EQUIPMEN	II AN	D ME	THOD : CME-55, HQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS :			START : 11/28/06 14	1:20	END : 12/7/06 13:17	LOGGER : RM/RG
	(%			DISCONTINUITIES	၅၉	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
- - - - - - 160 113.0	156.5 R30HQ 5 ft 100%	100	0 0 0	- - - - - -	× × × × × × × × × × × × × × × × × × ×	Siltstone 155.4-156.9' - dark reddish brown, fresh 156.3-156.5' - soft, 20-30% medium to coarse sand Sandstone 156.9-165.5' - light gray, soft, medium sand to coarse sand, fresh, poorly to well sorted	R30: 10:40-10:52
-	161.5		0	- - -		-	At 160.8': R-Scale = R3.5 R31: 11:13-11:52
-	R31HQ 5 ft 100%	100	1	- - - -		162.5-164.5' - becomes coarser grained	- - - -
165_ 108.0 - -	166.5		0	164.5' - Contact between siltstone and sandstone, 30 deg, smooth, planar 165.5' - Fracture, 40 deg, smooth, planar, broke at contact of siltstone and sandstone interbed	× × × × × × ×	164.5-165.5' - interbedded siltstone — laminae until contact Siltstone 165.5-171.5' - dark reddish brown, fresh, well sorted, 10-20% very fine to fine sand	
- - - -	R32HQ 5 ft 100%	100	0 0	- - - -	× × × × × × × × × × × × × × × × × × ×	166.9-167.4' - 5-10% dark pinkish clasts, soft 167.8-169.4' - 5-10% dark pinkish clasts (0.0003-0.004' in size), soft	R32: 12:16-12:40
170 103.0 -			0	- - - -	× × × × × × × × × × × × × × × × × × ×	- - -	At 169.7': R-Scale = R3.5
- - -	171.5 R33HQ		0	- - - -	× ×	Sandstone 171.5-174.0' - very dark gray, soft, fresh, very fine grained to cryptocrystalline quartz matrix with fine to medium quartz grains dispersed throughout, muscovite mica grains	R33: 13:35-13:54 At 172.5': R-Scale = R3-R3.5 At 173.3': R-Scale = R3-R3.5
175	5 ft 100%	100	0			Sandstone - At 174.0' - bluish gray, soft, fine sand to medium sand, fresh, well sorted	At 173.5': R-Scale = R3- R3.5
							<u>. </u>

2BB-332 Rev. 1



PROJECT NUMBER:

338884

BPA-50

SHEET 10 OF 11

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687752.1 N, 2012057.2 E)

ELEVATION: 273.0 ft MSL (NGVD 29)

DRILLING CONTRACTOR: Whichard, Trigon Engineering

CORING EQUIPMENT AND METHOD : CME-55, HQ Double Barrel ORIENTATION : Vertical

CORING	5 EQUIFIVIEN	II AN	DIVIE	HOD : CME-55, HQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS :			START : 11/28/06 1/	4:20	END : 12/7/06 13:17	LOGGER : RM/RG
_	<u>%</u>			DISCONTINUITIES	90	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
- - - -	176.5		0	- - - -		- 176.5-181.5' - dark reddish gray, soft, very fine sand, well sorted	At 174.0-176.5': R-Scale = R3.5 At 174.5': R-Scale = R3- R3.5 R34: 14:14-14:32
- - - 180 93.0	R34HQ 5 ft 100%	100	0 0	- - -		- - -	At 177.9': R-Scale = R3.5
-	181.5		0	- - -		181.0-181.5' - laminated bedding, fine - sand to medium sand, 0.0003-0.0006' siltstone laminae, 40-50 degree bedding - 181.5-186.5' - light bluish gray,	At 180.4': R-Scale = R3.5
- - - 185_ 88.0	R35HQ 5 ft 100%	100	0 0	- - - -		laminated bedding, fine sand to medium sand, well sorted 181.5-182.5' - laminae on 15 degree angle 183.7-184.9' - laminae on 25 degree angle	- - - -
- - -	186.5		0	- -	× × ×	- Siltstone	R36:15:43-16:07
- - - -	R36HQ 5 ft	91	0 1	 186.9 - Fracture, 1 deg, rougn, planar, <0.002 - clay infilling, medium plasticity, break along laminations 187.2 - Fracture, 2 deg, rough, planar, <0.002 - 	× × × × × × × × × × × × × × × × × × ×	 186.5-198.7' - dusky red, soft, laminated bedding, fresh, 5-10% gravel sized clasts 	At 186.5-191.5': R-scale = - R3.5
190 <u> </u>	100%		1	clay infilling, medium plasticity, break along laminations 189.3' - Fracture	× × × × × × × ×	- 	-
- - -	191.5		0	- - -	× × × × × × × ×	- - -	R37: 16:28-16:51
- - -	R37HQ		0		× × × × × × × × × ×	-	At 192.4': R-Scale = R4
195 <u> </u>	5 ft 97%	93	0	- -	× × × × × × × ×	- - -	At 194.3': R-Scale = R4 -

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PROJECT NUMBER:

BORING NUMBER:

BPA-50 SHEET 11 OF 11

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687752.1 N, 2012057.2 E)

ELEVATION: 273.0 ft MSL (NGVD 29)

DRILLING CONTRACTOR: Whichard, Trigon Engineering

CORING EQUIPMENT AND METHOD : CME-55, HQ Double Barrel ORIENTATION : Vertical

0011111	<u> </u>	,	- IVIL	THOD . CIVIE-33, HQ DOUDIE BAITEI		ORIENTATION : Vertical	
WATER	RLEVELS:			START : 11/28/06 1	4:20	END : 12/7/06 13:17	LOGGER : RM/RG
				DISCONTINUITIES	(D	LITHOLOGY	COMMENTS
AND ION	UN, H, AND ERY (%)	(%)	JRES OT	DESCRIPTION		ROCK TYPE, COLOR, MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (#	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
-	196.5		0		× × × × × ×	-	SC-10 collected 195.5-196.2' - At 195.5': R-scale = R4
-	-		0		× × × × × × × ×	196.5-198.7' - very dusky red	R38: 08:57-09:11
-	R38HQ		0		× × × × × × × ×	198.0-198.7' - 30-40% very fine to fine sand, well sorted	_
200	5 ft 100%	100	0			Sandstone 198.7-203.8' - fine sand to coarse sand, fresh, 0.0003-0.004' fine sediment layers (10-20%), poorly	At 198.8': R-Scale = R3.5 -
73.0	-		0			sorted, 20-25 degree bedding	-
-	201.5		0			201.5-203.8' - dark gray, very fine sand to coarse sand, 35 degree bedding	R39: 11:46-12:02
-	R39HQ		0	-		- -	- At 203.4': R-Scale = R3.5
205	5 ft 100%	100	0			Sandstone 203.8-205.1' - very dark bluish gray, soft, fresh, 50% fines and sands (fine to medium grained, well sorted)	At 203.8-205.1': R-Scale =
68.0 - -			0			Sandstone At 205.1' - white and pink, laminated to medium bedding, fine sand, fresh,	At 205.1': R-Scale = R3.5
-	206.5		0			well sorted 205.5-107.5' - 5-10% <0.001' clasts 207.5-209.3' - dark bluish gray, black laminae	R40: 12:29-12:46
-	R40HQ		0			- -	At 207.5-209.3': R-Scale = R3.5
210	5 ft 100%	100	0	209.3' - Fracture, 20 deg, smooth, planar, break along lamination		209.3-211.2' - pinks, soft, fine sand to medium sand, well sorted	-
63.0 - -			0			- -	-
-	211.5 R41HQ 1.7 ft		0			211.2-212.5' - very dark bluish gray, soft, 10-20% fines	R41: 13:11-13:17 At 211.9': R-Scale = R3.5
-	100%		0]:::: 	212.5-213.3' - white, pink, red, soft, fine sand to coarse sand, poorly sorted Bottom of Boring at 213.3 ft bgs on	R-Scale performed during rock core logging.
- 215					1	12/6/06 13:17	-
215_				-		_	_

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PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-1	SHEET 1 OF 5

SOIL BORING LOG

 PROJECT : PEC COLA, New Hill, NC
 LOCATION : (NAD 27) (686595.5 N, 2012465.3 E)

 ELEVATION : 263.9 ft MSL (NGVD 29)
 DRILLING CONTRACTOR : M. Mosely/A. Martin, S&ME

DRILLING EQUIPMENT AND METHOD: BK-51, Tricone Bit, 24 Split Spoon, 140 lb. Hammer and Cathead ORIENTATION: Vertical WATER LEVELS: 7.1 ft bgs START: 4/21/06 13:30 END: 4/24/06 15:45 LOGGER: JS/DT/JF SOIL DESCRIPTION COMMENTS DEPTH BELOW EXISTING GRADE (ft) STANDARD 500 PENETRATION INTERVAL (ft) TEST RESULTS SYMBOLIC DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION SOIL NAME, USCS GROUP SYMBOL, COLOR, RECOVERY (in) MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY 6"-6"-6"-6" #TYPE (N) 263.9 0.0 Clay (CL) 0.0-0.7' - reddish brown, mottled yellow and white, medium stiff, soft, trace very fine sand, scattered coarse SS1SS 8-5-6-8 8.0 sand, tip has medium sand, fill or reworked native (11)material 2.0 2.5 Lean Clay (CL) 2.5-3.7' - reddish brown, moist, stiff, medium plasticity, no dilatancy, yellow mottling, scattered bedrock pieces 14.0 SS2SS 4-5-5-50/5 to coarse sand sized (10) 4.5 5 258.9 1.0 \SS3SS Lean Clay (CL) Soil sampling completed at 14:10 on 4/21/06 5.1 50/1 5.0-5.1' - reddish brown, moist, stiff, medium plasticity, 5.6 (50/1")no dilatancy, yellow staining, scattered bedrock pieces to coarse sand sized Begin Rock Coring at 5.6 ft bgs See the next sheet for the rock core log 10 253 9 15 248.9 20



PROJECT NUMBER:

338884

BORING NUMBER:

BGA-1 SHEET 2 OF 5

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686595.5 N, 2012465.3 E)

ELEVATION: 263.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: M. Mosely/A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

	EQUIPIVIEN	ORIENTATION : Vertical					
WATER	LEVELS: 7.	1 ft bo	ļS	START : 4/21/06 13	:30	END : 4/24/06 15:45	LOGGER : JS/DT/JF
	(9			DISCONTINUITIES	Ŋ	LITHOLOGY	COMMENTS
oz É	CORE RUN, LENGTH, AND RECOVERY (%)		ËS	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	
₹Ē_병	Z, H,	(%) Q	JAN TO	DEDTIL TO DE ODIENTATION DOLLOUNESO	1 ∺	MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
H S S A		0	SCT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	l BG	WEATHERING, HARDNESS, AND ROCK MASS	SMOOTHNESS, CAVING ROD
DEPTH AND ELEVATION BELOW SURFACE (ft)	SHR	R Q	FRACTURES PER FOOT	THICKNESS, SURFACE STAINING, AND TIGHTNESS	S	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
	5.6				× :	Siltstone	Dook coving house at 14:25
-			1		- × :	At 5.6' - reddish brown, soft, fine	Rock coring began at 14:25 _ on 4/21/06
-				6.5' - Fracture, horizontal, rough, undulating,	- × ;	grained, green along fracture/bedding	R1: 14:25-14:38 and 14:40-
-			1 1	tight fit	×	planes 6.3-6.8' - pink-white to light gray rip-up	14:50 on 4/21/06
I _					× :	clasts of siltstone	_
					× :	6.8-14.2' - moderately weathered	
-			0		× :	f	1
-					× :	[-
-			1	9.0' - Fracture, horizontal, smooth, undulating,	- × :	}	-
-				tight fit	- X	}_	1
10			2	_	lê i	_	
253.9	R1NQ			10.0' - Fracture, horizontal, rough, undulating	× : × :	1	
	9.9 ft 99%	82*		10.4' - Fracture, horizontal, rough, undulating	× ;	Į.	1
-	3370		2	11.1' - Fracture, 80 deg, rough, undulating	× :	†	1
-				11.4' - Fracture, 80 deg, rough, undulating	- × ;	}	-
-			3			<u>}</u>	-
l _				12.0' - Fracture, horizontal, rough, undulating 12.2' - Fracture, horizontal, rough, undulating	× : × : × : × : × :	1	_
			2	12.3' - Fracture, horizontal, rough, undulating	×	1	
				12.8' - Fracture, horizontal, rough, undulating	×	f	
_				13.0' - Fracture, horizontal, rough, undulating	× :	f	1 7
-			3	13.7' - Fracture, 15 deg, smooth, undulating 14.0' - Fracture, 15 deg, smooth, undulating	- × :	;	1
-				14.3' - Fracture, 15 deg, smooth, undulating	× :	_ 14.2-31.2' - fresh	-
15 <u> </u>			1	_	- x	_	_
240.9	15.5			15.1' - Fracture, 15 deg, smooth, undulating	X	_	
			2	15.6' - Fracture, horizontal, rough, planar	× :	1	R2: 15:23-15:30 and 15:32- 15:43 -
				15.8' - Fracture, horizontal, rough, planar	× :	f	15.45
-					× ;	f	1
-			1		× ;	†	1
-				17.4' - Fracture, 50 deg, rough, undulating	× ;	}	1
-			1		×	<u>}</u>	-
l _					× :	_	
			0		× :	18.5-20.5' - siltstone rip-up clasts, some along areas of fractures	
			0		× ;	Some along areas or fractures	1
20					× :	f	1 7
243.9	R2NQ		0	_	× :	20.0-25.5' - light gray to white siltstone	<u> </u>
-	10 ft	83			- × ;	infilling within former fractures in	-
_	92%		3	20.8' - Fracture, 60 deg, rough, undulating	- X	rip-up clasts, some white fracture	_
-				21.4' - Fracture 60 dec rough undulating	X :	infilling may be calcitic	
			2	21.4' - Fracture, 60 deg, rough, undulating 21.8' - Fracture, horizontal, rough, undulating]× :	1	
				21.6 - Fracture, horizontal, rough, undulating 21.9' - Fracture, horizontal, rough, undulating	× :	1	1
-				22.0' - Fracture, horizontal, rough, undulating	× : : : : : : : : : : : : : : : : : : :	T	1
-			1	00015	× ;	†	1
-				23.2' - Fracture, horizontal, rough, undulating	- × :	}	
-			1		×	24 0 24 El groop ===#li==	-
-				24.1' - Fracture, horizontal, slickensided,	×	24.0-24.5' - green mottling	
25				undulating	Îx i	<u>L</u>	
238.9	25.5		\bowtie		$\begin{bmatrix} \hat{\times} \\ \hat{\times} \end{bmatrix}$	}	
					1 ^ -		†
					_	ļ	ļ

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PROJECT NUMBER:	BORING NUMBER:					
338884	BGA-1	SHEET	3	OF	5	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686595.5 N, 2012465.3 E)

ELEVATION: 263.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: M. Mosely/A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS: 7.	1 ft bo	ıs	START : 4/21/06 13:30		END : 4/24/06 15:45	LOGGER: JS/DT/JF
	(%			DISCONTINUITIES	90	LITHOLOGY	COMMENTS
QN (£)	AND (%	_	ZES T	DESCRIPTION		ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
			2		- × × ×	<u>.</u>	R3: 08:45-09:25 on 4/24/06
-			4	26.3' - Fracture, <5 deg, slickensided, undulating 26.4' - Fracture, 30 deg, rough, undulating	- × × × ×	1	-
-			1	26.8' - Fractures (2), <5 deg, rough, undulating 26.8' - Fracture, <5 deg, rough, undulating 26.9' - Fracture, 60 deg, rough, undulating	- × - × - ×	* * *	-
-			0	28.8' - Fracture, 20 deg, rough, undulating 29.0-29.5' - Fracture, near vertical fracture	- × - × - ×	}	-
30_ 233.9	R3NQ 9.5 ft	92	1	30.0-30.5' - Fracture, rough, undulating, near	- × × × × ×	*	-
-	100%		0	vertical fracture (on edge of core and through it)	- × - × - ×	Sandstone	-
_			0			At 31.2' - light gray to white, dark reddish brown in matrix, very fine sand to coarse sand, poorly sorted, fresh,]
-			0			20% coarse sand 32.0-32.6' - reddish brown, fresh 32.6-34.5' - pinkish brown, coarse to	-
-			1	34.5-35.0' - Fracture, capillary fracturing	- - - - - - - - ::	very coarse grained sand, moderately to well sorted 32.6-34.2' - fresh 34.2-34.5' - highly weathered	-
35_ 228.9	35.0		0	54.5-55.0 - Fracture, capillary fracturing	×	Siltstone	R4: 09:42-10:15
-			0		- :: - ::	34.5-35.0' - reddish brown, highly weathered Sandstone	-
-			0	1	- - - : :	35.0-37.8' - white, gray, and black, medium sand to coarse sand, poorly sorted, fresh	-
-			1	37.8' - Fracture, 30 deg, rough, undulating	- :: - × - × - ×	Siltstone 37.8-60.8' - reddish brown to brown,	-
_			0		× × × ×	fine grained 37.8-41.9' - fresh 38.7' - white siltstone rip-up clasts	-
40 <u> </u>	R4NQ 10 ft 100%	94	1	39.8' - Fracture, <5 deg, rough, undulating	- × × ×	39.3' - white siltstone rip-up clasts 39.8' - white siltstone rip-up clasts	-
			0		- ×	40.4-40.5' - white siltstone rip-up clasts	-
			10+	41.8' - Fracture, rough, undulating 42.0' - Fracture, rough, undulating	- × - × - × - ×	41.9-42.5' - highly weathered]
			0	42.1-42.3' - Fracture zone, fractured/broken fragments	- × - × - × × ×	42.5-60.8' - fresh	}
			0		- × × ×	<u> </u>	}
45_ 218.9_	45.0		J	45.0' - Fractures, small (0.05') disc fractures	× × × × ×		R5: 10:35-11:25

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PROJECT NUMBER:	BORING NUMBER:					
338884	BGA-1	SHEET	4	OF	5	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686595.5 N, 2012465.3 E)

ELEVATION: 263.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: M. Mosely/A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

WATER	TER LEVELS : 7.1 ft bgs		S	START : 4/21/06 13:30		END: 4/24/06 15:45	LOGGER : JS/DT/JF						
	- (%			DISCONTINUITIES	G	LITHOLOGY	COMMENTS						
Q _N (£)	AND 3₹ (%		ZES T	DESCRIPTION	CLO	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,						
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.						
-			0		- × × - × × - × × - × ×	45.0-55.0' - reddish brown to dark reddish brown, mottled blue-green along relic fractures, soft	-						
-			0		 	-	-						
			0		- × × - × × - × ×]						
50_ 213.9	R5NQ 10 ft	100	0	_	- × × - × × - × ×	- 							
-	100%		0		- × × - × × - × ×	-							
-			0		- × × - × × - × ×	-							
-									0	53.0' - Fracture, <5 deg, rough, undulating	- × × - × × - × ×	-	-
			0		- × × - × × - × ×	-]						
55_ 208.9	55.0		$\overline{}$	-	- × × × ×	55.0-65.0' - weak red to very dusky	R6: 11:35-13:45						
-			1		- × × - × × - × ×	red, mottled blue-green along relic fractures, soft]						
-			5	56.3' - Fracture, <5 deg, rough, undulating 56.5' - Fracture, <5 deg, rough, undulating 56.5' - Fracture, <5 deg, rough, undulating	- × × × × × × × × × × × × × × × × × × ×	-							
-			3	56.7' - Fracture, 10 deg, rough, undulating 56.9' - Fracture, <5 deg, rough, undulating 57.1-57.2 - Fracture, horizontal/parallel, rough,		57.5-58.0' - white-gray inclusions	-						
-			2	undulating 58.2' - Fracture, <5 deg, rough, undulating		-	-						
60_ 203.9	R6NQ 10 ft 100%	91	1	59.9' - Fracture, 10 deg, rough, undulating 60.0-62.0' - Fractures, horizontal and vertical,		- -	-						
-			1	hairline fractures	× × 	Sandstone 60.8-65.0' - weak red, gray-green mottling, hard, fresh, coarsens to	1						
-			62.0' - Fracture, >80 deg, rough, undulating 62.0-63.0' - Fracture, vertical, white calcitic infilling, hairline fracture	- - - - -	motuling, nard, fresh, coarsens to 60.8'; fining upward sequence below								
-				infilling, hairline fracture	- - -	-							
- - 65	65.0		1		- :::: - ::::	_							
198.9	23.0			-	× × × × = × ×		R7: 13:54-14:40						

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PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-1	SHEET 5 OF 5

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686595.5 N, 2012465.3 E)

ELEVATION: 263.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: M. Mosely/A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

WATER	ATER LEVELS : 7.1 ft bgs		ıs	START : 4/21/06 13:30		END: 4/24/06 15:45	LOGGER : JS/DT/JF	
	6)			DISCONTINUITIES	Ğ	LITHOLOGY	COMMENTS	
QN (#)	Ä, AND ~₹ (%		ZES T	DESCRIPTION	CLC	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.	
	074	α.	0	THIOMALSS, SOM ACE STAIRING, AND HOTTINESS		Siltstone		
-					× × × × × ×	At 65.0' - very dusky red to dark		
-			1	GG 91 Fracture 10 day rough undulating		reddish brown, soft, fresh, fine grained	1	
			1	66.8' - Fracture, 10 deg, rough, undulating	\times \times	_]	
_				67.8' - Fracture, <5 deg, rough, undulating	× × × ×	_		
_			0		× × × × × ×	_	-	
-					$\begin{array}{c} \times \times \times \end{array}$	-	-	
70	R7NQ		0		× × × ×	_	-	
193.9	10 ft 99%	99	0	-	$\begin{array}{c} \times \times \times \end{array}$	70.0-74.5' - mottled blue-green along		
			U		$\begin{bmatrix} \times & \times \\ \times & \times \end{bmatrix}$	relic fractures]	
_			0		××	_	-	
_					× × × ×	_	-	
-			0		× ×	-	-	
-					× × × ×	_	1	
-			0		××	-	1	
			1	74.3' - Fracture, <5 deg, rough, undulating	× × × × × ×	_		
75 <u> </u>	75.0		, ~~~	-	× × × × × ×	74.5-75.0' - white inclusions		
100.9			0		$\stackrel{\times}{\times}\stackrel{\times}{\times}$	75.0-76.0' - heavily mottled blue-green along relic fractures	R8: 14:55-15:45 -	
-				76.0' - Fracture, horizontal, small hairline crack	× ×	-	-	
-			1	, ,	× × × × × ×	-	1	
-			_		× × × ×	-	1	
			0		× ×	_]	
_			1		× × × ×	_	SC-1 collected 78.0-78.9'	
_					× ×	_	-	
	R8NQ		0		× × × ×	-	-	
80 <u> </u>	10 ft 102%	100		_	× ×	80.0-84.0' - mottled blue-green		
-	,0		0		× × × ×	-	1	
			0			_	First water level = 7.12' bgs taken 4/25/06 at 07:35 -	
-					−lx x	-	-	
-			0		× × × ×	_	-	
-					$\dashv \times \times$	-	-	
-			0		× × × ×	-		
			0]:::: <u>:</u>	Sandstone 84.0-85.0' - weak red, heavily mottled	R-Scale not performed on rock core samples	
85_	85.0		XXX		<u> </u> ::::	blue-green, fresh, coarse grained	TOUR COILE SAITIPIES	
178.9			^^^		\perp	Bottom of Boring at 85.0 ft bgs on = 4/24/06 15:45	_	

2BB-339 Rev. 1



PROJECT NUMBER:	BORING NUMBER:
338884	BGA-2

SOIL BORING LOG

SHEET 1 OF 5

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687127.5 N, 2012218.4 E)

ELEVATION: 262.4 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

DRILLIN	G EQUIF	PMENT A	AND MET		ORIENTATION: Vertical			
WATER	LEVELS	S : 5.0 ft b	ogs		START : 6/1/06 13:48 END : 6/	/2/06	14:24	LOGGER : LH
DEPTH B	ELOW EX	KISTING C	RADE (ft)		SOIL DESCRIPTION	(1)		COMMENTS
	INTERV	AL (ft)		PENETRATION TEST RESULTS		SYMBOLICLOG	Г	
		RECOV	ERY (in)	TEOT RECOETS	SOIL NAME, USCS GROUP SYMBOL, COLOR,		ı ı	DEPTH OF CASING, DRILLING RATE,
			#TYPE	6"-6"-6"	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	MBC	(TSF)	DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
			,,,,,	(N)		S	윤	
262.4 - - -	0.0	20.4	SS1SS	6-5-6-6 (11)	Clay (CL) 0.0-0.2' - very dark gray, dry, stiff, some roots and organics, topsoil Silty Gravel (GM) 0.2-0.4' - brown, dry, medium, some silt, little organics		1	- - -
-	2.0				Clay (CL)	/-		PP: friable
_	2.5				0.4-1.7' - reddish brown, black mottling, dry to moist, stiff, trace coarse sand and fine gravel; trace roots			- Inable
_	2.5				Clay (CL)	-1//		_
_		22.8	SS2SS	4-8-23-41 (31)	2.5-4.4' - brown, light greenish gray mottling, moist, hard, trace very fine sand		4.2	2
	4.5						4	
5						1		1
257.4	5.0	2.4	SS3SS,		─ Clayey Sand (SC)	/ //	Z	Soil sampling completed at 14:20 on
-	5.2			50/3 (50/3")	5.0-5.2' - very dusky red, moist to wet, very dense	7		6/1/06
-				(30/3)	Begin Rock Coring at 5.5 ft bgs See the next sheet for the rock core log	1		-
-						+		-
-						+		-
-						4		-
_						4		_
_						4		_
l _								
10						1		
252.4					-			
-						1		
-						1		-
-						-		-
-						+		-
-						4		-
_						4		_
						1		
]		
15						1		
247.4					-		1	
-						1		
-						+		-
-						+		-
-						+		-
-						4		-
-						1		_
_						1		
								_
]						1		1
20						1		1
						\top	T	
						\perp		



PROJECT NUMBER:

338884

BORING NUMBER:

BGA-2 SHEET 2 OF 5

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687127.5 N, 2012218.4 E)

ELEVATION: 262.4 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD: CME-550, NQ Double Barrel ORIENTATION: Vertical

COMIN	J LQUII WILIY	IIAN	DIVIL	THOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS : 5.	0 ft bo	IS	START : 6/1/06 13:	48	END : 6/2/06 14:24	LOGGER : LH
	0.8			DISCONTINUITIES	ဗ္ဗ	LITHOLOGY	COMMENTS
EPTH AND EVATION ELOW URFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	(%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS,	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
DEPTH AND ELEVATION BELOW SURFACE (RQD(%)	FRAC PER F	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMB	AND ROCK MASS CHARACTERISTICS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
-	5.5		10+ ×××:	5.5-6.5' - Fracture zone		Silty Gravel (GM) 5.5-6.5' - light gray and very dark gray, hard, highly weathered Sandstone	Rock coring began at 15:25 on 6/1/06 – R1: 15:25-15:32 on 06/01/06
-	R1NQ 3.3 ft 30%	0			- : : : : - : : : : - : : : :	At 6.5' - light gray, soft to hard, thin to massive bedding, fine sand to coarse sand	At 8.0' bgs coring water
-	8.8 R2NQ 1.2 ft	0	0		- ::: - :::	- 6.5-10.0' - highly weathered	turned from red to purple – At 8.8-10.0': R-Scale = R1 – R2: 16:03-16:16
10_ 252.4	10.0 71%	-		_	- - - : : : :	 10.0-17.3' - moderately weathered	R3: 16:22-16:30
-			0		_ _ _ _ : : : :	- - -	
-	R3NQ 5 ft	98*	0		- : : : : - : : : :	- -	
-	98%		0		- ::: - :::	- -	At 12.5-16.1': R-Scale = R1 -
- 15	15.0		0		- :::: - ::::	14.0-15.0' - reddish brown	-
247.4			0	_		15.0-16.0' - banded in 45 degree angle opposite of fracture at 16'	R4: 16:36-16:43
-			1	16.0' - Fracture, 45 deg, rough, planar, hard tight fit	- - - - - : : : :	- - -	At 16.6': R-Scale = R2
-	R4NQ 5 ft 99%	73*	0			17.3-18.0' - dark gray, very soft, highly weathered, some silt, 60% sand, 40% silt/clay	At 17.3-18.6': R-Scale = R0 R1 _
-			1	18.9' - Fracture, 45 deg, smooth, undulating	- × × - × × - × ×	Siltstone 18.0-22.1' - gray, very soft, laminated bedding, sandy near top, high clay	-
20_ 242.4	20.0		0	20.21 Eractura harizantal rayah yadulatira	- × × - × × - × ×	- content 18.0-18.6' - highly weathered 18.6-22.1' - slightly weathered	R5: 16:53-17:04
-			8	20.3' - Fracture, horizontal, rough, undulating 21.2' - Fracture, horizontal, smooth, undulating	- × × - × × - × ×	18.9-22.1' - very dark gray, mottled greenish gray, very soft to soft	At 20.7': R-Scale = R2
-	R5NQ 5 ft	85	0	21.3' - Fracture, horizontal, smooth, undulating 21.3' - Fracture, horizontal, smooth, undulating 21.4' - Fracture, horizontal, smooth, undulating		Sandstone 22.1-23.8' - very dark gray, soft to	-
-	100%		2	21.5' - Fracture, horizontal, smooth, undulating 21.5' - Fracture, horizontal, smooth, undulating 21.6' - Fracture, horizontal, smooth, undulating	- :::: - ::::	hard, fine sand to medium sand, slightly weathered 22.6-23.8' - light gray	At 22.5': R-Scale = R3 - -
-	05.0		0	23.8' - Contact between siltstone and sandstone, sharp	- × × - × × - × ×	Siltstone 23.8-40.0' - very dark gray, mottled greenish gray, very soft to soft] :
25 237.4	25.0			_	× × × ×	23.8-30.0 - fresh to slightly weathered	_

2BB-341 Rev. 1



PROJECT NUMBER:

338884

BGA-2

SHEET 3 OF 5

ROCK CORE LOG

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687127.5 N, 2012218.4 E)

ELEVATION: 262.4 ft MSL (NGVD 29) DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

00111110			J 141L	TIOD : CIVIL-330, INQ Double Ballel			ONENTATION: Vertical	
WATER	LEVELS: 5.	0 ft bg	S	START : 6/1/06 13:4	18	END : 6/2/06 14:24	LOGGER : LH	
	<u></u>			DISCONTINUITIES	U	LITHOLOGY	COMMENTS	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS,	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND	
DEPT ELEV BELO SURF	CORE	RQD	o FRAC	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS		AND ROCK MASS CHARACTERISTICS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.	
-			4	25.1' - Fracture, horizontal, rough, planar, edges rounded 25.1' - Fracture, horizontal, rough, planar, edges rounded	× > × > × > × >	25.0-29.9' - dark reddish brown, mottled greenish gray, trace very fine sand throughout	R6: 08:23-08:32 on 06/02/06 -	
-	R6NQ 5 ft 97%	79	0	25.2' - Fracture, horizontal, rough, planar, edges rounded 25.8' - Fracture, horizontal, rough, planar, edges rounded	× > × > × > × >	27.0-27.6' - soft, very fine to fine white sandstone inclusions; parent material has been stained by surrounding	At 27.7': R-Scale = R3	
- -			1	25.9' - Fracture, horizontal, rough, planar, tight, friable 26.0' - Fracture, horizontal and 45 deg,	× > × > × > × >	material reddish brown 28.5-29.0' - soft, very fine to fine white sandstone inclusions; parent material	-	
30 <u> </u>	30.0		4	smooth, undulating, edges rounded 26.2' - Fractures (2), horizontal, rough, undulating, edges rounded, friable material 26.2' - Fracture, horizontal, rough, undulating,	× > × > × > × >	has been stained by surrounding material reddish brown 30.0-40.0' - fresh	 R7: 09:55-10:07	
-			10+	edges rounded, friable material 27.0' - Fracture, 45 deg, rough, stepped, tight fit	× > × > × >			
-	R7NQ 5 ft	64	10+	28.2' - Fracture, 45 deg, rough, undulating, slightly altered fracture; some material lost or crumbly 29.7' - Fracture, horizontal, rough, planar,	× > × > × > × >		At 32.4': R-Scale = R3	
<u>-</u>	100%		0	friable material 29.8' - Fracture, horizontal, rough, planar, friable material	friable material 29.8' - Fracture, horizontal, rough, planar, friable material		32	
- - 35	35.0		10+	29.9' - Fracture, horizontal, rough, planar, friable material 30.1' - Fracture, horizontal and 45 deg, smooth, planar to undulating	× > × > × > × >	-	At 34.3': R-Scale = R2	
227. 4 - -			1	30.3' - Fracture, horizontal and 45 deg, smooth, planar to undulating 30.4' - Fracture, horizontal and 45 deg,	× > × > × > × >	35.0-40.0' - trace medium sand	R8: 10:15-10:26	
- -	R8NQ	80	1	smooth, planar to undulating 30.5' - Fracture, horizontal and 45 deg, smooth, planar to undulating 30.8-31.5' - Fracture zone, horizontal and	× > × > × >	_	SC-1 collected	
_	5 ft 100%		0	vertical, smooth, planar to undulating, friable material 31.7' - Fracture, 30 deg, smooth, undulating	× > × > × > × >	- -	37.4-38.4'	
-			1	32.8' - Fracture, 15 deg, smooth, undulating 34.1' - Fracture, 45 deg, tightly healed 34.7-35.0' - Fracture zone, horizontal, smooth, undulating			At 39.2': R-Scale = R3-R4	
40 <u>222.4</u>	40.0		0	35.1' - Fracture, horizontal, rough, planar 36.7' - Fracture, horizontal, rough, undulating, tight fit	× > × >	39.8-39.9' - large (>0.05' thick) \(\greenish gray mottles\) Sandstone	R9: 10:33-10:43	
-			0	38.9' - Fracture, horizontal, rough, undulating 39.7' - Fracture, horizontal, rough, planar, tight fit		 40.0-47.5' - dusky red, medium bedding, very fine sand to fine sand, fresh, trace medium sand, quartz and 	At 41.5': R-Scale = R3	
-	R9NQ 5 ft 100%	100	1	42.2' - Fracture, horizontal, smooth, undulating		 feldspars, very soft 42.3-45.0' - fine sand to medium sand, gray and white, soft 		
-			0			44.0-45.0' - banded, light and dark	At 43.6': R-Scale = R3	
45_ 217.4	45.0		0		 	_	R10: 10:52-11:00	

2BB-342 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BGA-2 SHEET 4 OF 5

ROCK CORE LOG

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687127.5 N, 2012218.4 E)

ELEVATION: 262.4 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	LEVELS : 5.	0 ft bg	ıs	START : 6/1/06 13:4	8	END : 6/2/06 14:24	LOGGER : LH	
	(9)			DISCONTINUITIES	G	LITHOLOGY	COMMENTS	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.	
-	R10NQ		0	46.7' - Fracture, 45 deg, tightly healed 47.0' - Fracture, horizontal, rough, planar		45.0-45.7' - fine sand to medium sand, gray and white, soft 45.7-47.5' - soft to hard, fine sand to coarse sand, gray and white, grades to some fine gravel at bottom	At 46.0': R-Scale = R3	
-	5 ft 98%	83	10+	47.2-47.5' - Fracture zone, horizontal and vertical, rough, planar 47.5-50.0' - Trace microfractures with greenish	: : :	Siltstone 47.5-57.9' - dark reddish brown, greenish gray mottling, very soft to	-	
-			0	gray infilling 47.9' - Fracture, 15 deg, smooth, undulating	× × × × × × × ×	soft, fresh, trace very fine sand throughout 47.5-50.0' - very soft, gravel sized clasts with no grains apparent,]	
50 212.4 -	50.0		10+	50.7-51.0' - Fracture zone, horizontal and 45	× × × × × ×	laminated beds; vugs < 0.01' thick; linear vertical lines throughout 50.0-51.0' - gravel sized very fine clasts	R11: 11:00-11:17	
-	R11NQ	70		0	deg, vertical, rough, undulating	× × × × × ×	_	At 51.5': R-Scale = R3
-	5 ft 92%		10+	52.9' - Fracture, 45 deg, rough, undulating	× × × × × × × ×	-	- - At 53.5': R-Scale = R3	
- 55	55.0		10+	53.9-54.8' - Fracture zone, horizontal and 45 deg, vertical, rough, undulating	× × × × × ×	-	At 55.5 . K-Stale - K5 - -	
207.4	00.0		1	55.0' - Fracture, horizontal, rough, undulating	× × × × × × × ×	55.0-57.9' - becomes coarser with depth	R12: 11:38-11:49 -	
-	R12NQ		1	tight fit 56.2' - Fracture, horizontal, rough, undulating, tight fit	× × × × × ×	-	- - At 57.2': R-Scale = R3	
-	5 ft 100%	76	0		× × × ×	Sandstone 57.9-59.2' - dark gray, hard, fresh, dark reddish brown, medium bedding		
60	60.0		10+	59.3-59.7' - Fracture zone, horizontal and vertical, horizontal fractures are smooth,	× × × × × ×	Siltstone 59.2-70.4' - dark reddish brown, very	-	
202.4			10+	stepped, and friable; vertical fractures are smooth, slickensided and tight 60.0-60.2' - Fracture zone, horizontal, rough, planar	× × × × × ×	 soft, fresh 59.2-60.0' - high clay content; laminated beds except in slickenside 60.0-61.2' - dark reddish brown and 	R13: 11:57-12:04	
-	R13NQ 5 ft	92	0	61.1' - Fracture, 45 deg, rough, undulating, _ greenish gray hard infilling	× × × × × ×	greenish gray, soft to hard, trace medium to coarse sand; becomes coarser with depth 61.2-65.0' - greenish gray mottling,]	
-	96%	<i>3</i> 2	0		× × × × × ×	very soft to soft, trace very fine sand throughout 61.2-63.4' - black coarse sand sized clasts	At 63.5': R-Scale = R3-R4	
65_ 197.4	65.0		0	65.0-65.3' - Fracture, vertical, rough, planar	× × × × × × × ×	-	- - - R14: 13:00-13:13	
137.4				00.0-00.0 - Fracture, vertical, rough, plantal	××		1714. 10.00-10.10	

2BB-343 Rev. 1



PROJECT NUMBER:

338884

BGA-2 SHEET 5 OF 5

ROCK CORE LOG

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687127.5 N, 2012218.4 E)

ELEVATION: 262.4 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

COMING	J LQUII WILIY	II AIN		HOD : CME-550, NQ Double Barrel			ORIENTATION: Vertical				
WATER	LEVELS: 5.	0 ft bg	s	START : 6/1/06 13:4	18	END : 6/2/06 14:24	LOGGER : LH				
	DISCONTINUITIES		DISCONTINUITIES	ŋ	LITHOLOGY	COMMENTS					
gz €	ŽAN VO VO VO		ES	DESCRIPTION) Lo	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,				
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.				
			2	65.3' - Fracture, horizontal, smooth, planar,	× ×	65.0-70.0' - greenish gray mottling,					
- -			1	0.001' clay infilling, black stains, tight fitted 66.8' - Fracture, 45 deg, smooth, undulating,	× × × × × ×	 very soft to soft, trace very fine sand throughout 66.0-67.3' - 40% very fine sand 66.5-68.8' - beds seem to be on 45 	-				
-	R14NQ 5 ft 100%	84	0	0.005' clay infilling, tight fitted	X	degree angle 70.0-70.4' - greenish gray mottling, very soft to soft, trace very fine sand	At 67.1': R-Scale = R3-R4				
-			1 68.5-68.7' - Fracture, 45 deg, hard white infilling	× × × × × ×	throughout; becomes coarser with depth	-					
70 -	70.0		0	68.8' - Fracture, horizontal, rough, undulating 69.1' - Fracture, 30 deg, hard white infilling,	× × × ×	-	At 69.4': R-Scale = R3-R4				
70 <u> </u>	70.0			tightly healed —	××		R15: 13:40-13:53				
-			0			Sandstone 70.4-73.8' - dark reddish gray to dusky red, soft, very fine sand to fine sand,] :				
-	R15NQ		0			fresh, no clear contacts; grades from siltstone to sandstone and back					
-	5 ft 100%	100	0			-					
-			0		 × ×	- Siltstone	-				
- 75	75.0		0	_	× × × × × ×	73.8-82.3' - dark reddish brown, greenish gray mottling, very soft to soft, trace very fine sand throughout	_				
187. <u>4</u> - -			0		× × × × × ×	73.8-78.0' - fresh 75.0-80.0' - trace greenish gray mottling	R16: 13:57-14:06				
-			0 0		× × × × × ×	75.0-77.6' - soft, laminated beds	At 76.3': R-Scale = R3-R4				
_	R16NQ 5 ft 100%	88			× × × × × ×	- - 77.6-80.0' - very soft, trace medium	SC-2 collected 75.0 - 76.0'				
_			5	78.1-78.4' - Fracture (2), 45 deg, rough, undulating, overlying a horizontal fracture with same characteristics		grained sand 78.0-82.3' - slightly weathered	-				
- - 80	80.0		1	78.6' - Fracture, horizontal, smooth, undulating 78.7' - Fracture, horizontal, smooth, undulating 79.0-79.4' - Fracture, 45 deg, tightly healed		-					
182.4 -			3	79.5-79.4 - Fracture, 45 deg, tightly healed 79.5-79.6' - Fracture 79.9-80.0' - Fractures (2), horizontal and vertical, horizontal are rough, planar and	× × × × × ×	80.0-82.3' - very soft, laminated beds	R17: 14:12-14:24				
-			0	vertical are slickensided 80.1-80.9' - Fracture zone, 60 deg and vertical,	× × × × × ×	-	At 81.8': R-Scale = R3-R4				
-	R17NQ 5 ft 100%	86						the touch (rock is hard), cuts through laminated beds	- × × - × × - · · ·	- Sandstone 82.3-85.0' - dusky red, soft to hard,	First water level = 5.0' bgs taken 6/2/06 at 15:08; second water level = 7.9'
-	100 /6		1	82.6' - Fracture, 10 deg, tightly healed 83.5' - Fracture, horizontal		very fine sand to fine sand, fresh, very thin to medium bedding 83.5-84.2' - rock seems to have more	bgs taken 6/5/06 at 10:05				
-			3	84.5' - Fracture, horizontal, rough, planar	- - - - - - -	silt (in layers)	R-Scale performed after drilling on stored samples				
85 <u> </u>	85.0		\dashv	84.8' - Fracture, horizontal, rough, undulating 85.0' - Fracture, horizontal, rough, undulating	1	Bottom of Boring at 85.0 ft bgs on					
				, , , , , , , , , , , , , , , , , , , ,		- 6/2/06 14:24					

2BB-344 Rev. 1



PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-3	SHEET 1 OF 10

SOIL BORING LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687317.4 N, 2012132.9 E)

ELEVATION: 259.9 ft MSL (NGVD 29) DRILLING CONTRACTOR: A. Martin/R. Norwood, S&ME

DRILLING EQUIPMENT AND METHOD: BK-51, 2-15/16 Tricone Bit, 24" Split Spoon and 140 lb. Hammer and Cathead ORIENTATION: Vertical

				110D . BK-51, 2-	15/16 Tricone Bit, 24" Split Spoon and 140 lb. Hammer and Cath				
WATER DEPTH B			ogs GRADE (ft)		START : 4/19/06 10:15 END : 4/20 SOIL DESCRIPTION	П	09:50 LOGGER : JS COMMENTS		
	INTERV		2. 0 (DE (II)	STANDARD PENETRATION	55.2.2.256/M //6/V	90	352110		
	11 TILIXV		ERY (in)	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,	LICL	DEPTH OF CASING, DRILLING RATE,		
		I LEGOV	#TYPE	6"-6"-6" (N)	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION		
259.9 - - -	2.0	15.0	SS1SS	7-9-10-8 (19)	Silty Sand (SM) 0.0-1.3' - brown and reddish brown, moist, stiff, medium dense, with clay; coarse angular gravel in first few inches, grass roots; shoe is clayey silt (ML), rootlets		-		
_						<u> </u>	_		
- - -	2.5 4.5	10.0	SS2SS	6-8-6-8 (14)	Lean Clay (CL) 2.5-3.3' - brown, moist, stiff, heavily stained and mottled,15% fine to medium sand, micaceous		- - -		
5	4.5				-	1	-		
254.9 - -	5.0	0.0	SS3SS	4-4-7-8 (11)	No Recovery 5.0-7.0'		Drillers Remark: Soft drilling at 5.0' bgs		
_	7.0				_		-		
_	7.5				Olavy (OL)	ļ,,,	Drillers Remark: Hard at 7.5' bgs		
- -		8.0	SS4SS	44-50/4 (50/4")	Clay (CL) 7.5-8.2' - reddish brown, moist, hard, low plasticity, slow to rapid dilatancy, micaceous particles throughout; weathered bedrock pieces towards bottom		- - -		
10	9.5				-	ł	Soil sampling completed at 11:10 on 4/19/06		
249.9 - - - - - - -	10.0 10.1	1.0	<u>\SS5SS</u>	50/1 (50/1")	Clay (CL) 10.0-10.1' - reddish brown, moist, hard, low plasticity, slow to rapid dilatancy, micaceous particles throughout; weathered bedrock pieces towards bottom Begin Rock Coring at 10.1 ft bgs See the next sheet for the rock core log	-			
15 244.9 					- - - - - - -		- - - - - - - -		
			L			Ц_			

2BB-345 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BGA-3 SHEET 2 OF 10

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687317.4 N, 2012132.9 E)

ELEVATION: 259.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin/R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : BK-51, HQ Double Barrel ORIENTATION : Vertical

	EQUIPIVIEN	ORIENTATION : Vertical					
WATER	LEVELS: 9.	4 ft bo	S	START : 4/19/06 10	:15	END: 4/26/06 09:50	LOGGER : JS
	_			DISCONTINUITIES	(D	LITHOLOGY	COMMENTS
o ⊋ €	CORE RUN, LENGTH, AND RECOVERY (%)		S	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	
EVATION EVATION ELOW	Z A Z	(%)	FRACTURES PER FOOT	BESON HON	윽	MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING,
EPTH AN EVATION ELOW JRFACE	SHE S	Q D (%)	F	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	N N	WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
DEP ELE\ BELC SURI	S N N	ō	RA(PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	≥	AND ROCK MASS CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
Ошшо		ď	正凸	THOMASO, SOM AGE STAINING, AND HOTTINESS			
	10.1				× × × ×	Siltstone	Rock coring began at 09:30
			1	10.5' - Fracture, 70 deg, rough, undulating, loose fit	× ×	10.1-16.4' - dark reddish brown, mottled green and black, very soft to	on 4/21/06 R1: 09:30-10:30 on 4/21/06
1 7				loose III	\times \times	soft, slightly weathered, fine grained	R1. 09.30-10.30 0H 4/21/06
-			1		× ×	with fine sand throughout	1
-			-	40.01.5	××	-	
	R1HQ			12.0' - Fracture, horizontal, rough, stepped, loose fit	\times \times		
	5.4 ft	83	0	loose iii	× ×		1
1 -	85%				× ×	F	1 1
-			0		××	-	1 -
					× ×	=	_
			0		× ×		
15			XXX		××		1
244.9			\bowtie	_	Îx x		⊢
-	15.5		XXX	<u> </u>	× ×	15.5.16.4' raddiah hrau:	14:20 ream out hole
			10+	15.6' - Fracture, horizontal, smooth,	××	15.5-16.4' - reddish brown, soft	R2: 14:45-15:22
			''	undulating, loose fit 16.0-16.4' - Fracture zone, horizontal and	××	L	. I
1 7				vertical, rough, undulating, tight and loose fits,	1:::	Sandstone 16.4-18.6' - reddish brown, fine sand	1 1
-			1	piece fine gravel to >3	∤∷∷	to medium sand, slightly weathered,	1
_				16.7' - Fracture, 20 deg, rough, undulating,	1:::	- scattered coarse grains, fine gravel	-
			1	some fine sand and clay infilling, tight		near 18.6', core surface is pitted, hard	
	R2HQ 5.8 ft	77	'	18.1' - Fracture, horizontal, rough, undulating,	:::		
-	94%	11		some fine sand and clay infilling, tight	× ×	- Siltstone	1 1
-	2.70		3	18.6' - Fracture, 20 deg, rough, stepped, with	× × × ×	At 18.6' - reddish brown, soft, fine	-
_				fractured pieces, coarse sand to fine gravel	\times \times	grained, scattered green mottling	1
20			0	size, bedrock pieces, loose 18.9' - Fracture, horizontal, smooth, stepped, —	× ×	18.6-34.5' - slightly weathered	
239.9			U	loose fit	× ×		
-				193' - Fracture 10 deg rough stepped tight	× × × ×	-	1 1
-	21.3		∞	fit	-1 × ×	-	1 -
	21.0		\sim	21.3-21.4' - Fracture zone, horizontal, smooth,	× × × ×	-	R3: Finished at 16:15
			10+	undulating, loose	× ×		
					× ×	_	1 1
-					××	-	1 -
-			2		××	- 22.9-23.4' - very soft	-
				23.1-23.5' - Fracture, horizontal and 70 deg,	××	, and the second]
			3	smooth, undulating, loose	× ×	23.4-26.1' - coarse sand sized green and black mottling	
1 7				23.8' - Fracture, horizontal, smooth, undulating, loose fit	× ×	and black motuling	1
				23.9' - Fracture, horizontal, smooth,	××	 	-
25 <u> </u>			0	undulating, loose fit —	Îx x	_	-
234.9				23.9' - Fracture, horizontal, smooth,		_]
			10+	undulating, loose fit	× × × ×		1
	R3HQ			26.1.27.5' Fracture zone herizontal and 90	× ×	- 26.1-27.5' - dark reddish brown,	1
-	10.2 ft 93%	82		26.1-27.5' - Fracture zone, horizontal and 80 deg, rough, undulating, plus many small	1ŝ ×	mottled black, fine sand scattered	-
-	9370		10+	pieces, fine gravel to coarse sand size, loose to	× × × × × ×	- throughout	-
				tight	××		
1 7			10+	27.6-27.8' - Fracture zone, horizontal and 60	× × × × × ×	27.5-29.2' - very soft to soft, white and	1
-				deg, rough, undulating, loose and tight	1× ×	 reddish brown in a streaked pattern 	1
-				28.0' - Fracture, 30 deg, smooth, undulating,	××	-	-
			10+	tight	l× č	-]
				28.5' - Fracture, horizontal, smooth, undulating, loose fit	× × × × × ×	29.2-31.5' - dark reddish brown, green	
30			0	andulaling, 10000 III	\times \times	mottling, soft	1
				-	× ×	_	
					1		
					1		

2BB-346 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BGA-3 SHEET 3 OF 10

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687317.4 N, 2012132.9 E)

ELEVATION: 259.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin/R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : BK-51, HQ Double Barrel ORIENTATION : Vertical

WATER	WATER LEVELS: 9.4 ft bgs		ıs	START : 4/19/06 10	:15	END : 4/26/06 09:50	LOGGER : JS
	(%)			DISCONTINUITIES	0G	LITHOLOGY	COMMENTS
₽Z Û	AND ≪ (3D)		LES L	DESCRIPTION	010	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
_			0	29.1-29.2' - Fracture zone, horizontal and 30	× ×	_	
_			XXX	deg, smooth, undulating, loose	× ×	_	
_	31.5		$\otimes\!\!\!\otimes$		× × × ×	- 0450401 1 1 1511	B4 00 00 40 05 4/04/00
_			10+		Îx x	31.5-34.3' - dark reddish brown, - mottled white, green, and purple, very	R4: 09:06-10:05 on 4/24/06
_				32.1-34.2' - Fracture zone, horizontal, rough to smooth, stepped, loose fit	××	soft to soft, green and white in vein	
_			10+	smooth, stepped, loose lit	××	pattern; purple in scattered coarse - sand size	_
-					××	<u>-</u>	1
_			10+		× × × ×	<u> </u>	_
_					x x	_ 34.3-41.5' - dark reddish brown, trace	_
35 <u> </u>			0	_	××	green and purple mottling, soft 34.5-47.5' - fresh	_
224.9	9 - - - R4HQ				$\times \times $	-	1
_			1		× × × ×	_	-
_	10 ft	86		36.1' - Fracture, horizontal, smooth, planar, rough to smooth, stepped, loose fit	× × × ×	_	-
-	99%		0	rough to officert, stepped, loose in	× ×	_	-
-					× ×		SC-1 collected
-			0		× ×		37.3-38.2'
-					× × × ×		-
-			0		- x x	_	-
-					× ×	_	-
40 <u> </u>			0	_	$\times \times \times$		_
-					× × × ×	_	1
_			1	40.7' - Fracture, 30 deg, smooth, undulating, tight fit	× ×	_	-
-	41.5		\sim	-9	$\times \times $	_ 41.5-50.5' - dark reddish brown,	R5: 10:15-11:10
-			3	42.0' - Fracture, horizontal, smooth, planar,	$\times \times$	 mottled white, green, and purple, soft, green and white in vein pattern; purple 	1
-				tight fit 42.1' - Fractures (2), horizontal, smooth,	× × × ×	in scattered coarse sand size	1
-			1	undulating, loose fit, rough	\times \times	_	
-				42.1' - Fracture, horizontal, rough, undulating, loose fit	- X X - X X - X X - X X	_	1
-			0	42.8' - Fracture, 10 deg, smooth, undulating,	$\times \times $	_	1
45				loose fit	××	_	1
214.9			0	_	× ×		
					Îx x	-	1 1
	R5HQ		0		× ×	_	1
	10 ft 93%	80			××		1
1 7			0		× × × ×		1
			10:	47.5-48.3' - Fracture zone, horizontal and 50	××	47.5-48.0' - slightly weathered	1
]			10+	deg, rough, stepped to undulating, loose	× × × ×	Siltstone - At 48.0' - very dark gray	1
		48.7' - Fracture, horizontal, rough to smooth,]× ×	48.0-50.5' - slightly weathered	1
			3	stepped, loose 49.3-50.0' - Fractures, horizontal and 20 deg,	× × × ×	48.7-50.2' - white and green mottling]
50				80, 150, rough to smooth, stepped, tight, loose _	× × × × × ×]
					П		

2BB-347 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BGA-3 SHEET 4 OF 10

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687317.4 N, 2012132.9 E)

ELEVATION: 259.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin/R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : BK-51, HQ Double Barrel ORIENTATION : Vertical

	EQUIPMEN	ORIENTATION . Vertical					
WATER	LEVELS: 9.	4 ft bo	S	START : 4/19/06 10):15		
				DISCONTINUITIES	٥	LITHOLOGY COMMENTS	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS AND ROCK MASS CHARLOSTER OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.	
吊필띪꽁	898	S.	ᄄᆱ	THICKNESS, SURFACE STAINING, AND TIGHTNESS	λS	CHARACTERISTICS DROPS, TEST RESULTS, ETC.	
- - -	51.5		0	50.6' - Fracture, horizontal, smooth, undulating, loose fit	- × - × - × - × - × - ×	sand pebbles; fine grained with ~40% fine to medium sand 51.5-53.5' - green mottling, soft to hard, with fine to medium sand, mostly white sand, irregular throughout	
- - 55_ 204.9			0	_	- × - × - × - × - ×	53.5-55.4' - Siltstone/Sandstone gradational contact	
- - - -	R6HQ 10 ft 97%	97	0		- X	Sandstone 55.4-62.6' - light gray to dark gray, hard, fresh, fine to medium grained at top becoming generally coarser with depth; coarse grained at bottom; white, pink, and green grains	
-			0			::	
60 199.9 - - -	61.5		0 0 ××	-	-	R7: 13:00-13:30 and 14:00-	
- - -			1 0	62.6-65.5' - Microfractures, capillary pattern 62.6' - Fracture, 10 deg, smooth, planar, loose		14:25 SC-2 collected 61.5-62.6' Siltstone 62.6-65.5' - dark reddish brown, mottled green, purple, and dark gray, soft, fresh, fine grained, scattered fine	
65	R7HQ 10 ft 100%	98	98		- 65.5' - Fracture, 10 deg, smooth, stepped, loose	- × - × - × - × - ×	Siltstone At 65.5' - very dark gray, mottled white and reddish brown, soft, fresh, fine grained; occasional beds of fine to medium sand grains
- - - - 70			2	68.3' - Fracture, horizontal, smooth to rough, stepped, loose 68.4' - Fracture, horizontal, smooth to rough, stepped, loose	- X - X - X - X - X - X - X	X	
				_			



PROJECT NUMBER: BORING NUMBER:

338884 BGA-3

SHEET 5 OF 10

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687317.4 N, 2012132.9 E)

ELEVATION: 259.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin/R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : BK-51, HQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS: 9.	EVELS: 9.4 ft bgs START: 4/19/06		:15	END: 4/26/06 09:50	LOGGER : JS	
	(%)			DISCONTINUITIES	g	LITHOLOGY	COMMENTS
Q _N (£)	AND ₹ ₹	_	ZES T	DESCRIPTION		ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
-	71.5		1	70.5' - Fracture, horizontal, rough, stepped, loose	× × × × × × × × × × × × × × × × × × ×	-	-
-			2	71.5' - Fracture, horizontal, smooth, undulating, loose 72.0' - Fracture, horizontal, smooth, planar,	× > × > × > × > × > × > × > × > × > × >	71.5-72.8' - some yellow inclusions	R8: 14:40-15:20
-			0	loose	× > × > × >	- Siltstone At 72.8' - dark reddish brown, green to trace green mottling, soft, fresh	- - -
- 75			1	74.4' - Fracture, horizontal, smooth, planar,	× > × > × > × >		-
184.9 -			1	tight	× > > > > > > > > > > > > > > > > > > >		
-	R8HQ 10 ft 95%	95	0	76.3' - Fracture, horizontal, smooth, planar, tight	X	-	SC-3 collected 76.28-77.56'
_			0	78.0-90.1' - Capillary microfracture pattern	- (x) - (x) - (x) - (x)	-	-
-			0		× × × × × × × × × × × × × × × × × × ×		-
80 <u> </u>			0	-	× × × × × × × × × × × × × × × × × × ×	_	-
-	81.5		××		× > × > × > × > × > × > × > × > × > × >	81.5-90.1' - black and green mottling, fine grained	R9: 15:30-16:15
-			0		× > × > × > × >	- IIIe graineu	-
-			0		× > × > × >		-
85_ 174.9			0	-	- × × × × × × × × × × × × × × × × × × ×	- — 84.8' - fine to medium sand , white _ inclusions begin, becomes hard	
-	R9HQ 10 ft	98.4	1	86.3' - Fracture, horizontal, smooth, planar,	X		-
-	100%		0	tight to loose	- (x) - (x) - (x)	86.8' - inclusions, numerous, up to fine gravel sized, some mottling	-
-			0		(<i>t</i>	
90				_	× > × > × >		-



PROJECT NUMBER:

338884

BGA-3 SHEET 6 OF 10

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687317.4 N, 2012132.9 E)

ELEVATION: 259.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin/R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : BK-51, HQ Double Barrel ORIENTATION : Vertical

	- EQUIPIVIEN	ORIENTATION : Vertical					
WATER	LEVELS: 9.	4 ft bo	IS	START : 4/19/06 10	15	END: 4/26/06 09:50	LOGGER : JS
	G(%			DISCONTINUITIES	90	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	_	FRACTURES PER FOOT	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
A T S S S S S S S S S S S S S S S S S S	E.R.L.	(%) _Q	Į.	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	ğ	MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
E S S S S S S S S S S S S S S S S S S S	ORE	Ø	RAC	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	₹ME	AND ROCK MASS CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
	075	ď		THIOTHESS, SOM ACE STAINING, AND HOTTINESS	Ś		
_			0	OO EL Frankris OO dan marris in didation	:::	89.8-90.1' - transition to sandstone	-
_			3+	90.5' - Fracture, 80 deg, rough, undulating, thin quartz infilling, tight	×	Sandstone	_
	91.5			90.7' - Fracture, horizontal, rough, undulating,	× × ×	90.1-90.7' - dark gray, hard to thin,	_
				plus several coarse gravel sized fragments,	Îŝ :	fine sand to medium sand, fresh,	R10: 08:10-08:55 on
-			0	broken bedrock 91.4' - Fracture, horizontal, rough, stepped,	×	multi-colored grains Siltstone	4/25/06 -
-				tight	×	90.7-126.3' - dark gray to dusky red,	-
-			0		×	mottled yellow and green, soft, fresh,	-
-					×	fine grained 91.5-101.5' - dark reddish brown,	-
-			0		×	green mottling, soft to hard	_
_					×	91.5-94.4' - soft to hard, white, gray	_
95			0	_	×	and green beds; not uniform and irregularly shaped; some swirled	
164.9			Ů		×	in egalarly enapea, come ewinea	_
			,		×		
	R10HQ		1	96.1' - Fracture, 5 deg, smooth, undulating	×	5	_
-	10 ft 100%	99			×	f	-
-	10070		1	96.9' - Fracture, horizontal, smooth, planar,	×	f	-
-				tight fit	×	}	-
-			0		×	} -	_
_					×	}-	_
_			0		X :	}_	_
_					×	1	_
100			0		×	_	
159.9			Ů		×		_
					×		
	101.5		0		×	f	_
_					×	101.5-111.5' - dusky red, white and	R11: 09:20-09:55
-			0		×	gray mottling, soft to hard, fine sand mica particles	-
-					×	102.6-103.0' - medium to coarse sand	-
-			0		×	throughout	-
-					×	_ 102.8-102.9' - medium to coarse sand	_
-			0		×	band at 20 degrees from horizontal 104.0-111.5' - dark reddish brown,	-
-					Î.	scattered green and purple mottling.	_
105_			0	_	×	few fine gravel sized whitish	
154.9]ŝ	inclusions; fine mica particles throughout	_
			0]ŝ		
	R11HQ	07	١٠		×	}	
_	10 ft 97%	9/			Îŝ :	<u> </u>	-
-			0		Îŝ :	<u>}</u>	-
-					1ŝ	<u>}</u>	-
-			0		lŷ :	<u>}</u>	-
-					¶ŝ ∶	}-	-
-			0		-lŝ	}-	-
-					ÎŶ :	}-	-
110				<u> </u>	×		
					1		

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PROJECT NUMBER:

338884

BORING NUMBER:

BGA-3 SHEET 7 OF 10

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687317.4 N, 2012132.9 E)

ELEVATION: 259.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin/R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : BK-51, HQ Double Barrel ORIENTATION : Vertical

00	EQUIPIVIEN	ORIENTATION : Vertical					
WATER	LEVELS: 9.	4 ft bo	ļS	START : 4/19/06 10):15	END: 4/26/06 09:50	LOGGER : JS
	(9)			DISCONTINUITIES	O	LITHOLOGY	COMMENTS
07 €	CORE RUN, LENGTH, AND RECOVERY (%)		S	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	
DEPTH AND ELEVATION BELOW SURFACE (ft)	YUN 4, A ER'	(%	FRACTURES PER FOOT		┫ 일	MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
T N A	RE F GTI	٥	FC	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	BO	WEATHERING, HARDNESS, AND ROCK MASS	SMOOTHNESS, CAVING ROD
쯝끪삒	SON	R Q D (%)	유사	THICKNESS, SURFACE STAINING, AND TIGHTNESS	\ }	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
	014		0			109.3-111.5' - numerous white	
-			Ě		- × ×	inclusions, coarse sand to fine gravel	_
1 -			1 1		\times >	sized; same hardness as matrix	_
	111.5			111.1' - Fracture, 60 deg, rough, planar to	$\begin{array}{c} \times \\ \times \end{array}$		
				undulating, loose-tight	1× >	111.5-121.5' - dark reddish brown,	R12: Began at 10:45
-			1	111.5-123.0' - Fine capillary microfracture pattern	- 1× >	 green mottling 	=
-				111.8' - Fracture, horizontal, smooth to rough,	- × > - × > - × >	-	-
			0	planar to undulating	_(× >	=	_
					××		
					- × >	_	
-			0		- × >	-	-
-					- × >	_	-
115			0	_	- × >	114.7-116.1' - scattered white and	
144.9					× >	black sand, medium grained sand	
1 7					- × >	_	SC-4 collected
-	R12HQ		0		- × >	-	115.6-116.6'
-	10 ft				- × ;	-	-
1 _	99%		0		\times >		_
					$\rceil \times \rangle$		
1 7					1× >	117.7-120.4' - 25% fine to coarse	_
-			0		- × >	sand particles scattered throughout	-
-					- × >		-
-			0		× >	=	_
					× >		
120					- × >		
139.9			0	_	_ × >	_	
-					- × >	-	-
_			0		- × >	_	_
	121.5				_ × >		
					\times >	121.5-123.0' - dark reddish brown,	R13: Finished at 13:30
1 -			0		- ×	 mottled yellow, purple, red, and green 	-
-					- × ;	-	-
-			1		- × × × × ×		_
				123 31 - Eracture, 50 deg. amouth to rough and	Jŝ:	123.0-126.3' - hard, fine sand	
1 1				123.3' - Fracture, 50 deg, smooth to rough and undulating, loose fit	×	 increasing with depth; occasional medium sand]
1 1			0		1× >	3.3 534	1
-					- × >	-	-
125			0	_	- × >	_	
134.9					× >	_	
					\ \ \ \ \]
-	R13HQ		0		− lŝ:	-	_
-	10 ft			126.3-131.5' - Scattered microfractures	-[:::	- Sandstone	-
-	95%		0	120.0-101.0 - Ocalierea Illicroffactures	4:::	At 126.3' - very dark gray to black,	-
					J∷∷	hard, fine sand, fresh - 126.3-131.5' - mottled black, bluish	
					1:::	gray and red]
			0		1 ∷∷	_ 3 - 7	-
-					- ∷∷	-	-
			0		4:::	_ -	_
			Ľ		∐∷։		
130]:::]
				-	†∵:		

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PROJECT NUMBER:	BORING NUMBER:				
338884	BGA-3	SHEET	8	OF	10

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687317.4 N, 2012132.9 E)

ELEVATION: 259.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin/R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : BK-51, HQ Double Barrel ORIENTATION : Vertical

	EQUIPIVIEN		ORIENTATION : Vertical					
WATER	LEVELS: 9.	4 ft bo	ļS	START : 4/19/06 10):15		END: 4/26/06 09:50	LOGGER : JS
				DISCONTINUITIES	(D		LITHOLOGY	COMMENTS
_ =	CORE RUN, LENGTH, AND RECOVERY (%)		m	DESCRIPTION	SYMBOLIC LOG			
EPTH AND EVATION ELOW JRFACE (ft	₹ _{Ą,} Ř	_	FRACTURES PER FOOT	DESCRIPTION	_ □		ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
EPTH AN EVATIOI ELOW JRFACE	J. H. H.	Q D (%)	128	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	5		MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND
PTH, EVAT LOW RFAC	S S S S	Ω	AC.	PLANARITY, INFILLING MATERIAL AND	MB		AND ROCK MASS	SMOOTHNESS, CAVING ROD
	898	R	유민	THICKNESS, SURFACE STAINING, AND TIGHTNESS	S		CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
			0		+	+		
_					4:::	}-		_
			0]:::	:L		_
	131.5		\bowtie		1:::	:		
-	101.0		X X X		1:::	: 1	31.5-135.7' - 20 degree bedding,	R14: 14:10-14:35
_			0		4:::	: - b	lack, blue-green, and yellow	-
			-		1:::	:1 -	, g , ,	
					1∷:	:[_
-			0		- :::	: -		-
_					:::	:[_
					:::	1	33.6' - medium to coarse sand bed	
-			0		∃∷ ∷	: -		-
_					4:::	: -		-
135_			1		<u>]</u> ::::	:L		
124.9			'	_	1:::	:[
-				135.5' - Fracture, 20 deg, rough, stepped, tight	1∷:		35.3-135.7' - transition zone; medium	-
-	_		0	fit	4:::		and with silt/clay lenses	_
	R14HQ				:::		35.6' - coarse sand	
-	10 ft 100%	98			1:::	: []	35.7-140.4' - gray, multi-colored articles, medium grained with bands	-
_	100%		0		4:::	: - p	f coarse grained	-
					_]∷∷	:L °	i coarse grained	_
					1:::	:[
-			0		- :::	:-		-
_					4:::	-		_
					1:::	:		
			0		1:::	:[-
-					∃∷ ∷	:}		-
140			1	_	_1∷:	:		
119.9			'		:::	:		
_				140.4' - Fracture, 20 deg, smooth, stepped	1× ;		Siltstone	-
_			1		$-\times$		at 140.4' - dark reddish brown, green	-
	141.5			141.3' - Fracture, horizontal, smooth,	_ × :	XL m	nottling, soft, fresh, fine grained	_
				undulating, loose	× :	<u> 1</u>	41.5-143.9' - soft to hard	R15: 14:51-15:45
_			1	141.7' - Fracture, horizontal, smooth,	- × ;	}		-
_				undulating to planar, loose	- × ;	<u>X</u> L		_
				5 , , , , , , , , , , , , , , , , , , ,	× :	Ŕ		
1 7			0		× :	X		-
-					- x	<u>+</u>		-
_			1	143.6' - Fracture, horizontal, smooth, stepped	1× :	1 1	42.0.145.01 hoovy, alless and	_
			'	to planar, loose	- ×		43.9-145.0' - heavy yellow and lue-green mottling	
145					- × :	∄ α	nuc-green mouning	-
145 <u> </u>			2	144.9' - Fracture, horizontal, smooth, stepped	- × ;	* — .	45.0.447.01	
114.9				to planar, tight fit	× :	$\frac{1}{2}$	45.0-147.0' - soft to hard	
]				145.0' - Fracture, horizontal, rough, stepped,	- × :	X		
-	R15HQ		2	loose fit	- × :	<u>*</u>		-
	10 ft			145.0' - Fracture, horizontal, smooth to rough,	1 × :	%		_
	99%			undulating, loose	×	K		
1 7			0	146.2' - Fracture, horizontal, smooth, planar,	- × :	1	47.0-148.0' - transition zone,	-
-				loose fit	- × ;		ecomes very dark greenish gray	-
			1	146.2' - Fracture, horizontal, rough, stepped, loose fit	- X :	×		_
]			'	loose tit 148.0-154.8' - Fine microfractures	X :		Siltstone	
-				148.0-154.8 - Fine microiractures 148.2' - Fracture, horizontal, smooth,	- × :		at 148.0' - very dark greenish gray,	-
-			10+	undulating, loose fit, with some rough areas	- × :		ed and yellow mottling, soft, fresh,	-
				149.0' - Fracture, horizontal, smooth, stepped,	× :	d fi	ne grained	
150				loose fit	- × ;	X		-
150					× :	<u>×</u>		
					I			
					I			
								-

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PROJECT NUMBER:

338884

BORING NUMBER:

BGA-3 SHEET 9 OF 10

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687317.4 N, 2012132.9 E)

ELEVATION: 259.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin/R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : BK-51, HQ Double Barrel ORIENTATION : Vertical

WATER	<u>.LEVELS : 9.</u> 4 آ	4 ft bo	S	START : 4/19/06 10	0:15 T	_	END : 4/26/06 09:50	LOGGER : JS
	CORE RUN, LENGTH, AND RECOVERY (%)			DISCONTINUITIES		: L	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	ZAZ ZZZ	_	FRACTURES PER FOOT	DESCRIPTION	SYMBOLIC LOG		ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
ATI ATI	JA H. F.	(%) Q	FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	S S		MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
	S S S S S S S S S S S S S S S S S S S	Ø	RA(PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	Σ		AND ROCK MASS CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
СШВО	0716	ď	0		ν,	1		00.5 !!!
-				149.2' - Fracture, horizontal, smooth to rough, undulating, loose fit	-Î	}	149.7-151.5' - hard, fine white and black beds	SC-5 collected 149.7-150.9'
-			10+	149.5-149.7' - Fracture zone	-Î	3	-	-
_	151.5		$\sim\sim\sim$	150.9' - Fracture, 20 deg, smooth, planar, tight fit	××	3		
_			2	151.7' - Fracture, horizontal, smooth, stepped,	×××	$\frac{1}{2}$	151.5-154.8' - very dark gray, hard, fine grained; lighter and darker thin	R16: 16:30-17:18
			_	loose	- ×	3	streakings throughout	_
			0	151.8' - Fracture, 30 deg, smooth, undulating, tight	Î.	3		
			U	.9	ŢŶ.	3	-	l -
_					1ŝ	3	-	<u> </u>
-			3	154.0' - Fracture, horizontal, smooth,	1ŝ	3	-	-
155				undulating, loose fit	-l×	3	-	-
155 <u> </u>			1	154.2' - Fracture, horizontal, smooth, planar, _ loose fit	0,	F	- Conglomerate	_
-				154.2' - Fracture, 10 deg, smooth to rough,	- ×	1	154.8-155.3' - fresh, medium to coarse sand sized clasts, multicolored,] -
-	R16HQ		0	undulating, tight fit 155.9' - Fracture, 30 deg, smooth, undulating	-\X	*	harder than siltstone	1 -
_	10 ft	96		100.5 Tradiane, 55 deg, smooth, anddating	-\x	3	Siltstone	-
_	100%		0		-l̂×	3	155.3-155.7' - very dark gray, hard, fresh, fine grained; lighter and darker	_
					Ĵŝ	3	thin streakings throughout	_
			0		ĺ	3	Conglomerate	
			U		Ţŝ.	3	155.7-155.8' - fresh, medium to coarse sand sized clasts, multicolored,	
					ŢŶ.	3	very hard	<u> </u>
-			0	150 2 161 El Eine mierefrectures	T _×	\$	Siltstone	First water level = 9.4' bgs
160				159.2-161.5' - Fine microfractures	×	*	155.8-159.2' - very dark gray, soft, fresh, fine grained	taken 4/26/06 at 17:00; - second water level = 5.4'
99.9			0	-	\dashv_{\times}	*	158.9-159.2' - transition zone	bgs taken 4/27/06 at 09:19
-					-×	<u>X</u>	Siltstone	-
-			0		- ×	X-	159.2-161.5' - dark reddish brown, soft to hard, fresh, fine grained	-
_	161.5				×	X	Siltstone	R17: 09:22-09:50
-			2	161.8' - Fracture, 80 deg, smooth, undulating,	×××	X	¬ 161.5-162.0' - very dark gray, red,	R17. 09.22-09.50
1 _				some thin white infilling, tight fit	×	3	yellow, dark brown, and green	_
			5	162.1' - Fracture, horizontal, smooth, undulating, loose fit]× ×	8	mottling, very soft to soft, fresh, fine grained	_
			٦	162.5' - Fracture, horizontal, smooth,	×	3	Siltstone	
	R17HQ	0.4	4	undulating, loose fit 162.9' - Fracture, horizontal, smooth,	××	3	162.0-166.5' - dusky red, very soft to	SC-6 collected
1 1	5 ft 95%	34	1	undulating, loose fit	1××	1	soft, fresh, fine grained, convoluted dark brown, red, yellow, and green	163.5-164.4'
165				163.1' - Fracture, horizontal, smooth,	1××	1	mottling	166.5' due to loose casing
94.9			4	undulating, loose fit _ 163.4' - Fracture, horizontal, smooth,	√×.	}	165.0-166.0' - soft to hard, fine sand	at surface; terminated — boring.
-				undulating, loose fit	₹ ×	*	lenses	
-	400.5		3	163.5' - Fracture, horizontal, smooth, undulating, loose fit	−l̂×	*	-	R-Scale not performed on
-	166.5		XXX	164.4' - Fracture, horizontal, smooth,	НŶ	4	Bottom of Boring at 166.5 ft bgs on	rock core samples
-				undulating, loose fit	-	ŀ	4/26/06 09:50	
-				164.6' - Fracture, horizontal, smooth, undulating, loose fit	4	ŀ	-	-
-				164.9' - Fracture, horizontal, smooth,	1	ŀ	-	-
				undulating, loose fit 165.1' - Fracture, horizontal, smooth,	1	L	-	_
				undulating, loose fit	1		_	
				165.4' - Fracture, horizontal, smooth,]		_	_
170				undulating, loose fit	1	ſ		
				-	T	Ŧ		
						I		

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PROJECT NUMBER:	BORING NUMBER:		
338884	BGA-3	SHEET	10 OF 10

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687317.4 N, 2012132.9 E)

ELEVATION: 259.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin/R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : BK-51, HQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS: 9.	VELS: 9.4 ft bgs		START : 4/19/06 10	START : 4/19/06 10:15 END		END: 4/26/06 09:50	LOGGER : JS
	6)			DISCONTINUITIES	ڻ ا		LITHOLOGY	COMMENTS
QZ Û	N, AND ?Y (%		LES L	DESCRIPTION	길		ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG		MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
175 84.9				166.1' - Fracture, horizontal, smooth, undulating, loose fit	- - - - - - - - -	-		
180 79.9 - - - - 185 74.9 - - - - - - - - -								
190				_				_



PROJECT NUMBER:	BORING NUMBER:				
338884	RGΔ-4	CHEET	4	ΩE	5

SOIL BORING LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687537.9 N, 2012026.1 E)

ELEVATION: 275.0 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

DRILLING EQUIPMENT AND METHOD: BK-51, Tricone Bit, 24" Split Spoon, 140 lb. Hammer and Cathead ORIENTATION: Vertical

				IHOD : BK-51, Ir	cone Bit, 24" Split Spoon, 140 lb. Hammer and Cathe			ORIENTATION : Vertical
WATER				i	START : 5/12/06 11:45	END : 5/26	/06	i e
DEPTH B			SRADE (ft)	STANDARD PENETRATION	SOIL DESCRIPTION	၅၉	COMMENTS	
	INTERV	AL (ft)		TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLO	ΩP	CLC	DEPTH OF CASING, DRILLING RATE,
		RECOV	ERY (in)		MOISTURE CONTENT, RELATIVE DENSITY	30L	DRILLING FLUID LOSS, TESTS, AND	
			#TYPE	6"-6"-6" (N)	CONSISTENCY, SOIL STRUCTURE, MINERAL	LOGY	SYMBOLIC LOG	INSTRUMENTATION
275.0	0.0			, ,	Clayey Sand (SC) 0.0-1.0' - yellowish brown, moist, loose, trace silt	: -		
-		14.0	SS1SS	3-4-5-5 (9)	organics Fat Clay (CH) 1.0-1.2' - yellowish red, mottled, moist, stiff, med	ium to /-		-
-	2.0				high plasticity, trace organics			PT-1 collected
-	2.5				Clay (CL)	_		2.0-4.0' ST-2 collected
					2.5-4.2'	-		2.5-4.1'
		20.0	ST2ST			_		
-	4.5					_		
5	4.0					-		
270.0	5.0				Clay (CL)			_
		100	00000	45 50/4	5.0-6.0' - strong brown, moist, hard, low plasticity oxidized nodules, trace fine sand	y, black -		
		12.0	SS3SS	45-50/4 (50/4")	Silty Sand (SM)			
	7.0			(00/1)	6.0-7.0' - very pale brown, moist, hard, fine grain micaceous	ied,		
1					Tillocococio		k I k	
1	7.5				Silty Sand (SM)]]]	
1			00400	F0/F	7.5-7.9' - very pale brown, moist, hard, fine grain micaceous	ied,		
1		5.0	SS4SS	50/5 (50/5")				
1 1	9.5			, ,		_		
10						_		
265.0	10.0				Siltstone		××	_
		5.5	SS5SS	EO/E E	10.0-10.5' - dark reddish brown, soft, trace fine s black oxidized nodules, some lamination, micace			
		0.0	33333	50/5.5 (50/5.5")				
	12.0			, ,				
I						_		
	12.5				Siltstone 12.5-13.3' - dark reddish brown, soft, trace fine s	and	× ×	
		3.0	SS6SS	28-50/3	black oxidized nodules, some lamination, micace		× ×	
		3.0	33033	(50/3")				
	14.5							
15								Soil sampling completed at 13:40 on 5/12/06
260.0	15.0 15.1	2.0	SS7SS	50/2	Siltstone \[\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	d thinly	~~	
	10.1			(50/2")	laminated bedding at 20 degrees	u, ummy		
					Begin Rock Coring at 15.1 ft bgs			
					See the next sheet for the rock core log			
						_		
20_								

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PROJECT NUMBER:

338884

BORING NUMBER:

BGA-4

SHEET 2 OF 5

ROCK CORE LOG

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687537.9 N, 2012026.1 E)

ELEVATION: 275.0 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel

	CONTING EQUIPMENT AND METHOD . BK-51, NQ DOUBLE Barrel									
WATER	LEVELS: 18	3.5 ft b	gs	START : 5/12/06 11	:45	END: 5/26/06 13:05	LOGGER : DT/JF			
				DISCONTINUITIES		LITHOLOGY	COMMENTS			
oz €	CORE RUN, LENGTH, AND RECOVERY (%)		S	DESCRIPTION		DOOK TARE COLOR				
DEPTH AND ELEVATION BELOW SURFACE (ft)	NA S	(9)	FRACTURES PER FOOT	DECOM: NOW	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING,			
Ŧ, ₹ ŏ ĕ ĕ	SYE SYE	Q D (%)	FOC	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	BOL	WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD			
	SECO	ō	RAC	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	Σ×	AND ROCK MASS CHARACTERISTICS	DROPS, TEST RESULTS, ETC.			
ОШФО		ď	ШΔ		S					
-	15.1		1	15.3' - Fracture, 5 deg, rough, undulating,	_ 1:::	Sandstone At 15.1' dark raddish brown, soft	Rock coring began at 10:30			
				tight, 0.05' relief]:::	At 15.1' - dark reddish brown, soft, very fine sand to fine sand, slightly	on 5/25/06			
					1:::	weathered, thinly laminated bedding at	R1: 10:30-10:40 and 12:45-			
-			1	16.5' - Fracture, 40 deg, rough, undulating,	1∷ ∷	20 degrees	13:10 on 5/25/06			
-	DANO			black stains, 0.02' relief	- ∷∷	_ 15.5-20.0' - slightly weathered	At 16.2': R-Scale = R1			
-	R1NQ 4.9 ft	96	0		4:::	17.1-20.4' - reddish brown, fine sand to medium sand, subangular to	7 10.2 . IN-Ocale - INI			
I _	106%		Ť		<u> </u> :::	angular sand, subangular to	l J			
]:::	18.1' - pale red to reddish brown, red				
-			1	18.4' - Fracture, 40 deg and 50 deg, rough,	1:::	mottling	1			
-				undulating, black stains, tight, 0.02' relief,	∃∷ ∶	18.6' - thin black oxidized bands	1			
-			2	perpendicular to bedding	4:::	parallel/subparallel to bedding - 0.03-0.2' apart	-			
20	20.0			19.7' - Fracture, 20 deg, rough, undulating,]::::	19.4' - gradational from fine to coarse				
255.0			$\propto \propto$	tight	1:::	sand, subangular grains	R2: 13:15-13:30			
I -			2	19.8' - Fracture, 20 deg, rough, undulating,	1∷:	20.0-21.0' - highly weathered	1			
-				tight 20.6' - Fracture, 20 deg, rough, undulating,	+	20.4-20.5' - strong brown, more	1 -			
-			10+	tight, parallel to bedding	E	fine-grained sand strong brown with small scale (0.03-0.1') long]			
				20.7' - Fracture, 70 deg, rough, undulating,	_ × ×	perpendicular to bedding, dendritic				
	R2NQ		0	black stains, perpendicular to parallel breaks	× ×	pattern of thin black lines	21.6-21.7' of recovery of 0.1'			
-	5 ft 56%	0	U	21.0' - Contact between siltstone and sandstone, 20 deg, rough, undulating, parallel	× × × ×	Claystone	represents 1.2' of material			
-	20%		XXX	to bedding	× ×	21.0-21.6' - dark reddish brown, tan,	as no other zone was			
-			XX	21.6-21.7 - Fracture zone, heavily fractured	_ × ×	and blue green, heavily mottled, very soft, highly weathered, very fine	At 22.4': R-Scale = R1			
			XXX	rock/clay zone, crumbled	Îx x	grained	At 23.4': R-Scale = R1			
			$\times\!\!\times\!\!\times$	23.7-24.6' - Horizontal hairlike fractures across bedding, bedding not readily visible	××	Siltstone	1			
25	25.0		XX	beduing, beduing not readily visible	- × ×	At 21.6' - very dusky red, blue-green	1			
250.0	∠∪.∪		XXX		- × ×	— to light green mottling, very soft to soft,	R3: 13:35-13:50			
			0	fractures	- × ×	fine grained 21.6-25.0' - highly weathered	- 10.00 10.00			
I _					× ×	- 25.0-30.0' - very dusky red to dark				
			_		× ×	reddish brown, blue-green mottling,]			
1 -			0		_ × ×	slightly weathered] 1			
-	R3NQ				- × ×	-	-			
_	5 ft	100	0		_ × ×	-	-			
I _	100%				_ × ×	<u>-</u>]			
					× ×					
I -			0		Tx x	- 28.6-28.8' - fine sand	1			
-					$\dashv \times \times$		1			
-			0		- × ×	-	-			
30	30.0			_	× × ×. ×		 			
245.0				20.21 Erooturo 20 dos receb condulation	 :::	Sandstone	R4: 14:10-14:35			
_			1	30.3' - Fracture, 30 deg, rough, undulating, black stains, tight, small (not full break)	1:::	 At 30.0' - pinkish gray, soft to hard, medium bedding, fine sand, slightly 	1			
-				sides staine, agrit, email (not fall break)	∃ ∷	weathered	At 31.0': R-Scale = R1			
-			0		- ∷∷	- 30.3-31.5' - red and red brown	-			
I _					<u> </u> :::	mottling]			
	R4NQ				1:::	31.5-33.1' - fine sand to medium sand				
I -	5 ft 100%	84	3	22.7.22.0! Fracture zone recent 40 minst-	7:::	-] 1			
-	100 /6			32.7-32.9' - Fracture zone, rough, ~10 pieces	∃∷ ∶	22 4 22 01 light roddish success and to				
-			0		- 1∷∷	33.1-33.8' - light reddish gray, soft to hard, fine sand to medium sand,	-			
I _					1:::	_ subangular]			
						33.8-35.9' - light pinkish gray,]			
35	35.0		0		1:::	pinkish-red mottling, becoming more] 1			
	JJ.U			-	 :::	coarse	_			

2BB-356 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BGA-4

SHEET 3 OF 5

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687537.9 N, 2012026.1 E)

ELEVATION: 275.0 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS : 18	LOGGER : DT/JF					
				START : 5/12/06 11 DISCONTINUITIES		END : 5/26/06 13:05 LITHOLOGY	COMMENTS
QZ €	Z (% 		ES	DESCRIPTION	J S	ROCK TYPE, COLOR,	SIZE AND DEDTH OF CASINO
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
_			1		1:::	-	R5: 14:40-14:50
-			1	35.9' - Fracture, 5 deg, rough, undulating, 0.05-0.07' cm relief, sharp contact 36.4' - Fracture, 5 deg, rough, undulating,	× > × > × > × >	Siltstone - At 36.0' - dark reddish brown, heavy blue-green mottling, very soft, slightly	SC-1 collected 35.0-35.9' -
_	R5NQ 5 ft 100%	100	0	0.02' relief, small capillary fracture throughout siltstone	× > × > × > × >	weathered, fine grained	}
_			0		× > × > × > × >	- -	At 38.3': R-Scale = R1 -
40 235.0	40.0		0	_	× > × > × >	40.0.44.41.00.da.maa.ha.ddin.m	-
235.0			0		× × × × × × ×	40.0-41.1' - 20 degree bedding, mottled brown	R6: 14:55-15:10
-	R6NQ		1	41.1' - Fracture, 5 deg, smooth, undulating	× > × > × > × >	41.1-42.2' - red-brown,yellow, tan, blue-gray, heavily mottled, very soft to soft	
-	5 ft 100%	92	2	42.2' - Fracture, 10 deg, rough, undulating 42.7-42.8' - Fracture zone, 5 deg, rough, undulating 43.7' - Clay seam, 5 deg, rough, undulating,	- × ×- - × ×- - · · · · - - · · · · -	42.2-42.8' - punctuated by (0.05') clay seams Sandstone	-
-			1			42.8-43.7' - greenish gray, soft to hard, thin bedding, fine sand to medium sand, subangular to angular,	At 43.2': R-Scale = R4
45	45.0		0	little staining, small capillary fractures throughout core	× > × > × >	slightly weathered Siltstone 43.7-43.8' - blue gray, slightly	
230.0			0	45.0-55.0' - Small capillary fractures throughout core	× > × > × >	weathered, lens Sandstone	R7: 15:15-15:35
- -			0		× × × × × × × ×	43.8-44.2' - greenish gray, slightly weathered, band at 43.8-44.0' dark red brown tint, small elliptical (parallel	-
-	R7NQ 5 ft 100%	100	0		× > × > × > × >	to bedding) dark red brown mottling, thin bedding Siltstone	-
-			0			44.2-45.0' - dark reddish brown , blue-gray, mottled, slightly weathered, bedding thinly laminated and wavy 0.05' band of dense elliptical dark	At 48.0': R-Scale = R1-R2
50 225.0	50.0		0	FO O' Small copillors from the control of	× > × > × > × >	reddish brown soft at bottom Siltstone	- D9: 15:40 16:00
-			0	50.0' - Small capillary fractures throughout core	 	45.0-50.0' - very dusky red, trace blue-green and purple mottling, soft, respectively.	R8: 15:40-16:00 At 50.7': R-Scale = R4
-	DOMO		0		<u></u>	Sandstone 50.0-60.8' - very dusky red, trace blue-green and purple mottling, soft,	SC-2 collected 51.6-52.4' -
-	R8NQ 5 ft 100%	100	0		 	fine sand, fresh, medium to laminated bedding 51.2-55.0' - trace blue-gray mottling,	
-			0			medium grained sandstone lenses, angular grains	
55	55.0		0	_		-	-

2BB-357 Rev. 1



PROJECT NUMBER:

338884

BGA-4

SHEET 4 OF 5

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687537.9 N, 2012026.1 E)

ELEVATION: 275.0 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS : 18	LOGGER : DT/JF						
				START : 5/12/06 11 DISCONTINUITIES		\sum_{i}	END : 5/26/06 13:05 LITHOLOGY	COMMENTS
oz €	۱, ۱۸۵ ۲ (%)		SII	DESCRIPTION	SYMBOLIC LOG	$^{2}\Gamma$	ROCK TYPE, COLOR,	OUZE AND DEDTH OF GAGING
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	1 3		MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
PEC PE	ORE ENG	R Q D (%)	AC.	PLANARITY, INFILLING MATERIAL AND	MB		AND ROCK MASS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
2382	852	ď	压品	THICKNESS, SURFACE STAINING, AND TIGHTNESS	်		CHARACTERISTICS	
-			0	55.0' - Contact between sandstones, 30 deg, sharp contact	4:::	1	55.0-55.9' - very dark gray, trace mottling, soft to hard	R9: 08:30-08:55 on 05/26/06
_				Sharp contact	_[:::	1	55.9-60.8' - dark gray, fine sand to	-
_			0		_	:[-	medium sand	_
_					. ∷ :	: -	56.0-56.3' - very dark gray, trace mottling, medium sand	_
_	R9NQ 5 ft	100	0		1:::	:[56.3-60.8' - light gray to gray, soft to	At 57.3': R-Scale = R3 -
_	100%	100]::::	:[_	hard, fine sand to coarse sand, subangular	_
_			0]::::	:[_	Subarigular	_
_			U]::::	:[
			0]:::	:		
60	60.0		U		1:::	:[
215.0			0	60.0-65.0' - Small capillary microfractures in]:::	Γ	60.0-60.8' - fine to medium sandstone,	R10: 09:00-09:30
_			0	core (siltstone portion)] : : : : : : : : : : : : : : : : : : :	-	finer sandstone <30 deg bedding Siltstone	1
_					×	*	60.8-66.5' - dark reddish brown,	1
_			0		×	*	blue-green mottling, very soft, fresh,	At 61.6': R-Scale = R3
_	R10NQ				×	X ⁺	fine grained	1
_	5 ft 100%	100	0		×	X ⁺		1
-	10070				- ×	X-		-
-			0		-d× ×	X		1
-					-× ×	X-		1
- 65	CE 0		0		-× ×	*		-
65 <u> </u>	65.0			_	√x i	}		R11: 09:40-10:06
-			0		- x	}	65.6-66.5' - fine sand increasing,	-
-			0 0 0		- x	*	gradational contact with sandstone	-
-						-	Sandstone	At 66.2': R-Scale = R3 _
-	R11NQ				-	-	66.5-67.6' - reddish gray, blue-green	-
-	5 ft	100			-	<u>:</u>	mottling, soft to hard, fine sand, fresh	
-	100%				- ×	}	Siltstone 67.6-81.9' - dark reddish brown,	-
_			0		- x	3	blue-green mottling, very soft to soft,	-
-					- X	<u>}</u>	fresh, fine grained, some very fine -fine sand to no sand at bottom	-
_			0		- ×	<u>X</u>	Sand to no dand at bottom	-
70_ 205.0	70.0			_	×	X	70.0.75.01 troca blica area	D10: 10:10 10:15
203.0			0		- × :	X	70.0-75.0' - trace blue green mottling, very soft	R12: 10:10-10:45
_					_ × :	X_	70.8-71.1' - circular pink and white	At 70.8': R-Scale = R3-R4 -
_			0		×	<u>X</u>	clay clasts	
_					×	3		
_	R12NQ 5 ft	100	0		××	1	72.0-72.7' - circular pink and white clay clasts	
I _	100%	100	,		×	1	·	
I -			0]× i		73.0-73.1' - circular pink and white]
_			U]x̂	\mathbb{Z}	clay clasts]
			_		x	X		1
75	75.0		0		- × ×	Χ		1
				-	1 ×-	丰		

2BB-358 Rev. 1



PROJECT NUMBER:

338884

BGA-4

SHEET 5 OF 5

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687537.9 N, 2012026.1 E)

ELEVATION: 275.0 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

				THOD . BK-31, NQ Double Barrel			ORIENTATION: Vertical															
WATER	LEVELS : 18	8.5 ft b	gs	START : 5/12/06 11	:45	END : 5/26/06 13:05	LOGGER : DT/JF															
	(%			DISCONTINUITIES)G	LITHOLOGY	COMMENTS															
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.															
						×	R13: 10:55-11:35															
-			0		× ;	-	-															
-	R13NQ		0		× ; × ; × ;																	
-	5 ft 100%	100	0	77.3' - Fracture, 55 deg and 60 deg, rough, undulating, tight	- (x) - (x) - (x)	-	At 77.2': R-Scale = R3															
-			0		× ;	- -	-															
80	80.0		0		- × ; × ;	-	-															
195.0	60.0		0	80.0-85.0' - Small capillary fractures in siltstone	× ;	-	R14: 11:40-12:00															
-			0		- X X X X X X X X X X X X X X X X X X X	-	_ At 81.7': R-Scale = R3															
-	R14NQ 5 ft 100%	100	0			 Sandstone 81.9-91.4' - reddish gray, trace blue-green mottling, soft to hard, fine 	-															
-			0			sand, fresh, massive to medium bedding	-															
- 85	85.0		0			-	-															
190.0	00.0		0	_		-	R15: 12:05-12:30															
- - - -	R15NQ 5 ft 100%	100	H			- - - -																
-					-	-					-					-	0		-	-	-	
90_ 185.0	90.0		0	90.0-95.0' - Small capillary microfractures in		90.0-91.4' - medium sand to coarse	R16: 12:35-13:05															
-			0	core	- × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × - × -	- sand -	At 91.1': R-Scale = R2															
-	R16NQ 5 ft	100	0			Siltstone 91.4-95.0' - dark reddish brown, blue-green mottling, very soft to soft,	At 91.6': R-Scale = R2 First water level = 18.5' bgs taken 5/30/06 at 09:25;															
-	100%	100	0		× ;	fresh, fine grained, purple (0.003') clasts	second water level = 19.1' bgs taken 5/31/06 at 09:50															
_			0		× ;		R-Scale performed after drilling on stored samples															
95	95.0				×××	Bottom of Boring at 95.0 ft bgs on 5/26/06 13:05																

2BB-359 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BGA-5 SHEET 1 OF 5

SOIL BORING LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687151.7 N, 2011758.3 E)

ELEVATION: 268.4 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

DRILLIN	DRILLING EQUIPMENT AND METHOD : CME-750, Tricone Bit, 24" Split Spoon, and 140 lb. Automatic Hammer ORIENTATION : Vertical									
WATER	LEVELS	S: 6.9 ft b	ogs		START : 7/26/06 10:00 END : 7/26	8/06	16:00 LOGGER : EM			
DEPTH B	ELOW EX	KISTING G	RADE (ft)	STANDARD	SOIL DESCRIPTION	(1)	COMMENTS			
	INTERV	AL (ft)		PENETRATION TEST RESULTS		SYMBOLIC LOG				
		RECOVI	ERY (in)	, reor neodero	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR	13	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND			
			#TYPE	6"-6"-6"-6"	CONSISTENCY, SOIL STRUCTURE, MINERALOGY	MB	INSTRUMENTATION			
				(N)		Š				
268.4 - - -	2.0	19.2	SS1SS	3-7-13-20 (20)	Clay (CL) 0.0-1.6' - yellowish red, light greenish gray mottling, dry to moist, very stiff, low plasticity, slow to rapid dilatancy, trace fine sand		- - - -			
_	0.5					 	_			
- - -	2.5 4.5	12.6	SS2SS	23-44-50 (94)	Clay (CL) 2.5-3.4' - yellowish red, light greenish gray mottling, moist, hard, low plasticity, slow to rapid dilatancy, 10% fine to medium grained sand, laminated Clay (CL) 3.4-3.6' - light greenish gray, hard, low to medium		- - - -			
5					plasticity, slow to rapid dilatancy					
263.4 - - -	5.0 7.0	6.0	SS3SS	50 (50")	Clay (CL) 5.0-5.7' - reddish brown, light greenish gray and black mottling, moist, hard, low plasticity, slow to rapid dilatancy, trace fine sand, yellowish red staining (5-10%), laminated		- - -			
-	7.0				-	1	-			
-	7.5				Clay (CL)	1//	-			
- - -		3.5	SS4SS	50/3.5 (50/3.5")	7.5-7.9' - reddish brown, light greenish gray and black mottling, dry to moist, hard, low plasticity, slow to rapid dilatancy, trace fine sand		- - -			
_	9.5				-	┨	-			
10 258.4 -	10.0	18.0	SS5SS	39-23-29-50/4	Clay (CL) 10.0-11.5' - reddish brown, light greenish gray and black mottling, hard, low to medium plasticity, slow to rapid dilatancy, 10% fine to medium grained sand,		 - -			
-				(52)	yellowish red staining; laminated	Y ///	-			
-	12.0				-	ł	Soil sampling completed at 11:35 on 7/26/06			
-	12.5	1.0	SS6SS,		¬\ Sandy Silt (MH)		1			
- -	12.6	1.0	,(00000)	50/1 (50/1")	12.5-12.6' - pinkish gray, hard, low plasticity, slow to rapid dilatancy, 30% fine sand Begin Rock Coring at 12.6 ft bgs See the next sheet for the rock core log		- - -			
15					-	1]			
253.4										
_					-	1	-			
-					-	1	-			
-					-	1	-			
-					-	1	-			
-					-	1	-			
-					-	1	1			
-					-	1	-			
-					-	1	-			
20					-	1	1			
20_						\vdash				



PROJECT NUMBER:

338884

BORING NUMBER:

BGA-5

SHEET 2 OF 5

ROCK CORE LOG

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687151.7 N, 2011758.3 E)

ELEVATION: 268.4 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, NQ Double Barrel

WATER	LEVELS : 6.	9 ft bo	ıs	START : 7/26/06 10	:00	END : 7/28/06 16:00	LOGGER : EM	
		DISCONTINUITIES		DISCONTINUITIES	LOG	LITHOLOGY	COMMENTS	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LC	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.	
-	12.6		0			Sandstone At 12.6' - dark reddish brown, mottled pale green and black, thin to medium	Rock coring began at 11:45 _ on 7/26/06 _ R1: 11:45-11:55 on	
- 15	R1NQ 3.7 ft 97%	95	0			bedding, slightly weathered to moderately weathered, fine to medium sand, 40% silt 14.1-14.5' - gray, little to no silt	07/26/06 – SC-1 collected – 12.5-13.4'	
253.4	40.0		0			14.5-15.0' - 40% silt 15.0-15.4' - soft 15.4-16.3' - 40% silt	At 15.4': R-Scale = R2-R3 (performed at later date)	
-	16.3		1	17.0' - Fracture, 25 deg, smooth, undulating	× : × : × : × :	Siltstone 16.3-21.5' - dark reddish brown, pale green mottling, very soft to soft, fresh,	R2: 12:53-13:10 -	
-	R2NQ		0		× :	- 25% -50% fine to medium sand coarsening with depth to 21.5' 17.7-20.5' - laminated to very thin bedding, irregularly shaped sand	- - At 18.2': R-Scale = R2-R3	
-	5 ft 97%	97	97	0		×	pockets	(performed at later date)
20 <u> </u>			0	_	× : × : × : × :	 -	-	
-	21.3		1	21.9' - Fracture, 10 deg, smooth, undulating, black stains	×	20.9-21.5' - grades to sandstone, laminated interbedded siltstone and sandstone Sandstone 21.5-26.5' - gray, black mottling, soft	R3: 13:19-13:30 –	
-	R3NQ 5 ft	90	0	22.8' - Fracture, 10 deg, rough, undulating		to hard, fine sand to coarse sand, poorly sorted 21.5-26.3' - fresh 21.5-23.0' - some laminated	-	
25	101%	90	0			2.1.3-2.0 - Softie animated clay-siltstone beds at 20 degrees, mottled greenish gray	-	
243.4	26.3		2	25.8' - Fracture, 65 deg, rough, undulating,		-	At 24.9': R-Scale = R1 (performed at later date) _	
-			0	black stains 26.0' - Fracture, vertical, rough, undulating, black stains 26.3' - Fracture, 55 deg, black stains	×	26.3-26.5' - slightly weathered Siltstone 26.5-36.3' - dark reddish brown, mottled dark reddish gray and dark	R4: 14:00-14:20 - At 27.0': R-Scale = R2 (performed at later date) -	
-	R4NQ	00	0	26.5' - Contact between siltstone and sandstone, <5 deg	× : × : × : × :	greenish gray, very soft to soft 26.5-31.3' - slightly weathered, 45-50% fine sand, fining with depth	- -	
30	5 ft 98%	98	0	29.0' - Joint, 55 deg	× : × : × : × :		At 28.9': R-Scale = R2 - (performed at later date)	
238.4	31.3		0		× :			
-			0		× :		R5: 14:28-14:43 –	
					 * •	<u> </u>		

2BB-361 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BGA-5

SHEET 3 OF 5

ROCK CORE LOG

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687151.7 N, 2011758.3 E)

ELEVATION: 268.4 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, NQ Double Barrel

COMMO	LGOII WEI	7 (1 (U 141L	THOD : OME-700, NQ Double barrel			ONENTATION: Vertical
WATER	LEVELS: 6.	9 ft bo	S	START : 7/26/06 10	:00	END: 7/28/06 16:00	LOGGER : EM
	~			DISCONTINUITIES	(J	LITHOLOGY	COMMENTS
ON (#)	N, AND 3Y (%	_	ZES T	DESCRIPTION	CLO	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
- - 35_ 233.4	R5NQ 5 ft 102%	95	4 6	32.9' - Fracture, 60 deg and <5 deg, rough, undulating 33.8' - Fracture, 60 deg, rough, undulating 34.1' - Fracture, <5 deg, rough, undulating 34.3-34.4' - Fracture, <5 deg, rough, undulating, very soft breaks in horizontal laminations	-	31.3-36.3' - moderately weathered, thin laminations at 15 degrees throughout section; very soft at clay seams and at laminations in bottom half of core (laminations <0.01' thick in groups up to 0.05' thick); 5-10% fine sand increases up to 20% with depth 34.4-34.7' - clay seam, very soft	At 33.5': R-Scale = R3-R4 (performed at later date)
- - -	36.3		1	34.7-34.8' - Fracture, 85 deg 34.8' - Fracture, 10 deg, rough, undulating 35.2' - Fracture, 10 deg, smooth, undulating 36.2' - Fracture, 15 deg, smooth, undulating	- × × - × × - × × - × ×	- Siltstone At 36.3' - dark gray, very soft to soft,	R6: 08:20-08:33 on - 07/28/06
- -	R6NQ 5 ft	91	5	37.4' - Fracture, 15 deg, smooth, undulating, black stains 37.4' - Fracture, 15 deg, smooth, undulating, 0.02' thick clay infilling 37.6' - Fracture, 5 deg, rough, undulating, 0.1'	- × × - × × - × × - · · · ·	moderately weathered 36.3-37.9 - 30-40% very fine to fine grained sand; 15 degree laminations of darker and light gray; laminations gradually decrease down section Sandstone	- - - - - At 38.3': R-Scale = R3-R4
40	100%	01	1	thick clay infilling 39.3' - Fracture, 40 deg, smooth, undulating, reddish brown stains	- : : : : : : : : : : : : : : : : : : :	At 37.9' - dark gray, fine sand to medium sand, laminations more horizontal, some swirled and mixed 38.8-39.2' - medium sand to fine gravel	- - - -
-	41.3		5	41.9-42.5' - Fractures (5), 85 deg and 15 deg,	= · · · · · · · · · · · · · · · · · ·	39.1-40.1' - bedding at 60 degrees 39.2-40.4' - fine to medium grained with trace pebbles ~0.02' in size 40.1-40.6' - coarse sand contacts at 60 degrees	At 40.7': R-Scale = R3-R4 _ R7: 08:50-09:00 -
- - -	R7NQ 5 ft 102%	86	0	rough, undulating, < 0.01' thick 'limonite (yellowish brown) stains 43.2-43.4' - Fracture, 10 deg, smooth, undulating		40.4-40.8 - medium to coarse grained (some grains up to 0.05' in size); ~20% coarse sand and pebbles, overall 70% sand 40.6-41.3' - laminations at 60 degrees 41.3-43.2' - gray, soft, medium sand to coarse sand, poorly sorted, slightly	
45	46.3		0	_	× × × × × × × × × × × × × × × × × × ×	weathered, fining downward 42.5-42.7' - black laminations at 30 degrees 43.1' - 0.03' thick band of small pebbles 0.01' in size Siltstone	SC-2 collected 45.1-46.0' - R8: 09:15-09:28 -
- - -	R8NQ		0			43.2-46.3' - black, very soft, slightly weathered, very fine grained, laminations at 10 degrees up to 0.01' thick of fine sand 44.8-46.3' - black laminations throughout section, medium to coarse	At 47.1': R-Scale = R4
50 218.4	5 ft 99%	99	0 0	49.0' - Fracture, 65 deg, smooth, undulating 49.8' - Contact between siltstone and — sandstone, 60 deg		sand Sandstone 46.3-49.8' - gray, fresh, faint laminations up to 0.01' thick at 20 degrees; black laminations; medium to coarse grained sand gradually fining to fine to medium grained	- - - At 49.7': R-Scale = R4 - -
- - -	51.3		0		- × × - × × - × × - × × - × ×	48.2-48.3' - very thin black siltstone bed, very fine grained, very soft	R9: 09:35-09:53 - - -

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PROJECT NUMBER:

338884

BORING NUMBER:

BGA-5

SHEET 4 OF 5

ROCK CORE LOG

ORIENTATION : Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687151.7 N, 2011758.3 E)

ELEVATION: 268.4 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, NQ Double Barrel

				CTART - 7/00/00 40	.00	END : 7/00/00 40 00	LOCOED : EM
WATER	LEVELS : 6.	yπbo	S	START : 7/26/06 10 DISCONTINUITIES		END : 7/28/06 16:00 LITHOLOGY	LOGGER : EM COMMENTS
	(%)		(0		.0G		COMMINICIATO
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
-	R9NQ	100	0	-	× × × × × ×	Siltstone 49.8-51.3' - greenish gray to dark reddish brown, mottled dark greenish gray, very soft to soft, fresh, very fine	-
- 55	5 ft 104%	100	0	-	× × × × × ×	to fine grained 49.8-51.3' - 10-15% fine sand grading to <10% at bottom of run	- - At 54.6': R-Scale = R3
213.4	F6 2		0	-	× × × × × ×	Siltstone At 51.3' - dark reddish brown, light reddish and greenish gray mottling, very soft to soft	- - -
-	56.3		XXX 10+	56.4-56.7' - Fracture zone, horizontal and 10 deg, smooth, undulating 57.1' - Fracture, 5 deg, rough, undulating	× × × × × × × ×	 51.3-56.3' - slightly weathered, 5-10% fine sand fining with depth 56.3-71.3' - light olive brown mottling 	R10: 10:08-10:28 -
-	R10NQ		3	57.2' - Fracture, 5 deg, rough, undulating 57.3' - Fracture, horizontal and 60 deg, smooth, undulating, 0.02' thick clay infilling	× × × × × ×	 56.3-61.3' - greenish gray and light olive brown mottling, moderately weathered, clay is light gray, very soft 57.5-58.2' - clay seam, very soft 	At 57.5-58.2': R-Scale = R0
-	5 ft 97%	72	3	58.5-58.7' - Fracture zone, 5 deg, rough, undulating 59.0' - Fracture, 5 deg, smooth, undulating	× × × × × ×	-	-
60 <u> </u>			0	_	× × × × × ×		At 60.6': R-Scale = R3-R4
-	61.3	0			× × × × × ×	61.3-65.0' - soft to hard, 10-15% fine sand 61.3-90.0' - fresh	R11: 10:55-11:10 -
-			0		× × × × × ×	- -	At 62.2': R-Scale = R3-R4
-	R11NQ 5 ft 73%	73	0		× × × × × ×	_	-
65 203.4			0		× × × × × ×	-	 - At 65.6': R-Scale = R3
-	66.3		0	-	× × × × × ×	-	R12: 12:52-13:10 -
-			0		× × × × × ×	- - -	
-	R12NQ 5 ft 102%	100	0		× × × × × ×	- -	-
70_ 198.4			0	69.9' - Fracture, horizontal, smooth, undulating	× × × × × ×	_	At 69.4': R-Scale = R3
-	71.3		1		× × × × × ×	-	- R13: 13:20-13:45 -
_			0	-	× × × × × ×	72.0-75.0' - 10% fine sand	-
1							

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PROJECT NUMBER:

338884

BORING NUMBER:

BGA-5 SHEET 5 OF 5

ROCK CORE LOG

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687151.7 N, 2011758.3 E)

ELEVATION: 268.4 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, NQ Double Barrel ORIENTATION : Vertical

WATER	R LEVELS : 6.9 ft bgs START : 7/26/06 10:00		:00	END: 7/28/06 16:00	LOGGER : EM		
	(%)			DISCONTINUITIES		LITHOLOGY	COMMENTS
QZ €	Ä, AND 3Y (%	_	ES T	DESCRIPTION		ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
_			1	73.0' - Fracture, 75 deg, rough, undulating,	× > × > × >	_	-
_	R13NQ			black stains	-{	-	-
-	5 ft 100%	100	0		×	}-	At 74.0': R-Scale = R3-R4
75			1		x	-	-
193.4				75.0' - Fracture, 45 deg, rough, undulating,	×	_	
			0	black stains]× >		
-	76.3				×	_	R14: 13:56-14:31 -
-			2	76.8' - Fracture, horizontal, smooth, undulating	× >	_	-
-			0	76.9' - Fracture, 20 deg, rough, undulating	× >	-	SC-3 collected
-	R14NQ				× >	+	77.4-78.4'
_	4.3 ft 100%	83	0		T× ?		1
					×××	- -	At 79.0': R-Scale = R3-R4
80	80_ 188.4 - 80.6		0	_	× ;	_	_
100.4					×	80.6-85.9' - soft to hard	- R15: 14:50-15:10
-			0		-{	80.6-84.5' - <10% fine sand	At 81.0': R-Scale = R4
-					۲× ۶		-
			0]× >]
_	R15NQ		1	82.9' - Fracture, vertical, smooth, undulating	× >	_	
_	5.3 ft 101%	75		oz.o Tractare, vertical, omociti, and dailing	× >	4 -	At 83.4' R-Scale = R3-R4
-			1		- × ;	-	(performed at later date)
85 85						84.5-87.9' - laminated to very thin	-
183.4			1	84.9' - Fracture, 60 deg, rough, undulating	×	— bedding, sandy bands, fine to coarse	_
	85.9			85.4' - Fracture, 60 deg, rough, undulating]× ;		D40: 45:00 45:40
_			1		× ×	- -	R16: 15:28-15:42 At 89.0': R-Scale = R4
-				86.6' - Fracture, 75 deg, rough, undulating	× ;	_	-
-	R16NQ		0		-{	}-	First water level =7.2' bgs
-	4.1 ft 100%	100	0		× ×	-	taken 7/28/06 at 17:30; - second water level = 12.1'
1 -			U		× >	[bgs taken 7/31/06 at 09:22
-		0]× ;			
90 <u> </u>	90.0			_	×	Pottom of Poring at 00.0 ft have as	R-Scale performed during rock core logging
-					-	Bottom of Boring at 90.0 ft bgs on 7/28/06 16:00	-
-					1	-	-
-					1	F	-
-					1	[1

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PROJECT NUMBER: BORING NUMBER: 338884 BGA-6

SOIL BORING LOG

SHEET 1 OF 5

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (687589.4 N, 2011550.8 E)

ELEVATION: 275.2 ft MSL (NGVD 29) DRILLING CONTRACTOR: K. Canuel, S&ME

DRILLIN	ORILLING EQUIPMENT AND METHOD : CME-750, Tricone Bit, 24" Split Spoon, and 140 lb. Automatic Hammer ORIENTATION : Vertical VATER LEVELS : 6.7 ft bgs START : 7/24/06 09:40 END : 7/25/06 14:40 LOGGER : EM												
						5/06	1						
DEPTH B			RADE (ft)	STANDARD PENETRATION	SOIL DESCRIPTION	g	COMMENTS						
	INTERV			TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,	SYMBOLIC LOG	DEPTH OF CASING, DRILLING RATE,						
		RECOVE			MOISTURE CONTENT, RELATIVE DENSITY OR	BOL	DRILLING FLUID LOSS, TESTS, AND						
			#TYPE	6"-6"-6" (N)	CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYM	INSTRUMENTATION						
275.2	0.0			()	Clayey Sand (SC)	///							
-					0.0-0.5' - grayish brown, loose, fine to medium grained, //medium plasticity, subrounded to subangular		1						
-		11.0	SS1SS	2-2-3-4 (5)	Clayey Sand (SC)		-						
_	2.0			(0)	\(\)\(0.5-0.9\)' - brownish yellow, moist, loose, fine to medium \(\)\(\)\(\)\(\)\(\)\(\)\(\)\(\)\(\)\(\	1	_						
-	2.0				grained, medium plasticity	1	-						
-	2.5				Sandy Clay (CL)		_						
		17.0	SS2SS	2-3-5-7	2.5-3.9' - pale brown, gray mottling, moist, medium stiff, medium to high plasticity, slow to rapid dilatancy, yellow								
		17.0	33233	(8)	laminations, 15 to 20% fine to medium grained sand								
	4.5												
5						<u> </u>	_						
270.2	5.0				Clay (CL) 5.0-6.4' - red, greenish gray mottling, dry to moist, hard, -		_						
_		17.0	SS3SS	21-30-30-	low to medium plasticity, slow to rapid dilatancy,		_						
_				50/2.75 (60)	laminated -		_						
_	7.0			(11)	_		_						
_	7.5				Class (CL)	////	_						
_	7.5				Clay (CL)	////	-						
-		5.0	SS4SS	50/5	low to medium plasticity, slow to rapid dilatancy,	-	-						
-				(50/5")	laminated, <5% line sand		-						
	9.5				-	ł	-						
10 <u> </u>	10.0				Clay (CL)	////							
-					10.0-10.8' - reddish brown, dry to moist, fine grained.		-						
-		9.5	SS5SS	37-50/3.5	medium to low plasticity, slow to rapid dilatancy, <10% _ very pale brown mottling, 10% black staining		-						
-	12.0			(50/3.5")		////	-						
-	12.0				-	l	-						
-	12.5				_ Clay (CL)		1						
-					12.5-12.7' - reddish brown, dry to moist, fine grained, medium to low plasticity, slow to rapid dilatancy, <10%		-						
_		3.5	SS6SS	50/3.5 (50/3.5")	very pale brown mottling, 10% black staining	1	1						
-	14.5			(**************************************	Clay (CL) 12.7-12.9' - light greenish gray, dry to moist, medium to	1	1						
15					low plasticity, rapid dilatancy, 20 to 25% fine sand, very	L	Driller Remark: Hit soft zone at 14.8' bgs;						
260.2	15.0				Silty Sand (SM)		began losing water						
		17.0	SS7SS	3-36-50/5	15.0-16.3' - brownish yellow and greenish gray, moist, fine to medium grained, medium to low plasticity, rapid	[
		17.0	30733	(86/11")	¬ dilatancy, <10% clay, black staining at bottom of ¬								
_	17.0				\sample, soft, very hard, laminated		Soil sampling completed at 11:45 on 7/24/06						
-	47.5		00000		Oliv O. L/ON	·	Driller Remark: Hit hard zone at 17.2' bgs;						
_	\ 17.5 \ 17.7∫	2.0_	<u>(SS8SS</u>	50/2	Silty Sand (SM) 17.5-17.7' - light gray, fine to coarse grained, low	717	stopped losing water						
-	_			(50/2")	plasticity, rapid dilatancy, 10% clay, 10-15% very pale brown mottling, 10% coarse sand, some mica flakes,	l	_						
-					grains are subrounded to subangular	l	_						
-					Begin Rock Coring at 17.8 ft bgs See the next sheet for the rock core log		-						
20					See the hear sheet for the lock cole log	\vdash							
		•		•			•						



PROJECT NUMBER:	BORING NUMBER:					
338884	BGA-6	SHEET	2	OF	5	

ORIENTATION : Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687589.4 N, 2011550.8 E)

ELEVATION: 275.2 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, NQ Double Barrel

WATER	LEVELS : 6.	7 ft bo	ıs	START : 7/24/06 09	9:40	END: 7/25/06 14:40	LOGGER : EM	
	(9)			DISCONTINUITIES	O O	LITHOLOGY	COMMENTS	
gz €	ŽAY Oo		ES	DESCRIPTION	CLO	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	(%) Q	CTURES R FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND	
FE SE	ORE	Ø	FRAC PER F	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	ΥMB	AND ROCK MASS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.	
		ď	##	THICKNESS, SURFACE STAINING, AND TIGHTNESS	ίς	CHARACTERISTICS	·	
-	17.8		0		1:::1	 Sandstone At 17.8' - light gray, mottled 20% very 	Rock coring began at 13:30 - on 7/24/06	
-					- :::	pale brown and 10% dark gray, very	R1: 13:30-13:40 on	
_	R1NQ				- ∷∷ - soft, medium to thick bedding, fine sand to coarse sand, subrounded,		07/24/06 - Driller Remark: Water loss	
20	3.7 ft	0	0		1:::	highly weathered	of 30-35 gallons for entire	
255.2	59%		\bowtie	-	┨∷∷	_	core run — At 17.8-21.5': R-Scale = R0-	
-			\bowtie		∃∷: }	-	R1 R1	
-			\bowtie		-	_	1	
-	21.5		\bowtie		-{:::}	21.5-29.5' - clay ripup clasts,	R2: 13:50-13:57	
-			0		- ∷:	increased coarse sand grains up to	-	
-					-1:::	_ 0.01'	-	
-			0		- ∷:	-	At 22.8': R-Scale = R1 _	
-	DONO				-[:::]	-	-	
-	R2NQ 5 ft	0	0		4:::	-		
_	100%				4:::	-	1	
25			0	<u>-</u>	_l∷:I		_	
250.2					_[:::[_	_	
_			1		<u> </u>	_		
_	26.5		· ·	26.2' - Fracture, 50 deg, rough, undulating,]:::[_		
_			0	black staining over 40% of fracture surface 26.9' - Fracture, <5 deg, rough, undulating]:::[_	R3: 14:15-14:25	
_				27.0' - Fracture, <5 deg, rough, undulating]:::[_		
			4	27.4' - Fracture, 45 deg, rough, undulating	7:::		SC-1 collected 27.4-28.3'	
]:::[1	
	R3NQ	40*		20 8! Freeture 10 dear rough undulating	7:::[-	1	
_	5 ft 106%	40*	1	28.8' - Fracture, 10 deg, rough, undulating 29.0' - Fracture, 10 deg, rough, undulating	∃∷: [-	1	
30				29.2' - Fracture, 10 deg, rough, undulating	1:::	29.5-31.5' - gray, fine sand to medium	1	
245.2			1	29.4' - Fracture, 15 deg, smooth, undulating, — black staining	 :::	 sand, clay ripup clasts ~10% throughout, coarser at 31.1 - 31.5' 		
_				29.7' - Fracture, 10 deg, smooth, undulating,	 :::	29.5-36.5' - moderately weathered	1	
_	31.5		1	0.05' clay infilling 31.1' - Fracture, <5 deg, rough, undulating	 :::	-	At 31.1': R-Scale = R2	
-	01.0		$\times\!\!\times\!\!\times$	31.7' - Fracture, <5 deg, smooth, undulating	1:::	31.5-36.5' - gray, soft, laminated	R4: 14:35-14:45	
-			1	51.7 - Fracture, 15 deg, smooth, undulating	1:::	bedding, soft clay ripup clasts	1	
-					-	-	1	
-			0		∃∷: }	-	1	
-	R4NQ				-	_ 33.2-36.5' - medium bedding, becomes coarser with small pebble	1	
-	5 ft	90*	0		- :::	sized grains, 20% increasing to 50%	At 33.7': R-Scale = R1-R2	
	94%				-	_ at bottom of run	1	
35 <u> </u>			0	_	-[∷:	_	-	
					-[∷:	-	-	
-			0		- ∷:	-	-	
-	36.5		XXX		- :::	36.5-41.5' - medium bedding, fine	R5: 14:55-15:08	
_			1	36.7' - Fracture, 20 deg, rough, undulating	4:::	gravel to medium gravel, subrounded	13. 14.55-15.06	
-					-	to subangular, poorly sorted, clay clasts	-	
						CICOLO		
1					1 1		1	

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PROJECT NUMBER:	BORING NUMBER:				
338884	BGA-6	SHEET	3	OF	5

ORIENTATION : Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687589.4 N, 2011550.8 E)

ELEVATION: 275.2 ft MSL (NGVD 29) DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, NQ Double Barrel

				THOD : ONE-700, NQ Bouble Barrel			ORIENTATION: Vertical
WATER	LEVELS: 6.	7 ft bo	IS	START : 7/24/06 09	:40	END : 7/25/06 14:40	LOGGER : EM
1	CORE RUN, LENGTH, AND RECOVERY (%)			DISCONTINUITIES	92	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	ZAN ZAN Z		FRACTURES PER FOOT	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
AFI > B	B.F.A	(%) 🛭	9.E	DEPTH, TYPE, ORIENTATION, ROUGHNESS,		MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND
FA OFF	NG CO	σ	AC R F	PLANARITY, INFILLING MATERIAL AND	MB	AND ROCK MASS	SMOOTHNESS, CAVING ROD
吊필띪S	8.5%	S.	똤띪	THICKNESS, SURFACE STAINING, AND TIGHTNESS	SY	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
_			3			- 36.5-42.2' - highly weathered	-
l _				38.1' - Fracture, <5 deg, rough, undulating]:::	= 00.41 mod	_
	R5NQ	0		38.4' - Fracture, <5 deg, rough, undulating	: : :	⁻ 38.4' - red	
_	5 ft 100%	0	4	38.9' - Fracture, <5 deg, rough, undulating 39.2' - Fracture, 20 deg, rough, undulating	⊺∷ ∷	_	
10 -	10070			39.4' - Fracture, 20 deg, rough, undulating	∃ ∷∷	-	-
40 <u> </u>			3	39.6' - Fracture, 20 deg, rough, undulating	- ∷∷	-	-
				39.8' - Fracture, 70 deg and <5 deg, rough,	- ∷∷	-	-
_			3	undulating 39.9' - Fracture, 70 deg and <5 deg, rough,	_]:::	_	At 40.6': R-Scale = R1
	41.5			undulating			
				40.2' - Fracture, <5 deg, rough, undulating] ::::	41.5-42.2' - increased clay/siltstone	R6: 15:21-15:32
_			0	40.8' - Fracture, <5 deg, rough, undulating	:-	- clasts to 50%	
1 -				41.1' - Fracture, <5 deg, rough, undulating 41.3' - Fracture, 10 deg, rough, undulating	- ^ ×	Siltstone 42.2-44.1' - dark reddish brown,	-
-			10+	42.3' - Fracture, 80 deg, slickensided,	- × ×	greenish gray mottling, soft, highly	_
_				undulating, brownish-yellow staining	_ × ×	weathered, very fine grained	_
	R6NQ 5 ft	48	2	42.5-42.6 - Fracture zone, <5 deg, smooth, undulating, heavily fractured; crumbled	× ×	42.2-42.6' - highly weathered	
	102%	40		43.9-44.1' - Fracture zone, <5 deg, smooth,	<u> </u>	42.6-44.1' - slightly weathered Sandstone	1
45				undulating	1 :::	44.1-45.2' - gray, fine sand to coarse	
230.2			1	-	- : : : × ×	sand, poorly sorted, fresh	_
_				45.2' - Contact between siltstone and	- × ×	- Siltstone	_
_			0	sandstone, 10 deg, smooth, undulating, V shape	_ × ×	At 45.2' - dark reddish brown, soft to hard, fresh, 30% fine to medium sand	At 45.8': R-Scale = R1-R2
_	46.5			5.13p.5	× ×	45.2-46.5' - 15-20% fine sand	
			~~~		× ×	45.5' - coarse sand to small pebbles in	R7: 15:45-16:05
_			0		   × ×	0.03' thick band at 20 degrees	
-					<b>∃</b> × ×	_ 46.2-46.3' - black mottling	
-			0		∃ŝ ŝ	-	At 47.7': R-Scale = R3-R4
-	DZNO				- x x	-	_
_	R7NQ 5 ft	100	0		× ×	-	_
	98%				× ×		
50					× ×	49.5-50.1' - up to 30% coarse sand	
225.2			0	<del>-</del>	T× ×	— and small pebbles, subrounded	_
-					Tx x	50.5' - up to 30% coarse sand and	-
-			0		−lê ŝ	- small pebbles, subrounded	-
-	51.5		<b>~~</b>		<b> </b> ×. ×	Condetene	D0: 00:54 00:05
1 -			2	51.7' - Fracture, <5 deg, smooth, undulating	<u> </u>	Sandstone - At 51.5' - weak red, soft to hard, thick	R8: 08:51-09:05 on 07/25/06 -
1				52.2' - Fracture, 20 deg, rough, undulating	<u>]</u> :::	bedding, fine sand, subangular, poorly	326,66
				, <u></u>	:::	sorted, fresh, coarse sand to small	A4 50 0k D 0 k 50 5
1 -			1		<b>1</b>	<ul> <li>pebbles mixed in, grades from 15% to 75-80% coarser material at 56.1',</li> </ul>	At 52.8': R-Scale = R3.5 -
-	R8NQ			53.4' - Fracture, <5 deg, rough, undulating,	<b> </b> ∷∷	some clay clasts	-
_	5 ft	60	3	0.01' clay infilling, crumbled 53.9' - Fracture, 60 deg, rough, undulating	-[∷::	-	-
-	100%			54.2' - Fracture, 60 deg, rough, undulating, 45	<b>.</b>  :::	-	_
55			2	deg angle to previous fracture	<b>.</b>  ∷∷		
220.2			_	54.5' - Fracture, vertical, rough, undulating	:::		
1 -				54.8' - Fracture, 70 deg, rough, undulating 55.3' - Fracture, <5 deg, rough, undulating	1:::	-	_
1 -	56 5		2	55.8' - Fracture, <5 deg, rough, undulating	- <u></u>	Siltstone	1
1 -	56.5			56.1' - Contact between siltstone and	- × ×	At 56.1' - dusky red, soft, ~15-20%	R9: 09:23-09:40
1 -			0	sandstone, 60 deg and 10 deg, rough, undulating, 0.01' clay infilling	_ × ×	_ fine to medium sand	-
-				andalating, 0.01 oldy irinining	$-\stackrel{\circ}{\stackrel{\circ}{\times}}\stackrel{\circ}{\stackrel{\circ}{\times}}$	56.1-63.9' - slightly weathered	_
					10-0		
1							

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PROJECT	NUMBER:	BORING NUMBER:					
33888	34	BGA-6	SHEET	4	OF	5	

ORIENTATION : Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687589.4 N, 2011550.8 E)

ELEVATION: 275.2 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, NQ Double Barrel

WATER	LEVELS: 6.	7 ft bo	IS	START : 7/24/06 09	9:40		END: 7/25/06 14:40	LOGGER : EM
	(9			DISCONTINUITIES	ტ	L	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG		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.
-	R9NQ		10+	57.6-57.8' - Fracture zone, <5, 20, and 45 deg; smooth, undulating	- × - ×	λL	57.9-61.5' - 15% greenish gray mottling, black mottling concentrated in 0.05' thick bands (ending at 59.7')	-
60	5 ft 96%	74	10+	59.1-59.7' - Fracture zone, <5 deg and 25 deg, rough, undulating, 0.01' clay infilling, heavily fractured; crumbled	- × - × - ×		of (up to 30%) fine to medium sand, 10 degree angle bedding, sand decreases at 61.3' to < 10%	-
215.2			0	60.7' - Microfractures	X X X	X X X		At 60.1': R-Scale = R3
-	61.5	0			- × × × × × ×	X X X X	61.5-71.5' - greenish gray mottling, black mottling, coarse grained sand grains embedded in finer siltstone	R10: 09:55-10:15
-			10+	62.5-62.7' - Fracture zone, <5 deg and 45 deg, rough and slickensided, undulating 63.2-63.3' - Fracture zone, heavily fractured;	- × × × × × × × ×	* * * * *	<5%	-
-	R10NC 5 ft 100%	72	2	crumbled 63.7' - Fracture, <5 deg, smooth, undulating 63.9' - Fracture, 30 deg, smooth, undulating	- × × ×	X X X X	63.6' - clay seam, ~0.05' thick 63.9-78.6' - fresh	
65 210.2			0	_	- × - × - ×	X X X	65.7' - sand increases to 20-35%, fine	-
_	66.5		0		_ × × × × × ×	X X X X	66.5-67.8' - 20-25% fine to medium sand	R11: 10:25-10:45
_			0		×   ×   ×   ×	X X X X	67.3-69.3' - finer sand grain, amount decreases to ~10%, grades and increases up to 40% at 70.9, finer	At 67.2': R-Scale = R3  SC-2 collected
-	R11NQ 5 ft 100%	100	1	68.7' - Fracture, <5 deg, smooth, undulating	- × × × × × ×		grain material clasts in increased sand material	67.8-68.7'
70 <u> </u>			0	_	- × - ×	* * *		_
-	71.5		0	70.7' - Fracture, <5 deg, smooth, undulating	- × × × × × × × × × × × ×	* * * * *	71.5-76.5' - greenish gray mottling, 10-25% fine to medium sand,	R12: 11:10-11:30
-			10+	72.5-72.7' - Fracture zone, horizontal and 30 deg, rough, undulating	- × - × - ×		coarsens with depth to 75.75', fining with depth at 75.75'	
-	R12NQ 5 ft 100%	94	1	74.1' - Fracture, <5 deg, rough, undulating 74.1' - Fracture, <5 deg, rough, undulating	- × - × - ×	X X X X	73.2-73.9' - laminated bedding	At 73.5': R-Scale = R3-R4
75_ 200.2_ -			0	_	-   ×   -   ×	X X X X		Driller Remark: 13:05-
	76.5		0	75.8' - Fracture, <5 deg, smooth, undulating	- × × × × × × × × × × × × × × × × × × ×	*	76.5-78.6' - 15-30% fine to medium sand, coarsens with depth	13:15 started losing water during last 1' of core for core run R12 R13: 13:26-13:37
_			. U		- × :	X .	зани, соагзенз мин иерин	17.13. 13.20-13.37

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PROJECT NUMBER:

338884

BGA-6 SHEET 5 OF 5

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687589.4 N, 2011550.8 E)

ELEVATION: 275.2 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, NQ Double Barrel ORIENTATION : Vertical

				HOD : CME-750, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS : 6.	7 ft bo	S	START : 7/24/06 09	:40	END : 7/25/06 14:40	LOGGER : EM
	(%) _		1	DISCONTINUITIES	90	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
-			0		× :	-	-
- - 80	R13NQ 5 ft 97%	97	0	79.8' - Contact between siltstone and	× :	Sandstone At 78.6' - dusky red, soft to hard, laminated bedding, fresh, siltstone and sandstone bands that gradually lead to mostly sandstone then grade into	- - - -
195.2			0	sandstone, 40 deg 80.0' - Joint, fractured 1/2 way through; about 0.01' thick	-	<ul> <li>siltstone again with pockets of sandstone ~0.05' thick</li> </ul>	
-	81.5		1	81.6' - Fracture, <5 deg, rough, undulating		<ul> <li>At 80.0' - gray, soft to hard, very thin to medium bedding, fine sand to coarse sand, subrounded to subangular,</li> <li>poorly sorted, some pebbles up to</li> </ul>	R14: 13:48-13:55
<u>-</u>			0			0.05' thick (~5%), red mottling, oval shaped joint around bottom half, 0.01'     clay clasts throughout sandstone,	-
- -	R14NQ 5 ft 102%	99	0		     	coarsens with depth 82.6-82.9' - 15% clay ripup clasts -	
85 <u>-</u> 190.2	102 /6		0	-	     	- 84.3-84.5' - 15% clay ripup clasts - 85.1-85.4' - 15% clay ripup clasts	
_	86.5		0			85.6-85.8' - 15% clay ripup clasts	-
			2	87.0' - Contact between siltstone and	× :	× Siltstone	R15: 14:07-14:19
- -			1	sandstone, <5 deg, rough, undulating 87.1' - Fracture, 20 deg, smooth, undulating	× :	87.0-95.9' - dark reddish brown, mottled dark greenish gray, soft, fresh, white pink clasts up to 0.10' thick	-
-   - _	R15NQ 5 ft   102%	98	2	88.3' - Fracture, 30 deg, rough, undulating 88.6' - Fracture, <5 deg, rough, undulating	× :	- large, trace of fine sand <10% throughout, black mottling 88.3' - white clasts - 89.1' - white clasts	-
90 <u> </u>			0	_	× : × : × : × :		At 89.7': R-Scale = R4
_	91.5		0		×		-
_			0		× : × : × :	91.5-95.9' - soft to hard, increase in - sand to 30 % at 93.5'	R16: 14:30-14:40
-	R16NQ 4.4 ft		0		× : × : × :	-	First water level = 6.7' bgs taken 7/25/06 at 17:13; - second water level = 8.8' bgs taken 7/26/06 at 17:15
-	4.4 π 100%	100	0		× : × : × : × :	-	At 94.3': R-Scale = R3-R4 Driller Remark: Ran out of
95 <u> </u>	95.9		0	_	×	<u>_</u>	water 0.5' short of 5' core run R-Scale performed after
- - - -	55.5		<u> </u>		X - X - X - X - X - X - X - X - X - X	Bottom of Boring at 95.9 ft bgs on 7/25/06 14:40	drilling on stored samples

2BB-369 Rev. 1



PROJECT NUMBER:	BORING NUMBER:				
338884	BGA-7	SHEET	1	OF	4

### **SOIL BORING LOG**

 PROJECT : PEC COLA, New Hill, NC
 LOCATION : (NAD 27) (687886.0 N, 2011583.5 E)

 ELEVATION : 267.8 ft MSL (NGVD 29)
 DRILLING CONTRACTOR : R. Norwood, S&ME

DRILLING EQUIPMENT AND METHOD : CME-550, Tricone Bit, 24" Split Spoon, 140 lb. Automatic Hammer ORIENTATION : Vertical

DRILLING EQUIPMENT AND METHOD : CME-550, Tricone Bit, 24" Split Spoon, 140 lb. Automatic Hammer ORIENTATION : Vertical  WATER LEVELS : 8.4 ft bgs START : 5/17/06 10:10 END : 5/18/06 11:30 LOGGER : JS								
WATER	LEVELS	6 : 8.4 ft b	ogs		START : 5/17/06 10:10 END : 5/1	18/06	1:30 LOGGER : JS	
DEPTH B	ELOW EX	KISTING C	RADE (ft)	STANDARD	SOIL DESCRIPTION	COMMENTS		
	INTERV	AL (ft)		PENETRATION TEST RESULTS		CLO		
		RECOV	ERY (in)		SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR	OLIG	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND	
			#TYPE	6"-6"-6"-6"	CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	INSTRUMENTATION	
267.8	0.0			(N)	Cille Cond (CM)	ν S		
207.0	0.0	14.0	SS1SS		Silty Sand (SM) 0.0-0.2' - light yellowish brown, dry, low plasticity, 40% fine to medium sand Sandy Lean Clay (CL)		-	
_	2.0			(9)	0.2-0.5' - yellowish brown, moist, low plasticity, slow dilatancy, 30% fine medium to medium sand	-	-	
-	2.5				Sandy Lean Clay (CL)	7/7/	-	
-	2.0	14.0	SS2SS		stiff, medium plasticity, slow dilatancy, 20% fine to medium sand Clayey Sand (SC)		-	
-	4.5			(16)	2.5-2.8' - brown, moist, low plasticity, 25% fine to medium sand  Sandy Lean Clay (CL)		-	
5	5.0				2.8-3.7' - light gray, heavy orange mottling, moist, very		_	
262.8	5.0	12.0	SS3SS	6-32-50/4.5	stiff, low plasticity, rapid dilatancy, 35% very fine to fine sand Sandy Lean Clay (CL)		-	
_	7.0			(82/10.5")	5.0-5.1' - light gray, heavy orange mottling, moist, very stiff, low plasticity  Clay (CL)	-	-	
					5.1-6.0' - reddish brown, mottled black, moist, hard, low			
	7.5				plasticity, a few white lenses near top Clay (CL)	<b>Y</b> ///		
_		4.0	SS4SS	50/5 (50/5")	7.5-7.8' - reddish brown, mottled black, moist, hard, low plasticity		-	
_	9.5						_	
10						<u> </u> ,,,,		
257.8 - -	10.0	4.0	SS5SS	50/4 (50/4")	Clay (CL) 10.0-10.3' - reddish brown, scattered green mottling, moist, hard, low plasticity		-	
	12.0			, ,		]		
_	12.5	1.0	NSS6SS/		☐ Clay (CL)	<b>.</b>	Soil sampling completed at 11:30 on 5/17/06	
-	12.6	1.0	(00000)	50/1 (50/1")	12.5-12.6' - reddish brown, scattered green mottling, moist, hard, low plasticity	-	-	
-					Begin Rock Coring at 12.6 ft bgs See the next sheet for the rock core log	-	-	
15 <u> </u>						1	_	
252.8						4	-	
-						1	-	
						]		
-						4	-	
-						1	-	
-						]	]	
-						4	-	
20						+	-	



PROJECT NUMBER:

338884

BORING NUMBER:

BGA-7 SHEET 2 OF 4

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687886.0 N, 2011583.5 E)

ELEVATION: 267.8 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				HOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS : 8.	4 ft bo	S	START : 5/17/06 10	:10	END : 5/18/06 11:30	LOGGER : JS
	(%) 			DISCONTINUITIES	90	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
-	12.6 R1NQ		0		X X X	Siltstone At 12.6' - dark reddish gray, very soft, highly weathered, fine grained	Rock coring began at 11:50 on 5/17/06
-	2.5 ft 106%	0	10+		× × ×	13.5-13.8' - clay seam 14.1-14.4' - clay seam	-
15	15.0		10+		×××	14.8-14.9' - clay seam	_
252.8			10+		× × ×	14.9-19.3' - pale brown, mottled black, gray, and yellow, 50% very fine to fine sand	R2: 12:10-12:25
-			5	16.3' - Fracture, 20 deg, smooth, stepped 16.6' - Fracture, horizontal, smooth, planar	× × ×	15.0-15.3' - clay seam 15.4-15.5' - clay seam 15.9-16.0' - clay seam	-
-	R2NQ 5 ft 100%	0	10+	16.8' - Fracture, horizontal, smooth, stepped 16.9' - Fracture, 60 deg, smooth, stepped, black stains, partial fracture crossing 60 deg	× × × ×	x - 17.6-17.7' - clay seam	-
-			10+	fracture at 60 deg 18.1-18.3' - Clay seam, horizontal and vertical, and fractures	× × × ×	17.8-18.0' - clay seam 18.6-18.9' - clay seam	-
			10+		×	19.1-19.3' - clay seam	_
20_ 247.8_	20.0		0	_	× × × ×	Sandstone 19.3-19.7' - brown, soft to hard, fine sand to medium sand, highly	R3: 14:38-14:43
_					 	weathered, some silt lenses   Siltstone   19.7-20.5' - brown, very soft, fine	-
-	R3NQ		1			grained, gray banding and mottling 19.7-19.9' - clay seam	-
-	5 ft 98%	80	0			19.7-20.0' - highly weathered   20.0-20.5' - moderately weathered to   slightly weathered	-
-			0			Sandstone     At 20.5' - brown, very soft, laminated     to medium bedding, very fine sand to	-
25_ 242.8	25.0		1	24.8' - Fracture, 40 deg, rough, undulating, —		fine sand, some laminated silt lenses 20.5-25.0' - moderately weathered to slightly weathered	- R4: 14:54-15:05
			3	black stains, tight fit		21.0-21.1' - clay seam 21.2-21.8' - becomes more pink, soft, scattered black clay lenses, laminated,	-
-	ا ا		0			discontinuous 21.8-23.3' - coarsens, pink 23.3-24.3' - pale red, soft, fine to	-
-	R4NQ 5 ft 98%	82	0			medium grained sand 24.3-25.0' - yellow 25.0-26.0' - pale brown, soft, slightly	SC-1 collected
-			0			weathered, fine to medium grained  26.0-30.0' - light gray, very soft, slightly weathered, medium grained,	27.7-28.6'
30	30.0		1	29.7' - Fracture, 60 deg, slickensided, stepped,		clay matrix, red and yellow banding	-
237.8			0	black stains, tight fit		30.0-33.0' - moderately weathered	R5: 15:12-15:25
_			0				]
	R5NQ				1		
							<u>l</u>

2BB-371 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BGA-7 SHEET 3 OF 4

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687886.0 N, 2011583.5 E)

ELEVATION: 267.8 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS : 8.4	4 ft bg	s	START : 5/17/06 10	:10	END: 5/18/06 11:30	LOGGER : JS
				DISCONTINUITIES		LITHOLOGY	COMMENTS
gz €	7AN QN (§)		ES	DESCRIPTION	] 2	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
_	5 ft 102%	48	3	32.5' - Fracture, horizontal, rough, undulating 32.7' - Fracture, horizontal, rough, undulating	×	× Siltstone	_
-			3	32.9' - Fracture, horizontal, rough, undulating 33.0' - Fracture, horizontal, rough, undulating	×××	33.0-37.8' - dark reddish brown, mottled green, very soft to soft, highly	-
35	35.0		2	33.4' - Fracture, 10 deg, smooth, stepped 33.9-40.0' - Fractures (2), horizontal and 60 deg, smooth, undulating	× × × ×	weathered, fine grained  34.4-34.5' - clay seam	-
232.8			10+	35.1' - Fracture, horizontal, smooth, undulating 35.4-35.5' - Fractures (3)	- × - × - × ×		R6: 16:05-16:17
_			10+	35.5-37.8' - Clay seam, and fracture zone	- × × ×	<del>1</del>	]
_	R6NQ 5 ft 104%	35	10+		- × - × - ×	*	
_			0	37.9' - Fracture, 10 deg, smooth, undulating		- Sandstone 37.8-39.5' - very dusky red, mottled green, soft to hard, very fine sand to - fine sand	]
40	40.0		3	39.5' - Fracture, 10 deg, smooth, undulating	×	37.8-38.0' - highly weathered 38.0-39.5' - moderately weathered	-
227.8	10.0		XXX 0	39.7' - Fracture, 10 deg, smooth, undulating 39.9' - Fracture, 10 deg, smooth, undulating 40.0' - Fracture, 11 deg, smooth, undulating		Siltstone 39.5-39.9' - very dusky red, mottled green, very soft, moderately weathered	R7: 08:40-08:51 on 5/18/2006
_			0	40.0 - Hacture, 11 deg, smooth, undulating		Sandstone At 39.9' - gray, soft, very thin to thick	]
-	R7NQ	100	0		- - :::	bedding, fine sand 39.9-40.0' - moderately weathered 40.0-46.7' - gray to greenish gray, soft,	-
_	5 ft 100%	100	0		]:: :::	fine sand, fresh, scattered irregularly shaped silt inclusions increase with depth	-
-					]::  :::		-
45_ 222.8	45.0		0	- -		45.0-46.7' - fine sand to medium sand	R8: 08:55-09:15
_			0		   		-
_	R8NQ		0		0,	Conglomerate 46.7-47.3' - dark reddish brown &	]
-	5 ft 100%	100	0		- :: - ::  -	green, very thin bedding, fine sand to medium sand, fresh, siltstone lenses	]
-			0		- × × × ×	47.3-48.2' - gray to greenish gray, soft, fine sand, fresh, silt inclusions Siltstone	
50_ 217.8	50.0		0	50.1' - Fracture, 60 deg, smooth, planar	× × × ×	At 48.2' - dark reddish brown, mottled  Green, soft, fine grained  48.2-50.0' - fresh	R9: 09:10-09:23
-			3	50.7-50.9' - Fractures (3), 10 deg and 50 deg	- × - × - × ×	48.2-50.0' - rresn 49.9-50.0' - very soft 50.0-55.0' - moderately weathered	
-	DONO		2	51.9' - Fractures (2), 50 deg and horizontal,	- × - × - ×	x x x x x x x x x x x x x x x x x x x	]
_	R9NQ			smooth, undulating	× ×	<u></u>	_
						1	

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PROJECT NUMBER:	BORING NUMBER:				
338884	BGA-7	SHEET	4 0	<b>.</b> 4	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687886.0 N, 2011583.5 E)

ELEVATION: 267.8 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

	5 EQUIFIVIEN	ORIENTATION: Vertical					
WATER	LEVELS: 8.	4 ft bo	S	START : 5/17/06 10	:10	END : 5/18/06 11:30	LOGGER : JS
	. (9)			DISCONTINUITIES	ดิ	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)		FRACTURES PER FOOT	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
₹E > B	IN H.	(%) 🛭	JUR DOC	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	<b>1</b> 🚽	MINERALOGY, TEXTURE,	FLUID LOSS, CORING RATE AND
FYOR	#F.00	ΩØ	AC1 R F	PLANARITY, INFILLING MATERIAL AND	MB(	WEATHERING, HARDNESS, AND ROCK MASS	SMOOTHNESS, CAVING ROD
딞핊핊S	8 1 1 1	S.	FE.	THICKNESS, SURFACE STAINING, AND TIGHTNESS	S	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
	5 ft	78	1		× × × × × ×	51.7-56.6' - dusky red, mottled yellow	
_	100%			52.9' - Fracture, horizontal, smooth, stepped	x x	and purple, very soft, mica particles,	1
-			1		$\dashv \times \times$	scattered green mottling 53.6-53.8' - clay seam	1
-					× ×	54.0' - clay seam, 0.05' thick	-
-			1		× ×	- 54.3-55.0' - very soft to soft	-
55	55.0			_	× ×		
212.8			0		× ×	55.0-56.0' - mottled black, fresh, 50% very fine to fine sand	R10: 09:45-10:00
			U		× ×	very line to line sand	
-					× ×	56.0-56.6' - mottled green, very soft to	1
_			0		<del>  û. û</del>	soft, fresh, much less sand	First water level = 8.4' bgs
-	R10NQ				<b>-</b>  ∷∷	Sandstone 56.6-60.0' - dusky red, mottled green,	taken 5/18/06 at 17:52;
-	5 ft	100	1	57.2' - Fracture, horizontal, rough, stepped	4:::	fine sand, fresh, 20% silt	second water level = 8.4' bgs taken 5/19/06 at 18:08
_	102%				4:::	57.2-57.5' - brown, mottled green, fine	bys taken 5/19/00 at 16.06
I _			0		1:::	sand to medium sand 58.3-58.5' - dark brown to gray, some	
					1:::	green mottling	
					1:::	59.0-59.9' - dark reddish brown,	R-Scale not performed on
60	60.0		0		1:::	<ul> <li>mottled black and green, very fine sand to fine sand</li> </ul>	rock core samples
207.8	00.0		$\overline{\sim}$		+ · · ·	59.9-60.0' - brown	
_					1	Bottom of Boring at 60.0 ft bgs on	-
_					4	_ 5/18/06 11:30	-
l _					1	_	_
I -					1	-	1
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2BB-373 Rev. 1



PROJECT NUMBER:	BORING NUMBER:				
338884	BGA-8	SHEET	1	OF	5

### **SOIL BORING LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688088.7 N, 2011762.2 E)

ELEVATION: 263.6 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

DRILLING EQUIPMENT AND METHOD : CME-550, 2-15/16 Tricone Bit, 140 lb. Automatic Hammer ORIENTATION : Vertical

				TIOD : CIVIL-330	, 2-15/16 Tricone Bit, 140 lb. Automatic Hammer	EIAG	106	ORIENTATION : Vertical
WATER DEPTH B			RADE (ft)		START : 5/15/06 13:35 END : SOIL DESCRIPTION	5/16		14:50 LOGGER : JS  COMMENTS
	INTERV		A VADE (II)	STANDARD PENETRATION	COL DECOME HOW		.06	OSMINIEI 110
	INTERV		ERY (in)	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,		1 I	DEPTH OF CASING, DRILLING RATE,
		RECOV	#TYPE	6"-6"-6"	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY		SYMBOLIC LOG	DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
				(N)			λs	
263.6 _ _ _	2.0	19.0	SS1SS	2-2-3-4 (5)	Lean Clay (CL) 0.0-1.6' - brownish yellow, mottled dark orange, moist, medium stiff, low to medium plasticity, no to slow dilatancy, 10% fine sand	-		- - -
_						-		<del>-</del>
- - -	2.5 4.5	14.0	SS2SS	4-5-6-8 (11)	Lean Clay (CL) 2.5-3.2' - brownish yellow, mottled dark orange, moist, medium stiff, low to medium plasticity, no to slow dilatancy Fat Clay (CH) 3.2-3.7' - reddish brown, mottled white and red, moist,			- - -
5					medium to high plasticity, no dilatancy	$\int$		_
258.6	5.0	15.0	SS3SS	7-8-12-20 (20)	Clay (CL) 5.0-6.3' - reddish brown, moist, very stiff, low to medium plasticity, slow dilatancy, greenish white lenses throughout	1 -		- - -
	7.0							_
_							,,,,	_
-	7.5	15.0	SS4SS	17-45-50/3 (95/9")	Clay (CL) 7.5-8.8' - reddish brown, mottled greenish white, black, moist, hard	-		- -
_	9.5			(* 33 2 )				_
10								_
253.6 - - -	10.0	6.0	SS5SS	30-50/3 (50/3")	Clay (CL) 10.0-10.5' - reddish brown, mottled greenish white and black, moist, very hard, low to medium plasticity, slow dilatancy	<u></u>		- - -
_	12.0					-		-
- - -	12.5	6.0	SS6SS	50/5 (F0/F1)	Clay (CL)  12.5-13.0' - reddish brown, mottled greenish white and black, moist, very hard, low to medium plasticity, slow dilatancy, scattered white lenses			- - -
-	115			(50/5")				-
- 15	14.5					-		Soil sampling completed at 14:46 on 5/15/06
248.6 _ _ _	15.0 15.2	2.0	, <u>SS7SS</u> ,	50/1.5 (50/1.5")	Clay (CL) 15.0-15.2' - reddish brown, mottled greenish white and black, moist, very hard, low to medium plasticity, slow dilatancy Begin Rock Coring at 15.2 ft bgs		7777	-
- -					See the next sheet for the rock core log	-		-
-						-		- -
						-		-
20						_		

2BB-374 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BGA-8

SHEET 2 OF 5

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688088.7 N, 2011762.2 E)

ELEVATION: 263.6 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS: 9.0	0 ft bg	S	START : 5/15/06 13	:35	END : 5/16/06 14:50	LOGGER : JS
	(%			DISCONTINUITIES	ပ္ခ	LITHOLOGY	COMMENTS
ON (#)	CORE RUN, LENGTH, AND RECOVERY (%)	(	ZES T	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	IE RU GTH, OVE	R Q D (%)	CTURES R FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	BOLI	MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
BEL SUR	RECE	RQ	FRA( PER	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYM	AND ROCK MASS CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
	15.2		2		××	Siltstone	Rock coring began at 15:30
_			$\blacksquare$	15.6' - Fracture, horizontal, smooth, undulating, tight fit	× ×	15.2-18.2' - dark reddish brown, - mottled green and black, very soft,	on 5/15/06 R1: 15:30-15:43 on
-			1	15.9' - Fracture, horizontal, smooth,	× ×   × ×	slightly weathered, fine grained 16.0-16.9' - soft	05/15/06 -
_	R1NQ 3.8 ft	75		undulating, tight fit 16.0' - Fracture, horizontal, smooth,	× ×	- 16.9-18.2' - very soft	-
-	94%		0	undulating, tight fit 16.1' - Fracture, 30 deg, smooth, undulating	× ×   × ×	-	-
-				10.1 - Fracture, 30 deg, 3mooth, diddiating	<u>×</u> . ×	- O-maladama	-
-	19.0		0 XXX		†∷:¦	Sandstone 18.2-19.9' - dark reddish brown, soft,	1
-	10.0				1:::1	<ul> <li>very fine sand to fine sand, slightly weathered</li> </ul>	R2: 16:10-16:23
20			1				]
243.6			0	19.9' - Fracture, 10 deg, smooth, undulating, loose fit	]× *  × *	Siltstone At 19.9' - dark reddish brown, trace	
_					××	green mottling, very soft to soft 19.9-26.3' - slightly weathered	
_	R2NQ 5 ft	100	0		× ×   × ×	-	_
-	102%				ļŝ ŝ	-	-
-			1	22.2' - Fracture, horizontal, smooth, undulating	× ×	-	-
-			_		× ×   × ×	-	-
-			2	23.5' - Fractures, horizontal and 50 deg,		-	-
-	24.0		<b>~~</b>	smooth, undulating	$\stackrel{\times}{\times}\stackrel{\times}{\times}$	24.0-26.3' - a few white inclusions	R3: 16:29-16:42
25			1	24.3' - Fracture, horizontal, smooth, undulating, tight fit	× ×   × ×	-	-
238.6					]×	<del></del>	
-			0		××	-	1
	R3NQ 5 ft	50	10+	26.3' - Fracture, horizontal, smooth, stepped	× ×   × ×	- 26.3-28.0' - highly weathered, clay	]
l _	100%	00	10.	26.6-26.9' - Fracture zone	× ×	seam, a few white inclusions	
_			10+	27.2-27.4' - Fracture zone	× ×   × ×   × ×	_	
_					x x x	- 20.0.20.21 monthlad area are alimbited	_
-			2	28.3' - Fracture, horizontal, smooth,	<del>×. ×</del> × ×	28.0-28.3' - mottled green, slightly weathered	-
-	29.0			undulating, loose fit 28.5' - Fracture, 60 deg, smooth, stepped,	× × × ×	Sandstone 28.3-28.5' - dark reddish brown,	R4: 09:00-09:14 on
			0	loose fit	× ×   × ×	bedding, very fine sand to fine sand,	05/16/06
30 <u> </u>			$\dashv$		×	slightly weathered Siltstone	-
-			1	undulating, tight fit	××	At 28.5' - dark reddish brown, mottled	
-	R4NQ				× ×   × ×   × ×	green, very soft 28.5-37.4' - slightly weathered	
_	5 ft 94%	94	0		× ×	29.0-30.0' - scattered fine gravel sized inclusions, softer than rest of run	
_					1× ×		1
			0	32.7' - Fracture, 40 deg, thin white infilling,	]× *	32.4-32.9' - soft, very fine to fine sand lens	1
			0	partial fracture, tightly healed	× × × × × × × ×	_	]
_	34.0		$\overset{\circ}{\boxtimes}$		× × × ×		]]
_			1		× ×  × ×	34.0-38.0' - mica particles -	R5: 09:20-09:35
35				_	× × ×		_
					Ш		1

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PROJECT NUMBER:

338884

BORING NUMBER:

BGA-8

SHEET 3 OF 5

# **ROCK CORE LOG**

ORIENTATION : Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688088.7 N, 2011762.2 E)

ELEVATION: 263.6 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

				THOD : CIVIE-330, NQ Double Barrel			ORIENTATION: Vertical
WATER	LEVELS: 9.	0 ft bo	ļS	START : 5/15/06 13	35	END : 5/16/06 14:50	LOGGER : JS
1	(%			DISCONTINUITIES	g	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
- - -	R5NQ 4 ft 98% 38.0	82	0 0 10+		× > × > × > × > × > × > × > × >	- - - - - 37.4-41.0' - moderately weathered	- - - -
40 223.6	R6NQ 5 ft 98%	84	0 1 10+	39.4' - Fracture, horizontal, smooth, undulating, 0.1' clay infilling	× > > × > > × > × > × > × > × > × > × >	- 37.4-37.9' - clay seam - 39.0-41.0' - very soft 40.3-41.0' - clay seam, 0.75' thick	R6: No time recorded  SC-1 collected 38.0-39.1'
-	43.0 R7NQ 1 ft 44.0 120%	100	0 0		× > > × > > × > × > × > × > × > × > × >	41.0-45.2' - very soft to soft, fresh, coarse sand to fine gravel, scattered inclusions	R7: No time recorded  R8: 10:35-10:53
45 218.6 - - -	R8NQ 5 ft 104%	100	0 0	44.8' - Fracture, horizontal, smooth, undulating —	× > × > × > × > × > × > · · · · · · · · · · · · · · · · · ·	45.2-46.0' - fresh, grades to very fine and fine sand  Sandstone  46.0-49.0' - dark reddish brown, mottled green, soft, very fine sand to fine sand, fresh	
- - -	49.0		1 0 ××× 0	47.4' - Fracture, 50 deg, smooth, undulating, thin quartz infilling	× > × > × >	- 47.8-49.0' - grades to siltstone, soft - Siltstone - 49.0-51.5' - dark reddish brown, fresh,	R9: 11:30-11:38
50_ 213.6 - -	R9NQ 5 ft 100%	96	0		× > > > > > > > > > > > > > > > > > > >	soft  49.8-51.5' - soft, begins picking up more sand and transitions in and out of siltstone and very fine to fine grained sandstone  Sandstone  At 51.5' - dark reddish brown, fine	
- - - - - 55	54.0		0 1 0	53.9' - Fracture, 30 deg, smooth, undulating, black staining	0.00	sand, fresh, soft to hard, laminae silt seam  53.6-53.8' - very dark gray, soft	R10: No time recorded
				_			

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PROJECT NUMBER:

338884

BORING NUMBER:

BGA-8

SHEET 4 OF 5

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688088.7 N, 2011762.2 E)

ELEVATION: 263.6 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				THOD : CME-550, NQ Double Barrel					ORIENTATION : Vertical
WATER	LEVELS: 9.	0 ft bo	IS	START : 5/15/06 13 DISCONTINUITIES	:35 	т	END : 5/16/06 14:50	_	LOGGER : JS
	CORE RUN, LENGTH, AND RECOVERY (%)				90	-	LITHOLOGY		COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	Ä, A _N , Y	<u></u>	FRACTURES PER FOOT	DESCRIPTION	SYMBOLIC LOG		ROCK TYPE, COLOR, MINERALOGY, TEXTURE,		SIZE AND DEPTH OF CASING,
VATI VATI FAC	IE R GTH OVE	% 0	CTU	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	BOL		WEATHERING, HARDNESS,		FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
DEP ELE BEL SUR	COR	R Q D (%)	FRA	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYM		AND ROCK MASS CHARACTERISTICS		DROPS, TEST RESULTS, ETC.
					1:::	1	53.8-54.0' - very dark greenish gray,	Т	
			0		1:::	:[\	very soft, 0.1' lens fine grained, 0.1'	П	_
	R10NQ				<b> </b> :::		medium grained with multicolored grains		-
-	5 ft 100%	100	0		1:::	: F \	Conglomerate		-
_				57.1' - Fracture, 60 deg, smooth, stepped	1:::	1	54.0-55.2' - dark greenish gray, soft to hard, fresh, multicolored grains, gray		-
_			1		1:::	:	clay, coarse sand to fine gravel		-
_				57.8-58.0' - Clay seam, 40 deg, slickensided	0,0	$\uparrow$	Sandstone	Г	-
_	FO 0		0		- (a	1\	55.2-58.0' - dark reddish gray, laminated to very thin bedding, fine		-
-	59.0				0.	<b>;</b>	sand to medium sand, fresh, with		R11: 12:45-12:57
			0		0.0	Ħ	some coarser beds, multicolored grains	Ħ	-
60 <u> </u>				_	- 4	$\mathbb{H}$	57.8-58.0' - clay seam	Н	
_			0		0,0	FI	Conglomerate		-
-	R11NQ				- O-	1	58.0-59.4' - dark greenish gray, soft to hard, fresh, multicolored grains,		-
-	5 ft	100	0		ئر زه	1	coarse sand, fewer fine gravel, less	П	-
_	100%				D. C.	41	fines, (gray clay) Sandstone		-
_			1		00.0	Ł	59.4-59.5' - dark reddish gray, hard,		_
_				62.7' - Fracture, 20 deg, rough, undulating	×	$\mathbb{Z} $	very thin bedding, fine sand to medium sand, fresh		-
_			0		× ; × ;	$\  \mathcal{A} \ $	Conglomerate		_
_	64.0				-  × ;	1-18	59.5-60.1' - dark reddish gray, soft,		R12: 13:04-13:23
_			0		x 3		thin bedding, fresh, multicolored grains (red, white, gray) and staining,		R12: 13:04-13:23
65 <u> </u>				_	×;		medium gravel		
190.0			0		×××	<u> </u>	Sandstone 60.1-60.3' - dark reddish gray, hard,		_
_	R12NQ				× ;	*	very thin bedding, fine sand to		_
_	4.8 ft		0		× ;	*	medium sand, fresh  Conglomerate		_
_	100%				××	X.	60.3-62.7' - dark reddish gray, soft to		_
_			0		×		hard, fresh, multicolored grains (red, white, gray) and staining, medium		_
					]×;		gravel		_
			0		× ;   × ;		Siltstone		_
	68.8				]××		At 62.7' - dark reddish brown, black and green mottling, fresh, fine grained,		R13: 13:30-13:52
			0		X.	4	soft	Д	
70					× ;	$\mathbb{F}$	64.0-69.4' - no green mottling, fine	$\mathbb{H}$	
193.6			1	_	× ;   × ;	<b>∄</b> _[	Sandstone		
]	R13NQ 4.2 ft			70.5' - Fracture, horizontal, smooth,	× >	X \	69.4-69.8' - dark reddish brown, soft to		_
]	76%		10+	undulating, loose fit 71.1-73.0' - Fracture zone, horizontal	× ×	X	hard, very fine sand to fine sand, fresh Siltstone		<del>-</del>
			,,,,	·, · · · · · · · · · · · · · · · · · ·	×		At 69.8' - dark greenish gray, very soft		-
			$\bowtie$		T× ?		to soft 69.8-71.1' - fresh		_
	73.0		$\bowtie$		× ;		70.4-73.0' - dark reddish gray, mottled		-
-	R14NQ		~~~		Îx s		dark red, green, gray, very soft, fine grained		R14: 13:58-14:02
-	1 ft 74.0 100%	0	3	73.5' - Fracture, horizontal, smooth,	Îx i	*	71.1-74.3' - highly weathered		-
-	7-7.0 10070			undulating, 0.1' clay infilling 73.7' - Fracture, 10 deg, smooth, undulating,	- (x. )	#	73.0-74.3' - dusky red, clay seams 73.1-73.3' - clay seam	$\perp$	R15: 14:09-14:26
75			1	tight fit	1:::	<u>'</u>	Sandstone		-
				74.2' - Fracture, 20 deg, smooth, undulating —		F	74.3-77.1' - greenish black, fresh	_	
					1	1_			

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PROJECT NUMBER:	BORING NUMBER:					
338884	BGA-8	SHEET	5	OF	5	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688088.7 N, 2011762.2 E)

ELEVATION: 263.6 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

	<i>-</i> <u> </u>		<u> </u>	THOD . CIVIE-330, NQ DOUBLE BAITEI				ORIENTATION : Vertical
WATER	LEVELS: 9.	0 ft bo	ıs	START : 5/15/06 13	:35	_	END: 5/16/06 14:50	LOGGER : JS
				DISCONTINUITIES	ניז		LITHOLOGY	COMMENTS
_ £	CORE RUN, LENGTH, AND RECOVERY (%)		Ø	DESCRIPTION	SYMBOLIC LOG	t	DOOK TYPE OOLOD	
NO H	N A W	(9)	되는	BEGGIAII FIGH	윽	ı	ROCK TYPE, COLOR, MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING,
E E S E	E SYES	6)	Ĕ	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	BQ I	ı	WEATHERING, HARDNESS, AND ROCK MASS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
DEPTH AND ELEVATION BELOW SURFACE (ft)	N N N N N N N N N N N N N N N N N N N	Q D (%)	FRACTURES PER FOOT	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	₹	L	AND ROCK MASS CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
	035	ď		THICKNESS, SURFACE STAINING, AND TIGHTINESS	Ś			, ,
_			0		1:::	Έ.	75.0-77.1' - dark reddish gray, hard,	_
					:::		fine sand, coarsens with depth	
	R15NQ				<b>1∷∷</b>	:[		_
-	5 ft	96	0		<b>∤∷∷</b>	╌┠╴		-
_	102%					Ŀ		-
l _			0		مره ا	١L	Conglomerate	SC-2 collected 77.0-78.6' -
					کھی ط	1	77.1-78.4' - gray, hard, fresh, multicolored grains and mottling,	77.0-76.0
_					00.	Ŧ	medium to coarse grained	-
-			0			ŧ	Sandstone	-
_	79.0				_::::	1	78.4-78.6' - gray, hard, fine sand,	]
l _			0		]::::	Ŀ	\fresh, coarser with depth	R16: 14:30-14:45
80					[:::	:[	Siltstone	
183.6				_	1:::	:	78.6-78.8' - dark gray, very soft to soft,	_
1 -			0		┨∷∷	: -	laminated bedding, fresh, coal fragments	First water level = 9.0' bgs
_					<b>↓∷</b> ∶	: -	Sandstone	taken 5/17/06 at 09:36:
I _	R16NQ 5 ft	100	0		<b>]</b> :::	١L	78.8-84.0' - reddish gray, soft to hard,	second water level = 9.4'
	100%	100			<b> </b> ::::	:	laminated bedding, fine sand to	bgs on 5/18/06 at 18:00
_					1:::	: -	medium sand, fresh, some beds finer	-
-			0		<b>∤∷∷</b>	╌┠	or coarser	-
_					4:::	: -		
l _			1	83.3' - Fracture, horizontal, rough, stepped	]:::	:L		R-Scale not performed on rock core samples
	84.0		'	oc.o Tractare, nonzoniar, rough, etoppou	:::	1		Tock core samples
					1	T	Bottom of Boring at 84.0 ft bgs on	
					1	ŀ	5/16/06 14:50	-
85 <u> </u>				_	-	ŀ	_	
170.0					4	L		-
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90_				_	1	L	_	_
173.6					1			
1					1	Γ		l -
1 -					1	t		l -
1 -					1	F		-
1 -					4	L		-
1					1	L		
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					1	L		



PROJECT NUMBER:	BORING NUMBER:				
338884	BGA-9	SHEET	1 OF	5	

### **SOIL BORING LOG**

 PROJECT : PEC COLA, New Hill, NC
 LOCATION : (NAD 27) (688154.6 N, 2012066.0 E)

 ELEVATION : 253.3 ft MSL (NGVD 29)
 DRILLING CONTRACTOR : A. Martin, S&ME

DRILLING EQUIPMENT AND METHOD: BK-51, Tricone Bit, 24" Split Spoon, and 140 lb. Automatic Hammer ORIENTATION: Vertical WATER LEVELS: 5.2 ft bgs START: 5/15/06 12:40 END: 5/17/06 11:22 LOGGER: DT SOIL DESCRIPTION COMMENTS DEPTH BELOW EXISTING GRADE (ft) STANDARD 500 PENETRATION INTERVAL (ft) TEST RESULTS SYMBOLIC DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION SOIL NAME, USCS GROUP SYMBOL, COLOR, RECOVERY (in) MOISTURE CONTENT, RELATIVE DENSITY OR 6"-6"-6" CONSISTENCY, SOIL STRUCTURE, MINERALOGY #TYPE (N) 253.3 0.0 Organic Clay (OL) 0.0-0.5' - dark reddish brown, moist, medium stiff, trace sand organics SS1SS 2-3-4-6 16.0 Fat Clay (CH) (7) 0.5-1.3' - yellowish red, moist, medium stiff, medium to 2.0 high plasticity, trace fine sand 2.5 Clay (CL) 2.5-4.3' - dark reddish brown, moist, very stiff, low to medium plasticity 22.0 SS2SS 7-7-15-50/5 (22)4.5 5 248.3 5.0 5.0-5.3' - dark reddish brown, very soft, some fine sand and clay SS3SS 50/4 4.0 (50/4")7.0 Soil sampling completed at 14:10 on 5/15/06 3.0 SS4SS Clay (CL) Rock coring began at 14:20 on 5/15/06 7.8 50/3 7.5-7.8' - dark reddish brown, very soft, some fine sand (50/3")and clay Begin Rock Coring at 7.8 ft bgs See the next sheet for the rock core log 10 243.3 15 238.3 20



PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-9	SHEET 2 OF 5

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688154.6 N, 2012066.0 E)

ELEVATION: 253.3 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS : 5.	2 ft bo	ıs	START : 5/15/06 12	:40	END : 5/17/06 11:22	LOGGER : DT
	- ©			DISCONTINUITIES	ပ္ခ	LITHOLOGY	COMMENTS
AND TION CE (#)	RUN, H, AND 'ERY (%	(%) Q	URES	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS		WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
-	7.8		0		× × × × × ×	- Siltstone 7.8-14.8' - dark reddish brown, very soft, highly weathered, trace fine sand,	-
			0		× × × × × ×	- micaceous	R1: 14:20-14:26 and 14:29- 14:45 on 05/15/06
10 243.3			2	9.6' - Fracture, 10 deg, smooth, undulating, loose 9.9' - Fracture, 10 deg, smooth, undulating,	× × × × × ×	<del>_</del> -	
	R1NQ 6.7 ft 103%	0	1	loose 10.6' - Fracture, horizontal, rough, undulating, loose	× ×   × ×   × ×	<u>.</u>	-
			0		× × × × × × × ×	- -	_
			1	12.8' - Fracture, 65 deg, rough, stepped, tight	× × × × × × × ×	- -	_
	14.5		0		× ×   × ×   × ×	_	_
15 <u>238.3</u>			XXX NA	_		— Clay (CL) 14.8-15.8' - dark reddish brown,	R2: 14:56-15:13 and 15:16- 15:40 and 16:25-16:32 —
			NA			mottled, low to medium plasticity, highly weathered  Fat Clay (CH)	NA - Information Not Available -
			NA			15.8-16.2' - réddish brown, moist, high plasticity, highly weathered Clay (CL)	-
			NA			16.2-19.5' - dark reddish brown, mottled, very soft, low plasticity, highly weathered	-
	R2NQ		NA			- wedurered	-
20_ 233.3	10 ft 90%	0	NA			Clay (CL)  — 19.5-22.5' - pale brown, mottled, low plasticity, highly weathered, some fine	] _
			NA			sand	-
			NA			-	]
			NA		× × × × × ×	Siltstone - 22.5-26.5' - bluish gray, very soft to soft, some fine sand	]
	24.5				× × × × × × × ×	22.5-24.5' - highly weathered	-
25_ 228.3	24.5		10+	24.5-25.4' - Fracture zone, 15 deg, slickensided, undulating, tight	× ×   × ×   × ×	24.5-26.5' - slightly weathered	R3: 09:08-09:20, 13:47- 13:57, and 13:59-14:20 on
-			7	25.6-26.5' - Fractures, 20 deg, slickensided, undulating, loose	× × × × × × × ×	- -	05/16/06
- - 			1	26.7' - Fracture, 20 deg, slickensided, undulating, loose	<u>*.*</u> 	Sandstone - 26.5-35.4' - bluish gray, soft, fine sand to medium sand, some silt 26.5-34.5' - slightly weathered	- - -

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PROJECT NUMBER:

338884

BORING NUMBER:

BGA-9

SHEET 3 OF 5

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688154.6 N, 2012066.0 E)

ELEVATION: 253.3 ft MSL (NGVD 29) DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS : 5.	2 ft bo	ıs	START : 5/15/06 12	:40	END : 5/17/06 11:22	LOGGER : DT
				DISCONTINUITIES		LITHOLOGY	COMMENTS
QZ €	AND (%D		ES	DESCRIPTION	3.00	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERAL.OGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
_			1	27.7' - Fracture, 70 deg, rough, undulating,		-	-
-				tight	<b>-</b>  ∷∷	-	1
-	R3NQ		0		1:::	-	1
30	10 ft 88%	65.5		29.7' - Fracture, 30 deg, rough, stepped, tight	1:::	-	1
223.3	0070		1	z9.7 - Fracture, 50 deg, rough, stepped, tight	:::	_	
-			_		:::	-	1
			0		]:::		]
			0		]:::	_	
_					<u> </u> :::	_	
_			0		:::	-	-
_			$\bowtie$		-	-	-
_			$\bowtie$			-	-
-	34.5		XXX		-	34.5-35.4' - moderately weathered	R4: 14:50-15:08 and 15:10-
35 <u> </u>			0	<del>-</del>	1:::		15:30 —
-					××	Siltstone	1
_			1	35.9-36.3' - Fracture, vertical	× ×   × ×	_ 35.4-41.8' - dark reddish brown, soft to hard, moderately weathered	1
			1	36.3' - Fracture, 30 deg, rough, undulating, tight	Îx x	_	1
			ı	37.2' - Fracture, horizontal, rough, undulating,	] × ×		00.4
_			0	loose	× ×   × ×	_	SC-1 collected 37.4-38.5'
-					××	<del>-</del>	
-	R4NQ		1		××	_	-
	10 ft	76		39.4' - Fracture, 10 deg, rough, undulating,	-  × ×	-	-
40 <u></u> 213.3	94%		2	loose 40.0' - Fracture, 10 deg, rough, undulating,	× ×	<del> </del>	-
-				loose	×	-	1
-			2	40.3' - Fracture, 10 deg, rough, undulating, loose	×××	-	1
				40.7' - Fracture, 20 deg, rough, stepped, tight 41.4' - Fracture, 10 deg, smooth, undulating,	× × × ×	Cillatona	1
			2	loose	]×××	<ul> <li>Siltstone</li> <li>41.8-45.5' - very dark greenish gray,</li> </ul>	]
			4	41.9' - Fracture, 15 deg, rough, undulating, loose	×××	soft to hard, fine grained 41.8-44.5' - moderately weathered	]
			10	42.3' - Fracture, 15 deg, smooth, undulating, loose			
-			10+ >>>>	42.7-43.3' - Fracture, 15 deg, smooth, stepped, loose	- × ×	43.8-44.7' - dark bluish gray, very soft,	-
	44.5			43.5-43.9' - Fracture zone	× × × ×	fine grained, some clay 44.5-45.5' - slightly weathered	R5: 08:16-08:40 and 08:42-
45 <u></u> 208.3			4	44.5-45.4' - Fracture, 15 deg, rough, undulating, loose	- × ×	— 44.7-45.5' - very dark bluish gray, soft,	09:04 on 05/17/06
-				44.6-44.7' - Fracture, 10 deg, rough, undulating, tight	× × × ×	fine grained Siltstone	1 1
-			4	45.4-45.5' - Fracture, 20 deg, rough,	× ×	At 45.5' - dark reddish brown, soft, fine grained	1
				undulating, tight 45.9-46.1' - Fracture, 10 deg, rough,	×× ××	45.5-55.5' - slightly weathered	1
			0	undulating, tight 46.4' - Fracture, 20 deg, rough, planar, loose	× × × ×		]
				Haddid, 20 dog, rough, plantar, 10000	××		



PROJECT NUMBER:	BORING NUMBER:					
338884	BGA-9	SHEET	4	ΩF	5	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688154.6 N, 2012066.0 E)

ELEVATION: 253.3 ft MSL (NGVD 29) DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

00111110				HOD . BK-31, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS: 5.	2 ft bo	IS	START : 5/15/06 12	:40	END : 5/17/06 11:22	LOGGER : DT
				DISCONTINUITIES	ניז	LITHOLOGY	COMMENTS
o ⊋	CORE RUN, LENGTH, AND RECOVERY (%)		Ø	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	
DEPTH AND ELEVATION BELOW SURFACE (ft)	N A W	(9)	FRACTURES PER FOOT	BESONII HON	윽	MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING,
H¥×××	R F S	R Q D (%)	ĔĞ	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	<u>8</u>	WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
린힌민	SNO SNO SNO SNO SNO SNO SNO SNO SNO SNO	ø	¥K H	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	₹	AND ROCK MASS	DROPS, TEST RESULTS, ETC.
	032	ď		THICKNESS, SURFACE STAINING, AND TIGHTINESS		CHARACTERISTICS	, , ,
-			0		× :	47.9-51.7' - some fine sand	-
_					×	<u>}</u> _	-
			0		× :		
	R5NQ		١		× ;	<b>T</b>	
	10 ft	91			× ;	<b>*</b>	-
50 <u> </u>	98%		0	<del>-</del>	- <b> </b> × ∶	<del>_</del>	<u></u> -
203.3					× ;	1	_
					× :	3	
_			0		× :	7	-
-					-  × ;	<b>)</b> -	-
_			0		× :	51.7-52.7' - coarse pebbles within	_
					× :	siltstone, subrounded	
					× :	X	_
-			0		× ;	53.0-54.5'	-
-			$\sqcup$		_  × :	J-	-
			2	53.6' - Fracture, 10 deg, slickensided,	× :	1	
	54.5			undulating	× :	\$	
	54.5		XXX	53.8' - Fracture, 10 deg, rough, undulating, loose	- × :	7	R6: 09:30-09:57 and 10:01-
55 <u> </u>			1	54.9' - Fracture, horizontal, smooth,	× :	<del>_</del>	10:35 —
130.3				undulating, loose		1_	_
				•	× :	55.5-59.0' - fresh	
			0		×:	50 0 57 0) for a social and	-
-					- × ;	_ 56.2-57.3' - fine grained	-
_			1		_ × :	<b>⅓</b> -	-
				57.2' - Fracture, horizontal, rough, undulating,	× :		
				tight	× ;	<b>T</b>	
-			0	· ·	×	<u>+</u>	<u>-</u>
-					- <b> </b> × ∶	4	-
			3	58.6' - Fracture, 60 deg, undulating, tight	× ;		
	R6NQ		١ ١	58.9' - Fracture, 60 deg, undulating, tight	× :	Siltstone	
	10 ft 100%	87		59.3-59.5' - Fracture, 15 deg, rough, undulating, loose	×	At 59.0' - very dark bluish gray, very	
60 <u> </u>	100%		2	59.5-59.7' - Fracture, 15 deg, rough,	<b>-</b>   × ∶	soft to soft, fresh, some clay 59.7-62.5' - bluish green & reddish	
133.3				undulating, loose	× ;	brown, mottled, soft	
			<u>,</u>	60.4' - Fracture, 60 deg, rough, undulating,	× :	Siewii, medied, een	
1 7			2	loose	× :	¥T	
-				60.6' - Fracture, 55 deg, rough, undulating,	×	<b>}</b>	
-			1	loose 60.9' - Fracture, 20 deg, smooth, undulating,	- × :	<b>;</b> }-	
				tight	×		
				62.4' - Fracture, 20 deg, smooth, undulating,	X :	Siltstone	
-			1	loose	TX S	62.5-69.5' - dark reddish brown, soft to	·
-			$\vdash \vdash \vdash$	63.1' - Fracture, horizontal, rough, undulating,	× :	hard, fresh	
			1	loose		1	
	64.5		'	64.2' - Fracture, horizontal, rough, undulating,	×		
GE -				loose	- × :	<b>T</b>	R7: 11:03-11:22
65 <u> </u>			0	64.5-69.5' - Fractures, microfractures —	-  × ;	<del>_</del>	-
100.5					- Îx	<u>.</u>	<b>]</b> _, , , , , ,
			<b>,  </b>		× :		First water level = 5.2' bgs
			0		× ;	<b>ॉ</b>	taken 5/17/06 at 12:35;
-	R7NQ		$\vdash$		<b>-</b>   × ∶	+	second water level = 4.3' bgs taken 5/18/06 at 18:05
-	5 ft	96	0		× :	<b>4</b>	- 2go takon 0, 10,00 at 10.00
	96%		_		× :	1	
					x :	X	
			I				
			_		_		

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PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-9	SHEET 5 OF 5

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688154.6 N, 2012066.0 E)

ELEVATION: 253.3 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD: BK-51, NQ Double Barrel

WATER I EVELS: 5.2 ft bos

START: 5/15/06 12:40

END: 5/17/06 11:22

LOGGER: DT

WATER	LEVELS: 5	2 ft b	gs	START : 5/15/06 12:40 END : 5/17/06 11:22		LOGGER : DT	
	(9			DISCONTINUITIES	g	LITHOLOGY	COMMENTS
gz £	CORE RUN, LENGTH, AND RECOVERY (%)		ES	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	TH, VER	Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	٦ ا	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS	FLUID LOSS, CORING RATE AND
EV/ JRF	ORE	οď	RAC ER F	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	YMB	AND ROCK MASS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
	225	2	_	THICKNESS, SURFACE STAINING, AND TIGHTNESS		CHARACTERISTICS	, , , , , , , , ,
_			0	-	× > × > × > × > × >	}	R-Scale not performed on
_				-		<b>f</b>	rock core samples -
_	69.5		0	•	× >	<b>f</b>	
_	09.5		$\times\!\!\times\!\!\times$		<del> </del>	Bottom of Boring at 69.5 ft bgs on 5/17/06 11:22	-
70 <u> </u>				_	1	— 5/17/06 11:22	
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PROJECT NUMBER: BORING NUMBER: **BGA-10** 338884 SHEET 1 OF 4

# **SOIL BORING LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (688222.3 N, 2012329.5 E)

ELEVATION: 246.2 ft MSL (NGVD 29) DRILLING CONTRACTOR : A. Martin, S&ME

DRILLIN	G EQUII	PMENT /	AND MET	THOD : BK-51, Tr	icone Bit, 24" Split Spoon, 140 lb. Hammer and Cathead		ORIENTATION : Vertical
WATER	LEVELS	S: 13.8 ft	bgs		START : 5/17/06 14:05 END : 5/18	8/06 1	1:13 LOGGER : DT
DEPTH B	ELOW EX	KISTING G	SRADE (ft)	STANDARD	SOIL DESCRIPTION	ڻ ان	COMMENTS
	INTERV	AL (ft)		PENETRATION TEST RESULTS	OO! NAME LIGOS OPOLID OVAROU. OOLOD	SYMBOLIC LOG	DEDTIL OF CACING DRILLING DATE
		RECOV	ERY (in)		SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR	30 SO	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND
			#TYPE	6"-6"-6"	CONSISTENCY, SOIL STRUCTURE, MINERALOGY	, AME	INSTRUMENTATION
246.2	0.0			(N)	Fat Clay (CH)	σ ///	
-	0.0				o.0-0.5' - reddish brown, mottling, moist, medium stiff,		-
_		13.0	SS1SS	2-2-5-6	\high plasticity, organics \\ __\ Sandy Clay (CL)		-
_				(7)	\ 0.5-1.1' - olive yellow, moist, medium stiff, fine grained, \ \ -	1 1	-
-	2.0				medium plasticity	<b>∤  </b>	-
-	2.5				Sandy Clay (CL)		=
-					2.5-3.6' - brownish yellow and light greenish gray,		-
-		13.0	SS2SS		mottling, stiff, fine to medium grained		-
-				(12)	-	1 1	-
_	4.5				-	1 1	-
5 <u> </u>	5.0				Sandy Clay (CL)		$\dashv$
	0.0				5.0-6.3' - brownish yellow and light greenish gray,	W	-
-		16.0	SS3SS		mottling, stiff, fine to medium grained	<b>////</b>	-
-				(13)	-	<b>*</b> //1	-
-	7.0				-		-
-	7.5				Sandy Clay (CL)		-
-	7.0				7.5-8.8' - brownish yellow and light greenish gray,		-
-		16.0	SS4SS	4-6-11-14	moist, very stiff, fine to coarse grained	<b>////</b>	-
_				(17)	<u> </u>	<i>Y///</i>	=
_	9.5				-	1 1	=
10 <u> </u>	10.0				Sandy Clay (CL)	///	_
230.2	10.0				¬ 10.0-10.5' - brownish vellow and light greenish gray.  ¬ ¬		=
_		9.0	SS5SS	7-50/3	moist, very stiff, fine to coarse grained	<b> </b>	=
_				(50/3")	Clay (CL) 10.5-10.8' - reddish brown and light greenish gray,	1 1	=
_	12.0				mottling, moist, hard, low plasticity, some fine sand,	<b>∤  </b>	=
-	12.5				micaceous Clay (CL)		-
-	12.5				12.5-13.5' - reddish brown and light greenish gray,	<b>V</b> ///	=
_		14.0	SS6SS	12-29-50/2	mottling, moist, hard, low plasticity, some fine sand		=
_				(79/8")	Silty Sand (SM) 13.5-13.7' - light greenish gray, moist, hard, fine		=
_	14.5				grained, micaceous	1 1	=
15 <u> </u>	15.0				Clay (CL)	///	_
231.2	15.0				Clay (CL) 15.0-16.1' - light greenish gray and brownish yellow, -	<b>V</b> ///	_
-		13.5	SS7SS	12-27-50/1.5	mottling, moist, black oxide zones, laminated		_
-				(77/7.5")	-		-
-	17.0				-	<b>↓</b>	4
_	17.5				Canada Clau (Cl.)		-
_	17.5				Sandy Clay (CL) 17.5-17.7' - dark brown, moist, fine grained, medium	<b> </b>	-
-		2.0	SS8SS	50/2	plasticity, trace sandstone fragments, micaceous	<b>↓</b>	_
-				(50/2")	_	<b>↓</b> │	_
_	19.5				-	4 J	-
20_						$\sqcup$	
			<u> </u>			ш	

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PROJECT NUMBER:	BORING NUMBER:				
338884	BGA-10	SHEET	2	OF	4

### **SOIL BORING LOG**

 PROJECT : PEC COLA, New Hill, NC
 LOCATION : (NAD 27) (688222.3 N, 2012329.5 E)

 ELEVATION : 246.2 ft MSL (NGVD 29)
 DRILLING CONTRACTOR : A. Martin, S&ME

DRILLING EQUIPMENT AND METHOD: BK-51, Tricone Bit, 24" Split Spoon, 140 lb. Hammer and Cathead ORIENTATION: Vertical

DRILLIN	DRILLING EQUIPMENT AND METHOD: BK-51, Tricone Bit, 24" Split Spoon, 140 lb. Hammer and Cathead ORIENTATION: Vertical								
WATER	LEVELS	S: 13.8 ft	bgs		START : 5/17/06 14:05 END : 5/18	3/06	11:13 LOGGER : DT		
			RADE (ft)	STANDARD	SOIL DESCRIPTION		COMMENTS		
	INTERV	AL (ft)		STANDARD PENETRATION TEST RESULTS		SYMBOLIC LOG			
		RECOV	ERY (in)	TEOT RECOETS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR	DEPTH OF CASING, DRILLING RATE,			
			#TYPE	6"-6"-6"	CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DRILLING FLUID LÓSS, TESTS, AND INSTRUMENTATION			
				(N)		λS			
226.2	20.0				Silt (MH) 20.0-21.5' - greenish gray, hard, fine grained, some fine	Ш			
		47.0	00000	10 10 50/5	sand and clay, slickensided, micaceous	Ш			
-		17.0	SS9SS	10-19-50/5 (69/11")	-	Ш	1		
-	22.0			(00, )		• •	1		
-	22.0				-	1	Soil sampling completed at 16:25 on 5/17/06		
-	22.5	1.0	SS10SS		∖ Sand (SP)				
-	22.6			50/1	\22.5-22.6' - reddish brown, micaceous / -	ł	-		
-				(50/1")	Begin Rock Coring at 22.6 ft bgs See the next sheet for the rock core log	•	-		
-					See the flext sheet for the rock core log	l	-		
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221.2					_		_		
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PROJECT NUMBER:

338884

BORING NUMBER:

BGA-10

SHEET 3 OF 4

#### **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688222.3 N, 2012329.5 E)

ELEVATION: 246.2 ft MSL (NGVD 29) DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD: BK-51, NQ Double Barrel ORIENTATION: Vertical WATER LEVELS: 13.8 ft bgs START: 5/17/06 14:05 END: 5/18/06 11:13 LOGGER: DT DISCONTINUITIES LITHOLOGY COMMENTS CORE RUN, LENGTH, AND RECOVERY (%) FRACTURES PER FOOT DESCRIPTION DEPTH AND ELEVATION BELOW SURFACE (ft) ROCK TYPE, COLOR. SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD <u>0</u> MINERALOGY, TEXTURE RQD(%) DEPTH, TYPE, ORIENTATION, ROUGHNESS, WEATHERING, HARDNESS, AND ROCK MASS PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS DROPS, TEST RESULTS, ETC. CHARACTERISTICS Sandstone Rock coring began at 08:52 1 At 22.6' - reddish brown, soft, fine on 5/18/06 R1NQ 23.2' - Fracture, 10 deg, rough, undulating, sand, slightly weathered, micaceous, 1.9 ft 90 R1: 08:52-09:07 on 5/18/06 loose quartz 100% 1 24.5 24.3' - Fracture, horizontal, rough, stepped, 24.5-24.9' - grayish green, some silt, R2: 09:15-09:28 and 25 0 fine sand, micaceous 09:30-09:42 221.2 Siltstone 24.9-25.7' - dark reddish brown, soft, 25.7' - Fracture, 10 deg, slickensided, 1 slightly weathered, fine grained, some undulating sand, micaceous Sandstone 0 At 25.7' - dark bluish gray, fine sand, slightly weathered, some silt, micaceous 0 27.8-34.0' - soft, fine sand to medium sand, subrounded, feldspars, micaceous, quartz 0 27.8-27.9' - reddish brown siltstone R2NQ clasts 10 ft 100 100% 30 0 216.2 0 0 0 1 34.0' - Fracture, 10 deg, rough, undulating, Siltstone 34.5 At 34.0' - dark reddish brown, soft, fine loose R3: 09:48-10:22 and 35 grained, some fine sand, micaceous 0 10:23-10:42  $211.\overline{2}$ 34.0-40.0' - slightly weathered 0 36.0-36.5' - mottled greenish gray 0 0 0 R3NQ 10 ft 95 40 0 206.2 40.0-53.5' - fresh 40.2-42.5' - mottled green and red 0 0



PROJECT NUMBER:	BORING NUMBER:			
338884	BGA-10	SHEET	4 OF	4

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688222.3 N, 2012329.5 E)

ELEVATION: 246.2 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD: BK-51, NQ Double Barrel ORIENTATION: Vertical WATER LEVELS: 13.8 ft bgs START: 5/17/06 14:05 END: 5/18/06 11:13 LOGGER: DT DISCONTINUITIES LITHOLOGY COMMENTS CORE RUN, LENGTH, AND RECOVERY (%) DEPTH AND ELEVATION BELOW SURFACE (#) FRACTURES PER FOOT DESCRIPTION ROCK TYPE, COLOR. SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD SYMBOLIC MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS RQD(%) DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS DROPS, TEST RESULTS, ETC. CHARACTERISTICS 0 0 44.5 44.5-45.8' - some fine to medium R4: 10:54-11:14 and 45 0 grained sand 11:17-11:35 201.2 0 SC-1 collected 45.0-46.1' 0 0 0 R4NQ 10 ft 96 50 99% 0 196.2 0 First water level = 13.8' bgs taken 5/18/06 at 18:10; second water level = 2.5' 0 bgs taken 5/19/06 at 13:19 0 R-Scale not performed on rock core samples Sandstone 53.5' - Fracture, 10 deg, rough, undulating, 0 53.5-54.3' - greenish gray, soft, fine sand to medium sand, fresh, some silt, tight 54.2' - Fracture, 30 deg, rough, undulating, 54.5 micaceous, feldspar tight 55 Siltstone 54.3-54.5' - dark reddish brown, soft, 191.2 fresh, fine grained, some fine sand, micaceous Bottom of Boring at 54.5 ft bgs on 5/18/06 11:13 60 186.2



PROJECT NUMBER: BORING NUMBER: 338884 BGA-11

# **SOIL BORING LOG**

SHEET 1 OF 4

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687997.7 N, 2012441.8 E)

ELEVATION: 246.8 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

				THOD : CME-550	0, 2-15/16 Tricone Bit, 24" Split Spoon and 140 lb. Automatic Hammer ORIENTATION: Vertical
WATER LEVELS: 3.9 ft bgs  DEPTH BELOW EXISTING GRADE (ft) STANDARD					START: 8/8/06 13:45 END: 8/9/06 10:55 LOGGER: JS/AT
DEPTH B	ELOW EX	KISTING C	SRADE (ft)	STANDARD	SOIL DESCRIPTION O COMMENTS
	INTERV	AL (ft)		PENETRATION TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY  SOMMENTO  DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		RECOV	ERY (in)		SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR DRILLING FLUID LOSS, TESTS, AND
			#TYPE	6"-6"-6"-6"	CONSISTENCY, SOIL STRUCTURE, MINERALOGY
				(N)	
246.8 - - -	2.0	4.0	SS1SS	8-8-8-5 (16)	Top Soil 0.0-0.1' - dry Sandy Silt (ML) 0.1-0.3' - reddish brown, dry to moist, very stiff, very fine to medium grained, low plasticity, rapid dilatancy, micaceous
-	2.5				Sandy Clay & Fat Clay With Sand (CH)
-	4.5	14.0	SS2SS	6-9-12-34 (21)	2.5-2.7' - yellowish brown, white mottling, moist, medium to high plasticity, 10-30% sand, fill  Clay (CL) 2.7-3.7' - reddish brown to yellowish red, trace greenish white mottling, moist, very stiff, very fine grained, low to medium plasticity, rapid dilatancy
5 241.8	5.0				Lean Clay (CL)
_		10.0	SS3SS	15-36-50/4 (86/10")	5.0-5.8' - weak red to reddish brown, white mottling and black staining, moist, hard, medium plasticity, slow to rapid dilatancy
_	7.0			` '	Soil sampling completed at 15:40 on 8/8/06
_	7.5	2.0	SS4SS,		Clay (CL)
- - -	7.7	2.0	00 100	50/2 (50/2")	7.5-7.7' - reddish brown to yellowish red, white mottling, dry to moist, very hard, low plasticity, rapid dilatancy, 10-15% very fine sand  Begin Rock Coring at 7.7 ft bgs See the next sheet for the rock core log
10 <u> </u>					
230.6					-
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15					]
231.8					-
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PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-11	SHEET 2 OF 4

ORIENTATION : Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687997.7 N, 2012441.8 E)

ELEVATION: 246.8 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	LEVELS : 3.	9 <u>ft</u> bo	<u> 18_</u>	START : 8/8/06 13:	1 <u>5</u> _	END: 8/9/06 10:55	LOGGER : JS/AT
				DISCONTINUITIES		LITHOLOGY	COMMENTS
QZ €	CORE RUN, LENGTH, AND RECOVERY (%)		ES	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	E RUI	(%) _Q	CTURES R FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	30LIG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND
E PT	SORE	R Q	FRAC PER F	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	YME	AND ROCK MASS CHARACTERISTICS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
п п п о	7.7	IĽ.	шп			Siltstone	Rock coring began at 15:42
-	R1NQ		0		$\times \times $	7.7-9.8' - dark reddish brown,	on 8/8/06
-	1.8 ft 92%	83			$\times$ $\times$	<ul> <li>reddish-black and trace greenish-gray mottling, soft to hard, moderately</li> </ul>	R1: 15:42-15:56 At 8.4': R-Scale = R2
-	9.5		0		× × × ×	weathered, 35% very fine to fine sand	7 tt O.4. Tt Oodio Tt2
10	0.0			9.6' - Fracture, horizontal, smooth, planar	<u>  ^                                   </u>		R2: 16:01-16:13
236.8			3	_	<b> </b>  :::	<ul> <li>Sandstone         At 9.8' - light brownish gray, soft,     </li> </ul>	
-				10.4' - Fracture, horizontal, smooth, undulating 10.5' - Fracture, 10 deg, smooth, undulating	1:::	medium bedding, very fine sand to	1
_			1	10.5 - Fracture, 10 deg, smooth, undulating	1:::	<ul> <li>medium sand, multicolored sand</li> <li>9.8-10.8' - moderately weathered</li> </ul>	1
_	R2NQ					Clay Seam	At 11.5': R-Scale = R2
_	5 ft 97%	83	0		1:::	<ul> <li>10.5-10.8'</li> <li>10.8-15.6' - slightly weathered</li> </ul>	1
-					   	11.2-11.3' - dark reddish brown	1
_			0		1::::	<ul> <li>mottling</li> <li>11.5-15.6' - gray, soft to hard, very fine</li> </ul>	1
-					   	sand to coarse sand, 20-25% silt	1
-	14.5		1		::::	-	1
15	11.0			14.4' - Fracture, 15 deg, rough, undulating 14.5-14.8' - Fracture, 60 deg, rough,	- : : : :	_	R3: 16:51-17:03
231.8			2	undulating	<b> </b>  :::		
_				14.8' - Fracture, 5 deg, rough, undulating 15.6' - Fracture, 20 deg, rough, undulating	× ×	- Siltstone	1
_			2	15.7' - Fracture, 10 deg, smooth, undulating	× ×   × ×	15.6-22.0' - dark reddish brown, greenish gray mottling, soft	1
_	R3NQ		_		X X	15.6-15.7' - slightly weathered	At 16.6': R-Scale = R2
_	5 ft 98%	88	0	47.01.5 / 45.1 / 1.0	- × × × ×	15.7-22.0' - fresh	1
-				17.3' - Fracture, 15 deg, rough, undulating	× ×	_	1
_			0		××	_	Ī
-					× ×	_	Ī
_	19.5		1		× ×   × ×	_	1
20					x x		R4: 17:10-17:26
226.8			0	_	××		
-					$\times \times $	_	1
_			1	21.1' - Fracture, horizontal, smooth, planar	××	=	1
_	R4NQ				××	_	Ī
	5 ft 103%	97	0		1:::	Sandstone	1
_						<ul> <li>22.0-23.4' - dark gray, soft to hard, fresh, 60-70% very fine to fine sand</li> </ul>	At 22.5': R-Scale = R3
			0				
_					$\times$ $\times$	Siltstone 23.4-33.5' - dark reddish brown,	1
_	24.5		1		××	greenish gray mottling, soft to hard,	1
25			XXX	24.4' - Fracture, 20 deg, smooth, undulating 24.7' - Fracture, 15 deg, smooth, undulating _	× ×   × ×	fresh	R5: 07:54-08:13 on 8/9/06
221.8			1	24.8' - Fracture, 45 deg, rough, undulating,	× × × ×		
_				tight fit	$\times \times $	_	1
_			0		$\times$ $\times$	<del>-</del>	1
_	R5NQ				××	<del>-</del>	1
1 -	5 ft 95%	92	0		× × × ×	_	1
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							-

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PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-11	SHEET 3 OF 4

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687997.7 N, 2012441.8 E)

ELEVATION: 246.8 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

WATER LEVELS:			HOD : CME-550, NQ Double Barrel  START : 8/8/06 13:4	5	END : 8/9/06 10:55	LOGGER: JS/AT
	3.9 11 00	12	DISCONTINUITIES	П	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft) CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
29.5 30_216.8 - R6N - 51 101	Q t 100	0 0 0 1 0	31.2' - Fracture, 25 deg, smooth, undulating, white/greenish staining	× × × × × × × × × × × × × × × × × × ×	Sandstone 30.6-30.8' - light brownish gray, soft, very fine sand to medium sand, fresh, poorly laminated; multicolored sand Siltstone 30.8-31.3' - dark reddish brown, greenish gray mottling, soft to hard, fresh Sandstone	R6: 08:19-08:34  At 32.0': R-Scale = R3
34.5 35 211.8 - - - - - - - - - - - - - - - - - - -	78	0 0 2	36.6' - Fracture, 10 deg, rough, undulating 37.0' - Fracture, 15 deg, rough, undulating 37.8' - Fracture, horizontal, rough, undulating	× × × × × × × × × × × × × × × × × × ×	31.3-32.5' - light brownish gray, soft, very fine sand to medium sand, fresh, poorly laminated; multicolored sand  Siltstone  32.5-32.7' - dark reddish brown, greenish gray mottling, soft to hard, fresh  Sandstone  32.7-33.0' - light brownish gray, soft, very fine sand to medium sand, fresh, poorly laminated; multicolored sand  Siltstone  33.0-33.3' - dark reddish brown,	R7: 08:41-09:03
39.5 40 206.8 - - - - - - - - - - - - 102	83	1 2 4	38.6' - Fracture, 5 deg, rough, undulating 38.8' - Fracture, 5 deg, rough, undulating 38.9' - Fracture, 5 deg, rough, undulating 39.1' - Fracture, 60 deg, rough, undulating 40.0' - Fracture, horizontal, rough, undulating 41.3' - Fracture, horizontal, rough, undulating 41.7' - Fracture, 10 deg, rough, undulating 41.9' - Fracture, 5 deg, rough, undulating 42.8' - Fracture, 20 deg, smooth, undulating 42.8' - Fracture, 45 deg, smooth and	× × ×	greenish gray mottling, soft to hard, fresh  Sandstone 33.3-34.0' - light brownish gray, soft, very fine sand to medium sand, fresh, poorly laminated; multicolored sand  Siltstone 33.5-34.5' - dark reddish brown, greenish gray mottling, soft to hard, fresh  Sandstone  At 34.5' - dark greenish gray, soft, very fine sand to coarse sand, slightly weathered to moderately weathered, coarsens with depth 39.5-42.8' - soft to hard, large green	R8: 09:21-09:43
44.5 45 201.8 		0 1 2	slickensided, greenish-gray staining 42.9' - Fracture, 5 deg, smooth, undulating 43.0' - Fracture, 5 deg, smooth, undulating 44.7' - Fracture, horizontal, smooth, undulating 45.6' - Fracture, 5 deg, smooth, undulating 46.5' - Fracture, 5 deg, smooth, undulating 46.6' - Fracture, 20 deg, smooth, planar, tight fit	× × × × × × × × × × × × × × × × × × ×	coarse sand to fine gravel  Siltstone  At 42.8' - dark reddish brown, green mottling, soft to hard  42.8-44.6' - slightly weathered to moderately weathered  44.5-49.5' - greenish-gray and black mottling  44.6-58.3' - fresh  Clay Seam  44.6' - <0.05' thick	At 44.0': R-Scale = R3 R9: 09:51-10:04

2BB-390 Rev. 1



PROJECT NUMBER:	BORING NUMBER:					
338884	BGA-11	SHEET	4	OF	4	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687997.7 N, 2012441.8 E)

ELEVATION: 246.8 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION: Vertical WATER LEVELS: 3.9 ft bgs START: 8/8/06 13:45 END: 8/9/06 10:55 LOGGER: JS/AT DISCONTINUITIES LITHOLOGY COMMENTS CORE RUN, LENGTH, AND RECOVERY (%) DEPTH AND ELEVATION BELOW SURFACE (#) FRACTURES PER FOOT DESCRIPTION ROCK TYPE, COLOR. SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD SYMBOLIC MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS RQD(%) DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS DROPS, TEST RESULTS, ETC. CHARACTERISTICS 0 At 48.5': R-Scale = R3.5 0 49.5 R10: 10:17-10:32 50 0 196.8 At 50.5': R-Scale = R3 R10NQ 5 ft 96% 96 1 52.0-54.5' - very fine to fine sand At 54.0': R-Scale = R3-R4 0 53.0-54.0' - light reddish brown, mottled dark reddish brown and green, thin black lines inside center of green 0 mottling R11: 10:42-10:55 54.5 54.5-58.3' - dark reddish-black to red SC-1 collected clasts < 0.0002-0.0007' 54.7-55.7' 191.8 1 First water level = 3.9' bgs taken 8/10/06 at 11:43 R11NQ At 56.1': R-Scale = R3 5 ft 76 1 98% 0 R-Scale performed during Sandstone rock core logging 58.3-58.7' - fresh, multicolored very 6 fine to fine sand; silt beds between 59.5 sand layers 60 Siltstone 186.8 58.7-59.5' - dark reddish brown, greenish-gray mottling, soft to hard, Bottom of Boring at 59.5 ft bgs on 8/9/06 10:55 65 181.8



PROJECT NUMBER:

338884

BORING NUMBER:

BGA-12

SHEET 1 OF 5

# **SOIL BORING LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687173.0 N, 2012923.7 E)

ELEVATION: 260.9 ft MSL (NGVD 29) DRILLING CONTRACTOR: A. Martin, S&ME

DRILLING EQUIPMENT AND METHOD: BK-51, Tricone Bit, 24 Split Spoon, 140 lb. Automatic Hammer ORIENTATION: Vertical

				HOD : BK-51, II	icone Bit, 24 Split Spoon, 140 lb. Automatic Hammer		ORIENTATION : Vertical			
WATER					START : 4/17/06 09:50 END : 4/1	18/06	i e			
DEPTH B	ELOW EX		RADE (ft)	STANDARD	SOIL DESCRIPTION	٦	COMMENTS			
	INTERV	AL (ft)		PENETRATION TEST RESULTS		SOIL NAME USCS GROUP SYMBOL COLOR				
		RECOV	ERY (in)		SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND				
			#TYPE	6"-6"-6" (N)	CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	INSTRUMENTATION			
260.9	0.0				Clay (CL)					
-					0.0-2.0' - reddish brown, moist, stiff, fine grained, low plasticity, some mica, black oxide nodules	1///	-			
-		24.0	SS1SS	2-4-8-9	plasticity, some mica, black oxide nodules	1///	-			
-				(12)		<b>-</b>	<del>-</del>			
-	2.0						-			
_	2.5				Clay (CL)	1///	-			
_	2.0				2.5-4.5' - reddish brown, moist, very stiff, low to medium	-1///	-			
_		23.0	SS2SS	6-9-14-12	plasticity, trace organic debris, gray bands	1///	_			
		20.0	00200	(23)			_			
	4.5									
5						1	]			
255.9	5.0				Clay (CL)		_			
					5.0-7.0' - reddish brown, moist, hard, fine grained, low to medium plasticity, some mica, trace fine to medium	1///	⁻			
-		23.0	SS3SS		sand, black and gray oxide nodules	1///	-			
-				(32)		<b>-</b>	<del>-</del>			
-	7.0					<b>-</b>  ///	-			
-	7.5				Clay (CL)	1///	-			
_	7.0				7.5-9.4' - reddish brown, moist, hard, fine grained, low	-1///	-			
_		18.0	SS4SS	20-22-33-39	to medium plasticity, some mica, trace fine to medium	1///	_			
				(55)	sand, black and gray oxide nodules		_			
	9.5					_///				
10						1				
250.9	10.0				Clay (CL)					
_					10.0-11.0' - reddish brown, moist, hard, fine grained, some mica, trace fine sand, black oxide nodules	<b>V</b> //	_			
-		10.0	SS5SS	48-52/4	Some mica, trace line sana, black oxide noddles	<b>T</b> //	<del>1</del>			
-	40.0			(52/4")		1	-			
-	12.0					1	Soil sampling completed at 11:37 on 4/17/06			
-	12.5	2.5	SS6SS,		☐ Clay (CL)	1//				
-	12.7		1	50/2.5	12.5-12.7 - reddish brown, hard, fine grained, mica,	-	-			
_				(50/2.5")	trace of fine sand	4	-			
_					Begin Rock Coring at 12.8 ft bgs See the next sheet for the rock core log	4	-			
_					dec the flext sheet for the rook core log	1	_			
15					_		_			
245.9					_					
						1	<u> </u>			
						1	·			
-						1	·			
-						1	-			
-						+	-			
-						4	-			
_						4	-			
_						1				
						1				
20						$\perp$				



PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-12	SHEET 2 OF 5

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687173.0 N, 2012923.7 E)

ELEVATION: 260.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

				HOD : BK-51, NQ Double Barrel				I ION : Vertical
WATER	LEVELS : 8.	0 ft bo	ļS .	START : 4/17/06 09 DISCONTINUITIES	:50	END : 4/18/06 16:30 LITHOLOGY	LOGGER	<u>: DT</u> OMMENTS
	(%) □		<i>(</i> 0		90.			OIVIIVIEIN I 3
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS SMOOTHI	DEPTH OF CASING, S, CORING RATE AND NESS, CAVING ROD EST RESULTS, ETC.
-	12.8		NA			Silt (ML) 12.8-14.0' - reddish brown, mottled gray, highly weathered, hard	Rock coring on 4/17/06 R1: 13:15-	g began at 13:15 -
15			1	14.2' - Fracture, smooth, undulating	× × ×	Siltstone At 14.0' - reddish brown, soft to ha fresh, fine grained		mark: Coring lated water -
245.9 - -			0		×××××××××××××××××××××××××××××××××××××××	-	R2: 13:36-	- 14·00
_	R1/R2N0 8.2 ft 99%		1	16.5' - Fracture, rough, undulating	×××××××××××××××××××××××××××××××××××××××	-	N2. 13.30-	- - -
-			0		× × × ×	-		- -
_			1	18.6' - Fracture, undulating	× × × ×			-
20 240.9			0	<u>-</u>	× × × ×			
-	21.0		4	21.2' - Fracture, smooth, undulating 21.3' - Fracture, smooth, stepped	×××××××××××××××××××××××××××××××××××××××	21.0-30.0' - occasional greenish g mottling	ray R3: 08:05-0	08:36 on 4/18/06
-			0	21.3' - Fracture, smooth, undulating 31.2' - Fracture, smooth, undulating	×××××××××××××××××××××××××××××××××××××××	}- -		- -
-			0		×××××××××××××××××××××××××××××××××××××××	} -		-
25			0		×××××××××××××××××××××××××××××××××××××××			
235.9	R3/R4N0 10 ft		0		× × × ×	_	R4: 08:36-(	
-	100%		0		×××××××××××××××××××××××××××××××××××××××	- 26.8-27.3' - bioturbation channels		
_			0		××××	filled with finer grained more unifo material that gives the appearance pebbles in core		
-			0		× × × ×	}		
30_ 230.9			10+	29.7' - Fracture, smooth, undulating	×			- 
-	31.0		2	31.0' - Fracture zone, stepped, undulating 31.1' - Fracture, 80 deg, rough, undulating	× × × ×	30.2-30.6' - reddish brown to gray red, fine sand to medium sand, po sorted, fresh, quartz, feldspar, mic	orly / P5: 00:12.0	09:31
			0	31.3' - Fracture, horizontal, rough, undulating	× × ×	grains, partly silty.  Siltstone At 30.6' - reddish brown, soft to ha	urd	
					-			

2BB-393 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BGA-12

SHEET 3 OF 5

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687173.0 N, 2012923.7 E)

ELEVATION: 260.9 ft MSL (NGVD 29) DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

				THOD : BK-51, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS : 8.	0 ft bo	ıs	START : 4/17/06 09	:50	END : 4/18/06 16:30	LOGGER : DT
	(%) ص			DISCONTINUITIES	90	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
35 225.9	R5/R6N0 10 ft 1 99%		0 0 0	_	× × × × × × × × × × × × × × × × × × ×	30.6-47.1' - fresh     33.0-47.0' - reddish brown, mottled     greenish gray, siltstone and sandstone     interbedding with gradational contacts	R6: 09:32-09:53
- - - -			0	36.8' - Fracture, horizontal, rough, undulating 36.9' - Fracture, horizontal, rough, undulating 37.0' - Fracture, horizontal, rough, undulating 37.6' - Fracture, horizontal, rough, undulating	× × × × × × × × × × × × × × × × × × ×	- - -	
40_ 220.9	41.0		0	_	× × × × × × × × × × × × × × × × × × ×	- - 	_
-			0 1		× × × × × × × × × × × × × × × × × × ×	41.0-47.0' - occasional (<3%) clasts of greenish gray fine silty sandstone decreases with depth	R7: 10:08-10:35
45_ 215.9	R7/R8N0 7.5 ft 101%		1 1 0	43.5-43.7' - Fracture, 55 deg, rough, undulating  44.8' - Fracture, 60 deg, rough, undulating, undulating, rough	× × × × × × × × × × × × × × × × × × ×	- - -	_
-			0	47.1' - Fracture, rough, undulating, slickensides	× × × × × × × × × ×	- - 47.0-48.5' - reddish brown to grayish - red, soft, less indurate than above,	R8: 10:40-11:18
-	48.5		1	47.2' - Fracture, rough, undulating, slickensides 47.3' - Fracture, rough, undulating, slickensides 47.7' - Fracture, rough, undulating, slickensides	-	soil-like 47.1-48.6' - moderately weathered 48.5-72.0' - reddish brown to grayish red, mottled greenish gray, soft to hard, more indurated than above, mottles along fractures, dark red clasts	R9: 11:20-11:33 and 11:35- 11:58
50	R9NQ 7.5 ft	85	0 0	48.0' - Fracture, rough, undulating, slickensides 48.5' - Fracture, horizontal, smooth, undulating	× × × × × × × × × × × × × × × × × × ×	- Holles along fractures, dark red clasts - 48.6-81.0' - fresh	R10: 13:05-13:30
_	87%				- × × × ×		

2BB-394 Rev. 1



PROJECT NUMBER:	BORING NUMBER:					
338884	BGA-12	SHEET	4	OF	5	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687173.0 N, 2012923.7 E)

ELEVATION: 260.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

				THOD . BR-31, NQ Double Bailei		END 4/40/00 40 00	UNIENTATION . Vertical
WATER	LEVELS : 8.	0 ft bg	S	START : 4/17/06 09 DISCONTINUITIES	1:50	END : 4/18/06 16:30 LITHOLOGY	LOGGER : DT COMMENTS
_	(%) _				90		COIVIIVIEIVIO
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
_			0		- × >	-	-
55_ 205.9	56.0		0	- 55.8' - Fracture, rough, undulating	- x x x x x x x x x x x x x x x x x x x	55.0-56.0' - reddish brown to grayish red, soft, coarse sand sized feldspar grains (<1%)	- - - - -
_			2	56.0-81.0' - Microfractures, capillary pattern 56.6' - Fractures (2), rough, undulating	- × × × × × × × × × × × × × × × × × × ×	-	-
_			0		- × > > > > > > > > > > > > > > > > > >		- - -
60			0		- × × × × × × × × × × × × × × × × × × ×		-
200.9	R10/R11N 10 ft 100%		1 1 0	60.7' - Fracture, rough, stepped 60.8' - Fracture, rough, stepped 61.2' - Fracture, horizontal, rough, undulating 61.3' - Fracture, horizontal, rough, undulating 61.48' - Fracture, horizontal, rough, undulating	- X X X X X X X X X X X X X X X X X X X	61.0-68.0' - brown, soft, fine grained, quartz and feldspar inclusions grains, green inclusions	R11: 13:35-14:05
- - - 65			0	63.2' - Fracture, horizontal, rough, undulating	- × × × × × × × × × × × × × × × × × × ×	_ _ _	- - -
195.9	66.0		0	-	- × × × × × × × × × × × × × × × × × × ×	-	-
-			0		- × × × × × × × × × × × × × × × × × × ×	_	R12: 14:15-15:00 -
_			1	67.3' - Fracture, horizontal, smooth, undulating, loose fit 67.6' - Fracture, horizontal, smooth,	- × × × × × × × × × × × × × × × × × × ×	-	-
_			1	undulating, loose fit 68.5' - Fracture, horizontal, smooth, undulating, loose fit 68.6' - Fracture, horizontal, smooth,	-   × > -   × > -   × >		-
70 190.9	R12/R13N		1	undulating, loose fit 69.3' - Fracture, rough, undulating, tight fit 70.5' - Fracture, rough, undulating, loose fit	- × × × × × × × × × × × × × × × × × × ×	-	_
- -	10 ft 99%	95.3	0	70.9' - Fracture, rough, undulating, loose fit	- × × × × × × × × × × × × × × × × × × ×	72.0-75.0' - reddish brown to grayish	R13: 15:10-15:45
_			0		- × >	red, soft to hard	-

2BB-395 Rev. 1



PROJECT NUMBER:	BORING NUMBER:				
338884	BGA-12	SHEET	5 OF	5	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687173.0 N, 2012923.7 E)

ELEVATION: 260.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: A. Martin, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

DISCONTINUITIES  UNDESCRIPTION  DESCRIPTION  DESCRIPTION  DESCRIPTION  DESCRIPTION  DESCRIPTION  DESCRIPTION  ROCK TYPE, COLOR, MINERALOGY, TEXTURE, FILL MANAGEMENT AND DESCRIPTION WEATHERING, HARDNESS, SI DESCRIPTION OF THE PROPERTY OF T	LOGGER : DT  COMMENTS  SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND	
	FLUID LOSS, CORING RATE AND	
	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.	
75 185.9  76.0  0  1	- - - - - 14: 15:56-16:30	
R14NQ	irst water level = 8.0' bgs ken 4/20/06 at 11:30 -  -Scale not performed on ock core samples -	
85_ 175.9	- - - - - - -	
90_170.9	- - - - - - - -	

2BB-396 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BGA-13

SHEET 1 OF 5

# **SOIL BORING LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686459.9 N, 2011681.2 E)

ELEVATION: 260.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

DRILLING EQUIPMENT AND METHOD: CME-550, Tricone Bit, 24 Split Spoon, 140 lb. Automatic Hammer ORIENTATION: Vertical

				THOD : CME-550	, Tricone Bit, 24 Split Spoon, 140 lb. Automatic Ham				ORIENTATION : Vertical
WATER LEVELS : 6.2 ft bgs				ı	START : 7/26/06 16:00	END :	7/27/	<u> </u>	
DEVICEDATI			KADE (ft)	STANDARD PENETRATION	SOIL DESCRIPTION		$\dashv$	ဗ္ဗ	COMMENTS
	INTERVAL (ft)			TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,			IC L	DEPTH OF CASING, DRILLING RATE,
	RECOVERY (in)			MOISTURE CONTENT, RELATIVE DENSITY OR			BOL	DRILLING FLUID LOSS, TESTS, AND	
			#TYPE	6"-6"-6" (N)	CONSISTENCY, SOIL STRUCTURE, MINER,	ALOGY		SYMBOLIC LOG	INSTRUMENTATION
260.6	0.0			()	─ Gravel, Sand, And Clay (NA)		7 9	 (//	
-					$\sqrt{0.0-0.2'}$ - wet, loose, fill		/ <del> </del>		-
-		20.4	SS1SS		\(\begin{aligned} \begin{aligned} align	nist stiff	11		-
-				(10)	∟ Clay (CL)		' ±		-
-	2.0				\ 0.6-1.7' - pale olive, olive gray, olive yellow, mo \black, moist, stiff	ottled	/-		-
-	2.5				Clay (CL)			///	-
-					2.5-3.8' - pale olive, olive gray, olive yellow, mo	ottled	1		-
-		16.6	SS2SS		black, moist, very stiff		1		-
-				(22)			$\exists$		-
	4.5						+		-
5 <u> </u>	5.0				Clay (CL)		$\dashv$	//	
					$\vdash_{\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!$	ttled	/ <del>{</del>		-
-		5.0	SS3SS		\greenish gray, moist, hard, laminated at bottom	1	/ ┨		-
-				(50/5")			+		-
-	7.0						-		-
-	7.5	2.4	SS4SS,		່ Clay (CL)			///	-
-	7.7		100.00	50/2.5	\ 7.5-7.7' - reddish brown and strong brown, mot	ttled	/-		Soil sampling completed at 16:25 on 7/26/06
-	8.7			(50/2.5")	greenish gray, moist, hard, laminated at bottom	1			- Soil sampling completed at 10.25 on 7/25/00
-					Begin Rock Coring at 8.7 ft bgs See the next sheet for the rock core log				-
					See the flext sheet for the fock core log		4		-
10 <u> </u>							$\dashv$		
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20							$\dashv$		
		<u> </u>							



PROJECT NUMBER:

338884

BORING NUMBER:

BGA-13

SHEET 2 OF 5

# **ROCK CORE LOG**

ORIENTATION : Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686459.9 N, 2011681.2 E)

ELEVATION: 260.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

COMING	LQUIFIVILI	II AN	DIVIL	THOD : CIME-550, NQ Double Barrel			ORIENTATION: Vertical
WATER	LEVELS : 6.	2 ft bo	ļs	START : 7/26/06 16	:00	END : 7/27/06 12:20	LOGGER : AT/LH/EM
	<u> </u>			DISCONTINUITIES	ŏ	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)		FRACTURES PER FOOT	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
¥E > B	5 F.R	(%) Q	7.00	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	<b>1</b> 5	MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND
FY	8,00 1,00 1,00 1,00 1,00 1,00 1,00 1,00	αD	AC R F	PLANARITY, INFILLING MATERIAL AND	MB	AND ROCK MASS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
屈픽핆의	8μ٣	R ₀	KH.	THICKNESS, SURFACE STAINING, AND TIGHTNESS	S	CHARACTERISTICS	DROFS, TEST RESULTS, ETC.
_	8.7 R1NQ	NA	1	8.8' - Fracture, horizontal, rough, planar	× >	Siltstone	Rock coring began at 16:56
I _	9.2 0.5 ft 90%		~~~	9.0' - Fracture, horizontal, rough, planar	× >	At 8.7' - dark reddish brown, mottled pale olive, very soft, laminated	on 7/26/06 R1: 16:56-17:04
10	[ [,,,,]		1	9.5' - Fracture, 10 deg, smooth, undulating,	××	bedding, clay-like material	R2: 17:09-17:16
250.6				0.005' relief — 10.0' - Fracture, 5 deg, smooth, undulating,	]× >	8.7-14.2' - highly weathered	At 10.0': R-Scale = R1
_			1	dark brown clay like, tight fit	$\times$ >	9.7-10.7' - dark reddish brown, soft	At 10.1': PP: 3.5+ tsf
-				10.7' - Fracture, horizontal, smooth,	× >	_ 10.7-11.6' - reddish brown, very soft, clay-like material	At 10.8': R-Scale = R2 -
-	R2NQ 5 ft	0	1	undulating, light gray greenish, concaved shaped, 0.01'relief	× >	<b>]</b> - '	At 10.9': PP: 4.5+ tsf At 11.3': PP: 3.25+ tsf
-	105%	0	'	11.4' - Fracture, horizontal, smooth, undulating	× >	11.6-14.2' - dark reddish brown, mottled pale olive, soft	At 11.6': PP: 2.25+ tsf -
I _				12.3' - Fracture, horizontal, smooth,	× >	_ 11.6-14.2' - soft, dark multicolored	At 12.0': R-Scale = R1
I _			5	undulating, tight fit	××	clasts	
				12.6' - Fracture, 15 deg, smooth, undulating, dark brown stains, 0.01' relief	$\times$ >		
-			3	12.9' - Fracture, 5 deg, smooth, undulating,	× > × > × >	<u>f</u>	<u> </u>
-	14.2			0.005' relief	$\times$ >	- 4404001	_
l			4	13.0' - Fracture, 10 deg, smooth, undulating 13.2' - Fracture, 20 deg, smooth, undulating,	× >	14.2-19.0' - moderately weathered	-
15 <u> </u>				tight fit	× >	<del>-</del>	
				13.4' - Fracture, 5 deg, smooth, undulating,	× > × > × >	1	_
I _			2	dark brown stains, 0.01' relief 13.6' - Fracture, 10 deg, smooth, undulating	_ × >	15.6-16.7' - dark reddish brown to pale	R3: 17:20-17:27
	R3NQ			14.1' - Fracture, 15 deg, smooth, undulating	× >	yellow, soft	
	5 ft	86	2	dark brown stains, 0.01' relief	××	5	
-	95%			14.2' - Fracture, 15 deg, smooth, undulating,	××	<u>f</u>	-
-			1	dark brown stains, 0.01' relief 14.3' - Fracture, 5 deg, smooth, undulating,	× >	}	At 17.3': R-Scale = R1-R2 -
-			·	dark brown stains, 0.01' relief, 0.01' relief	(× )	-	-
-				15.2' - Fracture, horizontal, smooth,	$\times$ >	-	At 40 Fly D. Cools - D4 D2
_	19.2		1 >>>>	undulating, dark brown stains, 0.01' relief 15.3' - Fracture, 5 deg, smooth, undulating,	× >		At 18.5': R-Scale = R1-R2
_	13.2		$\sim$	dark brown stains, 0.01' relief, 0.3' relief	× >	19.0-24.2' - moderately weathered to slightly weathered	R4: 10:15-10:33 on 7/27/06
20			2	15.6' - Fracture, horizontal, smooth,	× >	19.2-19.6' - 30% fine sand	
240.6				undulating, 0.005' relief, tight fit — 16.5' - Fracture, horizontal, smooth,	× >		
-			1	undulating, dark brown stains, 0.01' relief	× >	<b>f</b>	_
-				16.7' - Fracture, horizontal, smooth,	× >	+	At 20.8': R-Scale = R1-R2 -
-	R4NQ			undulating, dark brown stains, 0.01' relief, tight fit	$\times$ >	1	-
l -	5 ft 106%	58	1	18.2' - Fracture, 5 deg, smooth, undulating,	× > × > × >	1	
_	, •			dark brown stains, 0.01' relief, tight fit	$\times$ >	1	At 22.0': R-Scale = R1-R2
			1	19.2-19.4' - Fractures (2), 5 deg, smooth, undulating	×	1	
				19.7' - Fracture, horizontal, smooth,	× >	1	
-			3	undulating, 0.01 relief	× >	23.6-23.9' - pale olive, very soft	1
1 -	24.2			20.3' - Fracture, horizontal, smooth, undulating, 0.005 relief	× > × > × >	<b>T</b>	
-			10+	21.5' - Fracture, 50 deg, rough, undulating,	× >	24.2-25.1' - dark reddish brown, very soft, interbedded clay layers	R5: No time recorded _
25 <u> </u>			101	0.01 relief	× >	24.2-29.0' - slightly weathered	
233.0				22.6' - Fracture, horizontal, rough, undulating, 0.01 relief	$\times$ >	25.1-29.2' - light brown, soft to hard,	_
			4	24.3' - Fracture, horizontal, rough, undulating	]× >	poorly sorted, 40% very fine to fine sand	At 25.8': R-Scale = R1-R2
	R5NQ			24.6' - Fracture, horizontal, smooth, undulating	× >	Sailu	
	5 ft	84	4	24.8' - Fracture, horizontal, smooth, undulating 24.9' - Fracture, horizontal, smooth, undulating	× >	7	At 26.4': R-Scale = R1-R2
-	106%			24.9 - Fracture, nonzontal, smooth, undulating 25.1' - Fracture, horizontal, smooth, undulating	× >	<b>†</b>	A1 07 01 D 0
-			3	25.1' - Fracture, horizontal, smooth, undulating	× >	<del>}</del>	At 27.2': R-Scale = R2 _
-				26.9' - Fracture, horizontal, smooth, undulating	× >	<del>}</del>	-
-					× ×	1	-
					Ť		
					1		

2BB-398 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BGA-13 SHEET 3 OF 5

# **ROCK CORE LOG**

ORIENTATION : Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686459.9 N, 2011681.2 E)

ELEVATION: 260.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

OOM	DEGOII WILL	1 / (14		HOD : CME-550, NQ Double Barrel			ORIENTATION: Vertical
WATER	LEVELS: 6.	2 ft bo	ıs	START : 7/26/06 16	:00	END : 7/27/06 12:20	LOGGER : AT/LH/EM
	. (%			DISCONTINUITIES	ق	LITHOLOGY	COMMENTS
Qz €	CORE RUN, LENGTH, AND RECOVERY (%)		ES	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	CIZE AND DEDTIL OF CACING
DEPTH AND ELEVATION BELOW SURFACE (ft)	RUN H, 4 ÆR	(%) 🛭	ACTURES R FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	<b>1</b>	MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
EVA LOV	NG1	OΩ	AC R F	PLANARITY, INFILLING MATERIAL AND	MB	AND ROCK MASS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
屈핖핆의	822	ď	FRA( PER	THICKNESS, SURFACE STAINING, AND TIGHTNESS	S	CHARACTERISTICS	DNOI 3, TEST NESOETS, ETC.
_	29.2		2		× >	00 0 00 01	At 28.5': R-Scale = R2 _
			$\boxtimes\!\!\boxtimes$	29.3' - Fracture, horizontal, smooth, undulating	× >	29.0-39.0' - moderately weathered 29.2-34.2' - soft to hard, 40% very fine	R6: No time recorded
30			4	29.4' - Fracture, horizontal, smooth, undulating	××	to fine sand	
230.6				29.5' - Fracture, horizontal, smooth, undulating 30.0' - Fracture, 5 deg, smooth, undulating,	××		
			1	0.01' relief	××		At 30.5': R-Scale = R3-R4
	R6NQ			31.1' - Fracture, 15 deg, smooth, undulating	\	<b>[</b>	1
_	5 ft	73	1	31.6' - Fracture, horizontal, smooth, undulating	× >	<i>[</i>	At 31.4': R-Scale = R3-R4
-	92%			3	× >	<u> </u>	At 32.0': R-Scale = R2-R3
_			0			-	At 32.5': R-Scale = R3
-					× >	32.7-34.2' - mottled green, soft	-
-			2	33.5' - Fracture, 5 deg, smooth, undulating	× >	}-	At 33.2': PP: 1.0 tsf At 33.4': PP: 1.0 tsf
-	34.2		$\bowtie$	55.5 - Fracture, 5 deg, smooth, undulating	× >	-	At 55.4 . FF. 1.0 tsi
_					× >	_ 34.2-34.8' - mottled green, soft, <10%	R7: No time recorded
35			3	34.9' - Fracture, horizontal, smooth, undulating	××	very fine to fine sand 35.0-35.5' - section was crushed in	At 34.4': R-Scale = R2
225.6				35.0' - Fracture, horizontal, smooth,	×××	removal from rod	
			10+	undulating, 0.005' relief	$\times$ >	35.5-36.2' - dark brown, very soft, clay rich layer, poorly bedded	
	R7NQ			35.6' - Fracture, horizontal, smooth, undulating 35.8' - Fracture, horizontal, smooth, undulating	× > × > × >	35.7' - clay layer	1
	5 ft	62	3	36.1' - Fracture, 5 deg, smooth, undulating,	××	36.2-39.2 - mottled pale olive and	1
_	106%			0.01' relief 36.4' - Fracture, 5 deg, smooth, undulating,	× >	reddish black, soft to hard, 25% gravel sized to coarse sand sized clasts	1
_			1	0.01' relief	× >	Sized to coarse saild sized diasts	- At 37.6': R-Scale = R3
-				37.0-37.5' - Fractures (2), 80 deg, smooth,		-	7 (67.6.1)
_			2	undulating, 0.01' relief 38.3' - Fracture, horizontal, smooth, undulating	× >	<b>9</b> -	1
-	39.2		_	38.6' - Fracture, horizontal, smooth, undulating		 39.0-54.2' - fresh	At 39.0': R-Scale = R2
-					- × ;	- 39.2-44.2' - large irregular shaped	R8: No time recorded –
40 <u> </u>			'	_	× >	white clasts from <1/4 to 1, harder than matrix	-
					× >		1
_			0		× >	_	1
	R8NQ				× >	1	
	5 ft	97	0		××		
	101%				××	<b>5</b>	1
			0		××	<b>f</b>	1
_					× >		At 42.9': R-Scale = R2
-			0 <b> </b>		× >	-	1
-	44.2				-XX	<del> </del>	At 43.8': R-Scale = R2 -
			0		× >	<b>-</b>	R9: No time recorded
45 <u> </u>			ਁ	_	× >	_	At 45.0': R-Scale = R3
213.0					× ;	}-	AL 40.0 . N-OLAIR - NO
-			0		Į××,	<u> </u>	]
1 _	R9NQ				ŢŸ Ś	1	At 46.2': R-Scale = R3-R4
	5 ft 104%	100	0		Jŷ Ś	1	
1	104 %				l× X	1	1
			1		]××	<b>5</b>	1
					٦×٠	<b>f</b>	1
<u> </u>					× >	<u> </u>	<del>                                     </del>
							1



PROJECT NUMBER:

338884

BORING NUMBER:

BGA-13 SHEET 4 OF 5

# **ROCK CORE LOG**

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686459.9 N, 2011681.2 E)

ELEVATION: 260.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	LEVELS : 6.	2 ft bo			END: 7/27/06 12:20	LOGGER : AT/LH/EM	
	_ (%			DISCONTINUITIES	g	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
50 210.6	49.2		2 ××× 1		× > > > > > > > > > > > > > > > > > > >	49.0-54.2' - gradational change in sand content from 25% at 52.5 to 50% at 53.8, than decreases to 30%.	R10: No time recorded
-	R10NQ 5 ft 100%	88	2	51.4' - Fracture zone, 70 deg and 45 deg, smooth, undulating 52.0' - Fracture zone, 25 deg, rough,	× > × > × > × > × >	- - - -	
-	54.2		2	undulating, tight fit 52.7' - Fracture, 60 deg, rough, undulating	- × > - × > - × > - × >	-	At 52.3': R-Scale = R3 -
55			2		× > > > > > > > > > > > > > > > > > > >	54.2-58.0' - gradational change in sand content to <10% 54.2-64.2' - moderately weathered	R11: No time recorded SC-1 collected 54.2-55.4'
- - -	R11NQ 5 ft 103%	80	0	57.1' - Fracture, horizontal, smooth, undulating, 0.03 inch clay infilling 57.4' - Fracture, 5 deg, smooth, undulating,	× > > > > > > > > > > > > > > > > > > >	- - -	At 56.0': R-Scale = R3-R4
-	59.2		2	0.03 inch clay infilling 57.5' - Fracture, 5 deg, smooth, undulating, 0.03 inch clay infilling 57.6' - Fracture, horizontal, smooth, undulating, 0.02 inch clay infilling	× > × > × > × > × >	58.7-58.8' - clay seam 59.2-64.2' - dark reddish brown, mottled black & greenish gray, trace	- R12: No time recorded _
60 200.6 - -	R12NQ		1	59.2-59.3' - Fracture zone, horizontal, smooth, undulating 59.5-60.1' - Fracture zone, horizontal, smooth, undulating, 0.02 inch clay infilling	× > > × > × > × > × > × > × > × > × > ×	fine sand	- - -
- - -	5 ft 98%	75	0		× > > > > > > > > > > > > > > > > > > >	- - -	- - -
- 65_ 195.6	64.2		1	64.4' - Fracture, vertical, rough, undulating	× > × > × > × > × >	- 64.2-69.2' - mottled black & greenish gray, very soft to soft, fresh	R13: No time recorded
- - -	R13NQ 5 ft 102%	94	0		× > > × > > × > × > × > × > × > × > × >	- - - - -	-
-			0		× > × > × > × >	X- - - X-	- - -

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PROJECT NUMBER:

338884

BORING NUMBER:

BGA-13 SHEET 5 OF 5

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686459.9 N, 2011681.2 E)

ELEVATION: 260.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

00	D EQUIT MEN	1 / 11 4	<u> </u>	THOD . CIVIE-330, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS: 6.	2 ft bo	js	START : 7/26/06 16	3:00	END : 7/27/06 12:20	LOGGER : AT/LH/EM
	(9)			DISCONTINUITIES	O	LITHOLOGY	COMMENTS
oz €			S	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	
Ne R	₹,#	(%) Q	R P		<b>1</b>	MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
E S S A	957 000	0	SF	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY. INFILLING MATERIAL AND	ABC	WEATHERING, HARDNESS, AND ROCK MASS	SMOOTHNESS, CAVING ROD
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	S O	FRACTURES PER FOOT	THICKNESS, SURFACE STAINING, AND TIGHTNESS	S	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
			0		× ×	<u> </u>	
	69.2		WW		- × ×	69.2-71.2' - dark reddish brown, very	R14: No time recorded
70			0	69.4-69.7' - Fracture, 5 deg, smooth,	- × >	soft to soft, moderately weathered,	1714. No time recorded
190.6				undulating, 0.02 inch clay infilling 70.1' - Fracture, horizontal, rough, undulating.	- <b> </b> × >	hardness increases with depth	
_			10+	0.01 inch clay infilling	- × >	_ 70.5-70.6' - clay seam	-
_			10+	70.4' - Fracture, horizontal, rough, undulating,	- × ×	70.5-70.0 - day seam	At 70.9': R-Scale = R3
l _	R14NQ			0.01 inch clay infilling	-\x\ \x	_ 71.2-74.2' - moderately weathered,	7 ( 7 0.5 . TY Godie
	5 ft	65	1	70.7' - Fracture, horizontal, rough, undulating 71.5' - Fracture, 60 deg and horizontal,	$\times$ >	<10% fine sand	
-	102%			slickensided, undulating	× ×	<b>{</b>	
_			2	-	- × >	<b>f</b>	1
-					- <b> </b> × >	<del> </del>	-
-			0		- <b> </b> × >	}-	At 73.3': R-Scale = R3-R4 -
_	74.2		0		- × ×	<u>}</u>	_
_			<b>~~</b>	74.2-75.1' - Fracture zone, horizontal, smooth,	- <del>x x</del>	Siltstone	R15: No time recorded
75			10+	undulating, 0.15 inch clay infilling	$\times$ >	At 74.2' - very dark greenish gray,	
185.6					- × >	mottled greenish gray, moderately weathered	
_			1	75.3-75.5' - Fracture zone, horizontal, smooth, undulating, 0.04 inch clay infilling	- × >	Wednered	-
-				75.9-77.4' - Fracture zone, horizontal, smooth,	- × >	<del>}</del>	-
-	R15NQ 5 ft	30	1	undulating, 0.03 inch clay infilling	$\times$		-
_	96%	30	'		× × × × × × × × × × × × × × × × × × ×	greenish gray, 15-20% light olive	_
l _					× >	brown mottling concentrated near	At 78.9': R-Scale = R3-R4 -
			10+	77.7-78.2' - Fracture zone, horizontal, smooth,	- × ×	fractures with clay infilling.	First water level = 6.2' bgs -
I -				undulating, 0.01 inch clay infilling	$\times$ >	Ţ.	taken 7/28/06 at 13:15
_			2			<b>T</b>	_
-	79.2		$\times\!\!\times\!\!\times$		<b> </b> ``	-	R-Scale performed during - rock core logging
-					-	Bottom of Boring at 79.2 ft bgs on 7/27/06 12:20	Tock core logging
80 <u> </u>				_	4	- 1721700 12.20	_
100.0					4	-	_
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175.6				_	1		
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PROJECT NUMBER: BORING NUMBER: 338884 BGA-14 SHEET 1 OF 5

# **SOIL BORING LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (687506.0 N, 2011204.9 E)

ELEVATION: 287.0 ft MSL (NGVD 29) DRILLING CONTRACTOR: K. Canuel, S&ME

DRILLIN	G EQUII	PMENT.	AND MET	HOD : CME-750	, Tricone Bit, 24" Split Spoon, and 140 lb. Automatic Hammer	ORIENTATION : Vertical	
WATER	LEVELS	S: 15.4 ft	bgs		START : 7/31/06 13:10 END : 8/1/0	06 16:	10 LOGGER : AT
DEPTH B	ELOW EX	KISTING C	RADE (ft)	STANDARD	SOIL DESCRIPTION	၅	COMMENTS
	INTERVAL (ft) PENETRATION TEST RESULTS				COLL NAME TICCS CHOLLD SAMPOL COLOD	SYMBOLIC LOG	DEDTIL OF CACING DOULING DATE
		RECOV	ERY (in)		SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR	30LI	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND
			#TYPE	6"-6"-6"	CONSISTENCY, SOIL STRUCTURE, MINERALOGY	3YME	INSTRUMENTATION
287.0	0.0			(N)	Silty Gravel (GM)	JIT	
-	0.0				0.0-0.7' - pinkish gray, dry, dense, well graded fine to		-
-		10.8	SS1SS A&B	9-8-5-5	coarse, angular gravel. 25% fine to coarse sand silt	////	-
-			, 10.2	(13)	\(\sqrt{0.7-0.9'}\) - pale brown, moist, soft, high plasticity		-
-	2.0				-		-
-	2.5				Clay (CL)		-
-					2.5-3.8' - pale brown, moist, soft, high plasticity, sharp		-
_		21.6	SS2SS	4-9-26-31	contact between clay layers at 3.75		-
-				(35)	Sandy Silt (ML)		-
	4.5				3.8-4.3' - brown, dry to moist, no plasticity, rapid dilatancy, 10-15% very fine to fine sand		-
5 282.0	5.0				Sandy Silt (ML)	ш	_
-					- 5.0-5.5' - brown, dry to moist, no plasticity, rapid	+++	-
_		18.0	SS3SS	17-39-50	\dilatancy, 10-15% very fine to fine sand \ _\ Silty Sand (SM)		-
_				(89)	¬ 5.5-6.5' - pinkish gray, reddish yellow linear mottling,  ¬	1111	-
-	7.0				\dry to moist, 70-75% very fine to fine sand / _		-
_	7.5				Sandy Silt (ML)		-
_					7.5-8.9' - pinkish gray, reddish yellow linear mottling,		-
_		15.6	SS4SS		dry to moist, very fine to fine grained, 70-75% very fine to fine sand		-
_				(86)	-	ш	-
_	9.5				-		-
10 <u> </u>	10.0				Sandy Silt (ML)	$\mathbf{H}$	_
					─ 10.0-10.5' - pinkish gray, dark brown mottling, dry to  ──	Ш	-
-		13.2	SS5SS	32-50	moist, very fine to fine grained		-
_				(50")	-		-
_	12.0				-		-
-	12.5				Sandy Silt (ML)	ш	-
-					_ 12.5-13.1' - pinkish gray, red and black mottling, dry to	Ш	-
-		7.2	SS6SS	50	moist, very fine to fine grained, 70-75% very fine to fine / sand		=
_				(50")	-		-
	14.5				-		=
15 <u> </u>	15.0				Sandy Silt (ML)	$\square$	-
	. 5.0				¬ 15.0-15.5' - pinkish gray, mottled red, black, very fine to ¬ →	Щ	-
-		6.0	SS7SS	50/5	fine grained, mottles <0.0002-0.0007, poorly graded /sand, dark brown weathering stains, laminated /		-
_				(50/5")	-		-
-	17.0				-		-
-	17.5				Sandy Silt (ML)	$\parallel \parallel \parallel$	-
-					─ 17.5-18.0' - pinkish gray, very soft, very fine to fine  ──	Щ	-
-		8.4	SS8SS	50	grained, mottles <0.0002-0.0007', poorly graded sand, / dark brown weathering stains, laminated		-
-				(50")	-		-
-	19.5						-
20						$\vdash \vdash$	<del>.</del>
			1				

2BB-402 Rev. 1



PROJECT NUMBER:	BORING NUMBER:				
338884	BGA-14	SHEET	2	OF	5

#### **SOIL BORING LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687506.0 N, 2011204.9 E)

ELEVATION: 287.0 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

DRILLING EQUIPMENT AND METHOD: CME-750, Tricone Bit, 24" Split Spoon, and 140 lb. Automatic Hammer ORIENTATION: Vertical

				TIOD : CIVIL-730,	, Tricone Bit, 24" Split Spoon, and 140 lb. Automatic Hammer			ORIENTATION: Vertical
WATER					START : 7/31/06 13:10 END : 8	3/1/0 <b>1</b>	6 16	
DEPIHB			GRADE (ft)	STANDARD PENETRATION	SOIL DESCRIPTION	4	90	COMMENTS
	INTERV			PENETRATION TEST RESULTS	SOIL NAME LISCS CROLID SYMBOL COLOR		CL	DEPTH OF CASING, DRILLING RATE,
		RECOV	ERY (in)		SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR		30L	DRILLING FLUID LOSS, TESTS, AND
			#TYPE	6"-6"-6" (N)	CONSISTENCY, SOIL STRUCTURE, MINERALOGY		SYMBOLIC LOG	INSTRUMENTATION
267.0	20.0			( )	Clay (CL)	7		
-					20.0-21.2' - dark reddish brown, mottled green, dry to moist, soft	-		-
-		14.5	SS9SS	33-40-50/2	most, soit	_{		-
-				(90/8")		+		-
-	22.0					-		Soil sampling completed at 15:20 on 7/31/06
-	22.5	1.8	SS10SS		¬ Sandy Silt (ML)	Ⅎ	ш	- Con Sumpling completed at 10:20 on 7/0 1/00
-	22.7	1.0	201009	50/1.5	22.5-22.7' - red, dry to moist, 20% sand	/4		-
_				(50/1.5")	\Clay Seam \22.5-22.6'	/ 4		=
_					Begin Rock Coring at 22.7 ft bgs	′		_
_					See the next sheet for the rock core log	4		_
25								
262.0								
						J		
						1		
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257.0						$\dashv$		_
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			L					

2BB-403 Rev. 1



PROJECT NUMBER: BORING NUMBER: **BGA-14** 338884 SHEET 3 OF 5

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (687506.0 N, 2011204.9 E)

ELEVATION: 287.0 ft MSL (NGVD 29) DRILLING CONTRACTOR: K. Canuel, S&ME

CORING	CORING EQUIPMENT AND METHOD : CME-750, NQ Double Barrel ORIENTATION : Vertical									
WATER	LEVELS : 15	.4 ft b	ogs	START : 7/31/06 13	:10	END : 8/1/06 16:10	LOGGER : AT			
	(%			DISCONTINUITIES	POOT	LITHOLOGY	COMMENTS			
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LO	ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHINESS, CAVING ROD DROPS, TEST RESULTS, ETC.			
25_ 262.0 -	22.7 R1NQ 4.8 ft 63%	0	2 4 0	23.4' - Fracture, 20 deg, smooth, undulating, 0.01' relief, tight fit 23.5' - Fracture, 10 deg, rough, undulating, dark brown stains, 0.025' relief 24.1' - Fracture, 5 deg, smooth, undulating 24.2-24.5' - Clay seam, 10 deg, smooth, undulating, same color as matrix 24.8' - Fracture, 10 deg, smooth, undulating, 0.005' relief 25.0-25.1' - Clay seam, 60 deg, smooth, undulating, 0.15' thick	× × × × × × × × × × × × × × × × × × ×	Siltstone At 22.7' - dark reddish brown, mottled green, hard	Rock coring began at 16:02 on 7/31/06 R1: 16:02-16:18 on 7/31/2006 At 23.0': R-Scale = R3-R4 At 23.8': R-Scale = R3-R4			
30 257.0 -	27.5 R2NQ 5 ft 88%	0	1 0 0	28.1' - Fracture, horizontal, smooth, undulating, 0.005' relief 28.6' - Fracture, 20 deg, smooth, undulating, clay seam	· · · · · · · · · · · · · · · · · · ·	27.5-32.5' - soft	R2: 16:30-17:08			
- - 35 252.0 - - - - - - - - 40 247.0	R3NQ 5 ft 84% 37.5 R4NQ 5 ft	70	0 0 0 0 0 0 0	36.7' - Fracture, 20 deg, smooth, undulating, tight fit	***************************************	32.5-35.0' - soft to hard  36.1-36.6' - clay seam  37.5-42.5' - dark reddish brown, green mottling, hard, 10%, <0.0002-0.0004' clasts 37.6-38.2' - large somewhat oval shaped, 3" long by 2" wide green clast, harder than matrix	R3: 8:16-8:23 on 8/1/06 At 33.0': R-Scale = R2-R3  At 34.0': R-Scale = R2-R3  At 34.6': R-Scale = R2-R3  At 35.8': R-Scale = R3  R4: 8:38-8:51 At 37.8': R-Scale = R4 SC-1 collected 38.1-39.4  At 39.8': R-Scale = R4			
	42.5		0		× × × × × × × × × × × × × × × × × × ×	-	At 41.0': R-Scale = R4  At 41.7': R-Scale = R4  -			

2BB-404 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BGA-14

SHEET 4 OF 5

# **ROCK CORE LOG**

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687506.0 N, 2011204.9 E)

ELEVATION: 287.0 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, NQ Double Barrel

				THOD . CIVIE-750, NQ Double Barrel			
WATER	LEVELS: 15	.4 ft b	gs	START : 7/31/06 13	3:10	END: 8/1/06 16:10	LOGGER : AT
				DISCONTINUITIES	ניו	LITHOLOGY	COMMENTS
oz £	CORE RUN, LENGTH, AND RECOVERY (%)		S	DESCRIPTION	SYMBOLIC LOG	DOCK TYPE COLOR	
EPTH AND EVATION ELOW JRFACE (ft)	N. A.Y.	(9)	FRACTURES PER FOOT	DECORAL FIOR	- 익	ROCK TYPE, COLOR, MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING,
EPTH AN EVATION ELOW JRFACE	E STE	D (%)	ĔĞ	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	30	WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
	ENCE	Ø	ZA ER	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	Ī₹	AND ROCK MASS	DROPS, TEST RESULTS, ETC.
	035	ď		THICKNESS, SURFACE STAINING, AND HIGHTNESS		CHARACTERISTICS	, ,
_			0		- × ;	_ 42.5-47.5' - soft to hard	R5: 9:12-9:31 _
			Ů		× >		At 43.0': R-Scale = R3
				40.01.5.4.05.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.	- × ;		_
-			2	43.8' - Fracture, 85 deg, smooth, undulating, tight fit to tightly healed	-  × ;	-	-
_	5510			0 0 ,	- × ;	-	At 44.3': R-Scale = R3 -
45	R5NQ 5 ft	100	0	44.6' - Fracture, 10 deg, smooth, undulating,	-		
242.0	100%	100	ľ	fairly tight fit	- X >		
_					1× ;	<u> </u>	-
-			0		<b>⊣</b> × :	<del> -</del>	-
_					- × ;	_	_
			_		_ × ;		
1 7	47.5		0		× >	46.9-47.5' - 5-10% white clasts	_
-	71.5				-  × ;	47.5-52.5' - 25% gravel sized white	R6: 9:47-10:03
-			0		- ×;	- clasts	-
					× >		_
					]×;		At 48.5': R-Scale = R3
_			1		1× ?	<u> </u>	-
-	DONO			49.4-49.7' - Fracture, 60 deg, smooth,	- × >	-	_
50	R6NQ 5 ft	87	0	undulating _	_ × ;		
237.0	97%	0,	Ŭ		××		
_				50.6' - Fracture, 10 deg, smooth, undulating,	]× >		_
-			2	loose fit	- × ;	-	-
_				50.8' - Fracture, 10 deg, smooth, undulating	- × ×	-	-
			1		× >		At 51.5': R-Scale = R3-R4
	52.5			52.2' - Fracture, 5 deg, smooth, undulating	- × ;		
l -	02.0		$\sim$	52.2 - Fracture, 5 deg, smooth, driddiating	- ×;	52.5-53.1' - soft to hard, gravel sized	R7: 10:36-10:49
-			4	52.8' - Fracture, horizontal, rough, undulating	- × ;	white clasts (0.001)	-
_				53.0' - Fracture, 5 deg, smooth, undulating,	× >	52.6-52.7' - clay seam	_
			_	0.05' relief 53.1' - Fracture, 10 deg, smooth, undulating,	]×;	53.1-57.5' - green mottling, 30-35%	
_			1	0.1' relief, 10% coverage	1× :	- coverage <0.0002-0.0004, same hardness as matrix	At 54.0': R-Scale = R3
	R7NQ			53.3' - Fracture, 10 deg, smooth, undulating	- × ×	Tidiuliess as mauix	-
55	5 ft	72	0	53.6' - Fracture, 5 deg, smooth, undulating, –	× ;	_	
232.0	96%			tight fit	_ × ;		
					]× ;		At 55.7': R-Scale = R3
-			1		( X )	-	At 55.7 . R-50ale – R5
-				56.3' - Fracture, horizontal, rough, undulating,	- × ;	-	-
_			1	0.2' relief	- x 3	-	At 56.6': R-Scale = R3-R4
	57.5		XXX	56.9' - Fracture, 25 deg, smooth, undulating,	( X )		
-				0.005' relief, tight fit	× ×	57.5-58.3' - large linear-shaped green	R8: 11:06-11:22
-			0		- × :	mottling to 4" in length by 1 1/3" wide	-
-					<b>-</b>  î:::	- Sandstone	1 -
			0		<u></u> ]∷∷	At 58.6' - dark gray, soft to hard, up to	
			U		1:::	80% very fine to coarse sand, fining	1
	R8NQ				1:::	upwards, poorly sorted, some silt     59.1-63.6' - multi-colored, laminated to	At 59.5': R-Scale = R3-R4
60 <u> </u>	5 ft	98	0	_	H∷∷	thin bedding, very fine sand to coarse	_
221.0	98%				_ ∷∷	- sand	_
					:::	60.4-60.4' - dark gray/ grayish - black	At 60.5': R-Scale = R3-R4
_			1		1:::	layer ~ 1/7" thick	-
-				61.2' - Fracture, 10 deg, rough, undulating,	<b>-</b>   :	F	-
_			0	0'.005' relief	4:::	<u> </u>	At 61.7': R-Scale = R3-R4
	62.5				:::	62.0-62.5' - poorly laminated with red	
$\vdash$			~~~		7:::	- staining	<del>-</del>
					1		

2BB-405 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BGA-14

SHEET 5 OF 5

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687506.0 N, 2011204.9 E)

ELEVATION: 287.0 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, NQ Double Barrel ORIENTATION : Vertical

				THOD : CME-750, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS : 15	5.4 ft b	ogs	START : 7/31/06 13	:10	END : 8/1/06 16:10	LOGGER : AT
	(%) 		l	DISCONTINUITIES	90	LITHOLOGY	COMMENTS
H AND ATION V ACE (ft)	RUN, IH, AN VERY	(%)	rures oot	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS,	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMB	AND ROCK MASS CHARACTERISTICS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
-			2	63.0' - Fracture, 10 deg, smooth, planar, tight		62.3-62.9' - gray, laminated bedding, very fine sand to medium sand, well sorted	R9: 11:30-11:43 and _ 11:50-13:00 _
_			0	63.3' - Fracture, 10 deg, smooth, planar, tight fit	× × × ×	62.9-63.6' - laminated bedding, well sorted	- At 64.3': R-Scale = R3 -
65 <u>222.0</u>	R9NQ 5 ft 98%	98	0	63.6' - Contact between siltstone and sandstone	× × × × × ×	Siltstone  At 63.6' - dark reddish brown, mottled green, hard, sand to gravel sized white	At 64.5 : R-Scale – R5
_	3370		0		× × × × × ×	clasts	
_	07.5		0	·	× × × × × ×	<ul> <li>66.3-67.5' - small to large rounded and irregular shaped white clasts from &lt;0.0004-0.0007', harder than matrix</li> </ul>	-
_	67.5		0		× ×   × ×   × ×	67.5-77.5' - reddish black and purple mottling, 5-10%, <0.0002-0.0003',	R10: 13:15-13:40
_			0		× × × × × ×	same hardness as matrix	At 68.3': R-Scale = R3-R4 -
70 217.0	R10NQ 5 ft	92	0		× × × × × ×	_	
217.0	101%		2		× ×   × ×   × ×	-	- At 70.7': R-Scale = R3-R4 _
_			3	71.2' - Fracture, horizontal, rough, undulating 71.2-71.5' - Fracture, 65 deg, rough,	- × × - × × - × ×	- L	-
_	72.5		3	undulating 71.9' - Fracture, 15 deg, rough, undulating 72.0' - Fracture, 25 deg, rough, undulating		72.5-77.5' - laminated bedding, very	R11:13:47-14:02
_				73.2' - Fracture, 70 deg 73.3' - Fracture, 70 deg	× × × × × × × × × × × × × × × × × × ×	fine sand to coarse sand, poorly sorted, 15% to 60% multicolored sand 72.5-73.2' - 15-20% sand up to 0.0003'	At 73.0': R-Scale = R3-R4 First water level = 15.4' bgs - taken 8/1/06 at 17:27
75	R11NQ		1	73.5' - Fracture, 70 deg 73.8' - Fracture, 30 deg	× × × ×	73.2-74.6' - 5-10% sand up to 0.0002' 74.6-76.2' - up to 60% sand, to	- - At 74.6': R-Scale = R3-R4
212.0	5 ft 102%	79	0	_	× × × × × ×	0.0003', multicolored grains	-
_			1	76.3' - Fracture, 10 deg, smooth, undulating	× ×   × ×   × ×	-	At 75.8': R-Scale = R3-R4 - R-Scale performed during rock core logging -
-	77.5		2	76.8' - Fracture, 10 deg, smooth, undulating	× × × ×	Bottom of Boring at 77.5 ft bgs on	
-					1	- 8/1/06 16:10	]
-					1	- -	]
80 207.0				-		<del>-</del> -	
-						_	_
-						- -	]
					-	•	•

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PROJECT NUMBER:	BORING NUMBER:
338884	BGA-15

#### **SOIL BORING LOG**

SHEET 1 OF 4

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688250.0 N, 2011676.9 E)

ELEVATION: 266.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

DRILLING EQUIPMENT AND METHOD: CME-750, Tricone Bit, 24" Split Spoon, and 140 lb. Automatic Hammer ORIENTATION: Vertical

			-IND WE	TIOD : CIVIL-730,	START: 8/2/06 15:10 END: 8/	4/06	ORIENTATION: Vertical LOGGER: EM/LH
DEPTH B			RADE (ft)		START : 8/2/06 15:10 END : 8/- SOIL DESCRIPTION	Т	COMMENTS
	INTERV		(**/	STANDARD PENETRATION		4	
			ERY (in)	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,	2	DEPTH OF CASING, DRILLING RATE,
		INLOOV!	#TYPE	6"-6"-6" (N)	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY		DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
266.6 - - -	2.0	14.4	SS1SS	5-6-6-8 (12)	Clay (CL) 0.0-1.2' - yellow, mottled dark red, moist, stiff, medium to high plasticity, rapid dilatancy	- - - -	- - - -
_	0.5					1,	
- - -	2.5	15.6	SS2SS	5-7-8-10 (15)	Lean Clay (CL) 2.5-3.8' - dark red & light gray, moist, stiff, medium to high plasticity, slow to rapid dilatancy	-   -   -	- - -
	4.5					+	-
5 261.6 - -	5.0	16.8	SS3SS	9-15-23-30 (38)	Clay (CL) 5.0-6.4' - dark red, moist, hard, low to medium plasticity, slow to rapid dilatancy		
_	7.0					1	_
_	7.5					1,	
-	7.5	18.0	SS4SS	17-22-33-44 (55)	Clay (CL) 7.5-9.0' - dark red, moist, hard, low to medium plasticity		- -
	9.5			` '		T	_
10 256.6 - -	10.0	12.0	SS5SS	33-50/2 (50/2")	Clay (CL) 10.0-11.0' - dark red, mottled black & light olive brown, dry to moist, hard, low plasticity, rapid dilatancy	- - - -	
-	12.0					1	-
- - -	12.5 14.5	13.2	SS6SS	10-50/5.5 (50/5.5")	Clay (CL) 12.5-13.6' - dark red, mottled greenish gray, dry to moist, hard, low plasticity, slow to rapid dilatancy	-	- - -
15 15						1	Soil sampling completed at 17:40 on 8/2/06
251.6 - - - - - - - - 20	15.0 _15.3 <i>∫</i>	3.0	SS7SS	50/3 (50/3")	Clay (CL) 15.0-15.3' - dark red, dry to moist, hard, low plasticity, highly weathered, 15% fine sand Clay Seam 15.0' - very soft lower surface Begin Rock Coring at 15.4 ft bgs See the next sheet for the rock core log		
						T	

2BB-407 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BGA-15

SHEET 2 OF 4

# **ROCK CORE LOG**

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688250.0 N, 2011676.9 E)

ELEVATION: 266.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, NQ Double Barrel

WATER	VATER LEVELS :			START : 8/2/06 15:	10	LOGGER : EM/LH	
	(%)			DISCONTINUITIES	ပ္ခ	LITHOLOGY	COMMENTS
9Z €	AND 3Y (%	_	ES T	DESCRIPTION	J C I C	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	(%) Q	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
DEP ELE SUR SUR	COR	R	FRA( PER	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYM	AND ROCK MASS CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
_	15.4 R1NQ	0	1		- × × × ×	Siltstone	Rock coring began at 08:58
-	16.0 0.6 ft 92%				-  × ×	At 15.4' - dusky red, soft, 45-50% fine to medium sand	on 8/3/06 R1: 08:58-09:04
_			1		×	15.4-16.0' - highly weathered 16.0-17.9' - soft, laminated reddish	R2: 09:15-09:28
_			0		$\begin{bmatrix} \times & \times \\ \times & \times \end{bmatrix}$	black bedding	
			U		$\begin{bmatrix} \times & \times \\ \times & \times \end{bmatrix}$	16.0-18.4' - slightly weathered	At 17.5. N-Scale = N2
_	R2NQ 5 ft	97	0		] <u>× ×</u>	17.9-18.4' - clay seam  Sandstone	_
_	108%	01			<b>.</b>  ∷∷	At 18.4' - light brownish gray, fine	_
-			0	19.1' - Fracture, horizontal and 5 deg, rough, undulating	<del>-</del>  ∷:	sand to coarse sand, <5% coarse sand in beds at 60 degree angles.	-
20 <u> </u>				-	<b>-</b>  ∷:	overall fining upward sequence 18.4-21.0' - slightly weathered	At 19.6': R-Scale = R2 —
_			1			20.6' - small pebbles (up to .003') for	-
-	21.0		XXX	20.7' - Fracture, horizontal and 5 deg, smooth, undulating	- :::	2' thick band	At 21.0': R-Scale = R2
-			1	Ç		<ul> <li>20.8' - fine sand to medium sand, trace sand</li> </ul>	R3: 09:35-09:52 – At 21.5': R-Scale = R2
-				21.8' - Fracture, 60 deg, rough, undulating, black stains	1:::	21.0-23.8' - slightly weathered to	- Tree -
-			2	21.9' - Fracture, 5 deg, smooth, undulating, 0.02 thick clay infilling	   	<ul> <li>moderately weathered, trace small pebbles, siltstone/clay clasts up to 0.1'</li> </ul>	-
-	R3NQ	77		22.1' - Fracture, 45 deg, rough, undulating	<b> </b>  :::	size	-
	5 ft 101%	77	3	23.0' - Fracture, 5 deg, smooth, undulating, 0.05 thick clay infilling	]:::  × ×	- Siltstone	_
_			2	23.2' - Fracture, 45 deg, smooth, undulating, 0.03 thick clay infilling	××	∑ 23.8-24.2' - gray, very soft, slightly   ∫	_
25			_	23.7' - Fracture, horizontal and 5 deg, smooth, _	J∷:I	weathered to moderately weathered, —\some fine sand to medium sand	At 24.9': R-Scale = R2 —
241.6 -			2	undulating 23.8' - Contact between siltstone and	<b>-</b>  :::	Sandstone	7 (24.5 . 1 Codic 1 1 2 -
-	26.0			sandstone, 20 deg 24.1' - Fracture, 20 deg, smooth, planar	- ∷:	At 24.2' - gray, very soft to soft, siltstone beds up to 0.6' thick	R4: 10:32-10:52
-			0	24.6' - Fracture, horizontal and 5 deg, rough,	-{::: <b>:</b> }	24.2-26.0' - slightly weathered to moderately weathered	-
-				undulating 25.3' - Fracture, 5 deg, smooth, undulating	-	- 26.0-28.0 - mottled reddish brown,	-
-	-		0	25.6' - Fracture, 5 deg, rough, undulating	<b>-</b>  ∷∷	<ul> <li>laminated bedding, slightly weathered, reddish brown clasts 0.01' in size</li> </ul>	-
-	R4NQ				<b> </b>  :::	28.0-29.3' - slightly weathered,	At 27.9': R-Scale = R2
_	5 ft 100%	100	1		1:::	- coarser material	-
_			0	28.9' - Fracture, horizontal and 5 deg, smooth, undulating	     × ×	- Siltstone	-
30	]		U	29.3' - Contact between siltstone and	× ×	At 29.3' - dark reddish brown, very	
236.6	]		0	sandstone, 20 deg	]×	soft, laminated bedding 29.3-33.5' - slightly weathered	
_	31.0				× ×   × ×   × ×	29.6-31.0' - mottled black, 10% fine	At 30.5': R-Scale = R2
-			0		- <b> </b> × × <b> </b>	sand - 31.0-36.0' - mottled green gray, very	R5: 11:00-11:15
-					× ×   × ×	soft -	-
-			1	32.4' - Fracture, horizontal and 5 deg, rough,	{	-	-
-	R5NQ			undulating	-  × × -  × × -  × ×	-	At 32.9': R-Scale = R3
-	5 ft 100%	50	0		-1× ¾	33.5-36.0' - highly weathered	-
-	100 /6			33.9' - Fracture, 60 deg, smooth, undulating 34.1' - Fracture, horizontal, smooth,	- × × × ×		-
35			2	undulating, 0.05' thick clay infilling	×	-	-
231.6				_	- × × × ×	<del>_</del>	At 34.9': R-Scale = R1-R2 —
	1		1				

2BB-408 Rev. 1



PROJECT NUMBER:	BORING NUMBER:	
338884	BG∆-15	SHEET 3 OF 4

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688250.0 N, 2011676.9 E)

ELEVATION: 266.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, NQ Double Barrel ORIENTATION : Vertical

WATER	ATER LEVELS :			START : 8/2/06 15:1	0	END: 8/4/06 14:21	LOGGER : EM/LH	
	(9)			DISCONTINUITIES	Ō	LITHOLOGY	COMMENTS	
QZ €	N, AND ₹₹ (%		ES_	DESCRIPTION	) C	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.	
_			2		× ×	35.2' - clay seam	-	
_	36.0		0	36.0' - Fracture, horizontal, rough, undulating	× × × × × ×	36.0-41.0' - moderately weathered - 36.0-46.0' - mottled greenish gray and reddish black, very soft to soft, trace	R6: 11:37-11:53	
_	DCNO		1	37.9' - Fracture, horizontal, rough, planar	× ×   × ×   × ×	medium to coarse sand 36.0-36.5' - clay seam, very soft 36.0-36.6' - laminated bedding	At 37.6': R-Scale = R2 (performed at later date)	
-	R6NQ 5 ft 102%	82	0		× × × × × ×	-		
40_ 226.6			3	39.1' - Fracture, 35 deg, smooth, planar 39.5' - Fracture, horizontal, smooth, undulating 39.9-40.0' - Fracture, 45 deg, rough,	× × × × × ×	39.1-40.0' - laminated bedding 		
	41.0		4	undulating 40.4' - Fracture, horizontal, rough, planar 40.7' - Fracture, horizontal, rough, planar	× ×   × ×   × ×	- 40.7-50.0' - laminated bedding 41.0-46.0' - soft, fresh, trace medium	- R7: No time recorded	
-			0	40.8' - Fracture, horizontal, rough, planar 41.0' - Fracture, horizontal, rough, planar	× × × × × ×	to coarse sand	-	
-	R7NQ		0		× × × × × ×	- -	-	
-	5 ft 96%	96			× × × × × ×	- -	]	
45 <u> </u>			0		× × × × × ×	- <del>-</del>	At 44.6': R-Scale = R3-R4 (performed at later date)	
-	46.0		1 **** 0	45.8' - Fracture, 45 deg, rough, planar	× × × × × × × ×	- 46.0-47.7' - soft, fresh	R8: No time recorded	
_			0		× × × × × ×	- - -	]	
-	R8NQ 5 ft	100	0	47.7' - Contact between siltstone and sandstone		Sandstone  At 47.7' - white, pale red, dark reddish gray, and dark greenish gray, soft to	- At 48.4': R-Scale = R3	
	100%		1		: : :     : : :     : : :	hard, very thin to medium bedding, very fine sand to coarse sand, angular to subrounded, poorly sorted, fresh,	(performed at later date)	
50 216.6 _	54.0		0	49.9' - Fracture, 70 deg, rough, undulating		0-20% gravel, coarsens with depth		
-	51.0		0		1	- -	R9: 13:00-13:17	
-			1	52.2' - Fracture, 50 deg, rough, undulating 52.4' - Fracture, 50 deg, rough, undulating		-		
-	R9NQ 5 ft 98%	98	0	· · · · · · · · · · · · · · · · · · ·		-	]	
- - 55	12.3		0			-	]	
211.6				_	1::::	_		
					ш			

2BB-409 Rev. 1



PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-15	SHEET 4 OF 4

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688250.0 N, 2011676.9 E)

ELEVATION: 266.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

CORING EQUIPMENT AND METHOD : CME-750, NQ Double Barrel ORIENTATION : Vertical

CORINC	5 EQUIPINEN	II AN	DIVIE	THOD : CME-750, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS :			START : 8/2/06 15:	10	END : 8/4/06 14:21	LOGGER : EM/LH
	(%			DISCONTINUITIES	၂ ဗွ	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
-	56.0		0		- : : :	56.0-57.7' - fine sand	At 55.0': R-Scale = R3-R4 (performed at later date) R10: 13:33-13:52
-			2				
-	R10NQ 5 ft 103%	100	1	57.7' - Contact between siltstone and sandstone  58.6' - Fracture, horizontal, rough, undulating	× × × × × × × ×	Siltstone 57.7-60.8' - dark reddish brown, soft, fresh, mottled greenish gray and reddish black	
60			0	_	× × × × × ×	-	At 59.6': R-Scale = R3-R4 (performed at later date)
206.6	61.0		1	60.8' - Fracture, horizontal, rough, undulating		- Sandstone	R11: 14:02-14:21
-	R11NQ 4.6 ft l 100%		0		<u> </u>	At 60.8' - white, pale red, dark reddish gray and dark greenish gray, soft to hard, very thin to medium bedding, angular to subrounded, poorly sorted,	SC-1 collected 61.0-62.2'
-			0		-   : : : : -   : : : : -   : : : :	fresh, very fine to coarse grained sand, 0-20% gravel 62.2-62.4' - trace medium to coarse grained sand	01.0-02.2
- 65			0	_	- : : :	_ 62.8-63.7' - trace medium to coarse grained sand -	At 64.1': R-Scale = R3 (performed at later date) R-Scale performed during
201. <del>6</del> - - - - -	65.6		0			Bottom of Boring at 65.6 ft bgs on 8/3/06 14:21	rock core logging
- - - 70						- - -	_
196.6 - - - -						- - -	
- - -					1	- - -	
75_ 191.6				_		-	_
	L						1

2BB-410 Rev. 1



PROJECT NUMBER:	BORING NUMBER:			
338884	BGA-16	SHEET	1	OF

#### **SOIL BORING LOG**

 PROJECT : PEC COLA, New Hill, NC
 LOCATION : (NAD 27) (687118.1 N, 2012814.9 E)

 ELEVATION : 260.6 ft MSL (NGVD 29)
 DRILLING CONTRACTOR : R. Norwood, S&ME

DRILLING EQUIPMENT AND METHOD: CME-550, Tricone Bit, 24 Split Spoon, and 140 lb. Automatic Hammer ORIENTATION: Vertical WATER LEVELS: ---START: 7/17/06 09:50 END: 7/17/06 16:45 LOGGER: EM SOIL DESCRIPTION COMMENTS DEPTH BELOW EXISTING GRADE (ft) STANDARD 500 PENETRATION INTERVAL (ft) TEST RESULTS SYMBOLIC DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION SOIL NAME, USCS GROUP SYMBOL, COLOR, RECOVERY (in) MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY #TYPE 6"-6"-6" (N) 260.6 0.0 Clay (CL) 0.0-1.1' - red, gray mottling, dry to moist, hard, low plasticity, slow to rapid dilatancy, <5% reddish black SS1SS 4-18-50/5 13.2 and light gray mottling; 0-0.2' roots/organics (68/11")2.0 2.5 Clay (CL) 2.5-3.2' - red, reddish black to light gray mottling, dry to moist, hard, low plasticity, slow to rapid dilatancy, trace 4.0 SS2SS 50/4 fine sand (50/4")4.5 5 255.6 5.0 5.0-5.4' - reddish brown, moist, hard, low plasticity, slow to rapid dilatancy, trace fine sand SS3SS 50/5 5.0 Clay (CL) (50/5")5.4-5.5' - reddish brown, reddish black to light gray 7.0 mottling, moist, hard, low to medium plasticity, slow to rapid dilatancy, trace fine sand 3.0 SS4SS Clay (CL) 7.8 50/3 7.5-7.9' - red, light gray mottling, hard, low plasticity, (50/3")trace fine sand Begin Rock Coring at 7.9 ft bgs See the next sheet for the rock core log 10 250 6 15 245.6 20



PROJECT NUMBER:

338884

BORING NUMBER:

BGA-16

SHEET 2 OF 4

# **ROCK CORE LOG**

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687118.1 N, 2012814.9 E)

ELEVATION: 260.6 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	LEVELS :			START : 7/17/06 09	:50	END: 7/17/06 16:45	LOGGER : EM
	(9)	DISCONTINUITIES		ű	LITHOLOGY	COMMENTS	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
- - 10_	7.9 R1NQ 2.1 ft 100%	0	6 1 2	8.0-8.6' - Fracture zone (6), <5 deg and 40 deg, rough, undulating, black stains, higher angled fractures have slickensides 8.9' - Fracture, 20 deg, rough, undulating, black stains, and slickensided 9.6' - Fracture, 40 deg, rough, undulating	× × × × × × × × × × × ×	Siltstone At 7.9' - reddish brown, mottled light greenish gray and brownish yellow, very soft 7.9-10.0' - highly weathered 8.6-9.2' - 0.01-0.04' thick white clasts	Rock coring began at 10:40 on 7/17/06R1: 10:40-10:50
250.6 - - - -	R2NQ		3	9.8' - Fracture, <5 deg, rough, undulating 10.1' - Fracture, 10 deg, rough, undulating 10.8' - Fracture, <5 deg, rough, undulating 11.1' - Fracture, <5 deg, rough, undulating 11.2' - Fracture, <5 deg, rough, undulating 11.8' - Fracture, <5 deg, rough, undulating	× × × × × × × × × ×	10.0-15.0' - very soft to soft 10.0-15.2' - moderately weathered 10.6-11.0' - ~50% very fine to fine grained sand; coarse sand size to fine gravel sized grains in siltstone and white clasts 0.01'-0.05' thick	R2: 10:58-11:12 - - - -
- - - - 15	5 ft 100%	72	2 3	13.0' - Fracture, <5 deg, rough, undulating, black stains 13.8' - Fracture, vertical, rough, undulating 14.1' - Fracture, 10 deg, smooth, undulating, black stains	× × × × × × × × × × × × × × × × × × ×	- - 13.2-14.1' - soft to hard -	SC-1 collected 12.2-12.45'
245.6 - - - - -	R3NQ 5 ft 97%	80	10+	14.3' - Fracture, <5 deg, rough, undulating 14.7' - Fracture, 15 deg, rough, undulating, 0.1' thick clay infilling 15.0-15.3' - Fracture zone, <5 deg, rough, undulating, 0.02 thick clay infilling, black stains 16.8' - Fracture, <5 deg, rough, undulating	× × × × × × × × × × × × × × × × × × ×	15.0-20.0' - light greenish gray and reddish black mottling, black clasts 0.01-0.05' thick, or mottles - round to oblong 15.0-18.5' - very soft 15.2-25.8' - fresh	R3: 11:16-11:45
- - 20_ 240.6	20.0		1	19.4' - Fracture, <5 deg, rough, undulating	× × × × × × × × × ×	18.5-20.0' - soft - - - 20.0-25.0' - light greenish gray and	- - - R4: 11:50-12:10
- - -	R4NQ		0		× × × × × × × × × ×	- brownish yellow mottling, soft, mottling throughout core	- - - At 22.0': R-Scale = R3
-	5 ft 103%	100	1 0	22.5' - Fracture, <5 deg, rough, undulating 23.7' - Fracture, 60 deg, rough, undulating 23.8' - Joint, <0.01 thick clay infilling	× × × × × × × × × ×		- - - -
25	25.0 R5NQ 5 ft	72	0 0 10+		× × × × × × × × × × × × × × × × × × ×	24.6' - white clasts 25.0-30.0' - light greenish gray and brownish yellow mottling, soft 25.8-29.3' - very soft, moderately weathered, white clasts up to 0.05'  27.6-27.8' - clay seam, very soft	R5: 13:07-13:20  At 26.0': R-Scale = R2

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PROJECT NUMBER:

338884

BORING NUMBER:

BGA-16

SHEET 3 OF 4

# **ROCK CORE LOG**

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687118.1 N, 2012814.9 E)

ELEVATION: 260.6 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	LEVELS :	START : 7/17/06				09:50 END : 7/17/06 16:45 LOGGER : EM					
				DISCONTINUITIES	Ō	LITHOLOGY	COMMENTS				
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.				
뮤피핆의		ŭ	뚠믮	THICKNESS, SURFACE STAINING, AND TIGHTNESS		CHARACTERISTICS	BROLS, TEST RESOLTS, ETC.				
-	98%		10+	27.9' - Fracture, 10 deg, rough, undulating, brownish yellow stains 28.2' - Fracture, 5 deg, rough, undulating, black stains	_	28.0-28.3' - clay seam, very soft	-				
30	30.0		1	28.4' - Fracture, 5 deg, rough, undulating 29.3' - Fracture, 5 deg, rough, undulating, black and brownish yellow stains	- × × × × - × ×	- 29.3-42.5' - fresh					
230.6			0		- × × - × ×	30.0-35.0' - dark reddish brown, mottled yellowish brown, reddish black, and light greenish gray 30.0-32.0' - 10% fine to medium sand	R6: 13:25-13:42 - -				
-			0		_ × ×	-					
-	R6NQ 5 ft 100%	100	0		X	32.0-32.9' - soft to hard, subrounded, - ~30-40% fine to medium grained sand; 10% coarse	- At 32.8': R-Scale = R3				
-			0		- × × - × × - × ×	-	-				
35_	35.0		0	_			-				
225.6			1	35.7' - Fracture, 5 deg, smooth, undulating	- × × × × - × ×	35.0-40.0' - mottled yellowish brown, reddish black, light greenish gray, soft to hard 35.0-35.2' - ~30-40% fine to medium	R7: 13:50-14:13 Drillers Remark: Final 0.3' slipped out, unable to retrieve				
-	R7NQ		1	36.6' - Fracture, 5 deg, smooth, undulating	- × × - × × - × × - × ×	- sand	-				
-	5 ft 94%		0	20.41 Fracture E dag amouth undulating	-  × ×	- - 29 1 29 7' white to pink play place	At 37.2': R-Scale = R3				
-			1	38.1' - Fracture, 5 deg, smooth, undulating	- × × - × × - × ×	38.1-38.7' - white to pink clay clasts up to 0.04' thick.	-				
40 <u> </u>	40.0		0 ※※	-	- × × × × × ×	-	R8: 14:20-14:35				
-			0		-  × ×	-	-				
-	Barra		3	41.1' - Fracture, <5 deg, smooth, undulating 41.4' - Fracture, vertical, rough, undulating 41.5' - Fracture, <5 deg, rough, undulating,	- × × × × × × × × × × × × × × × × × × ×	-	At 41.7': R-Scale = R2				
-	R8NQ 5 ft 104%	87	1	0.03' thick clay infilling	_ × × _ × ×	42.5-44.9' - moderately weathered, clay seams at bottom	At 42.2': R-Scale = R3				
-			0	43.4' - Fracture, <5 deg, smooth, undulating	- × × × × × × × × × × × × × × × × × × ×	42.8-44.9' - soft, white to pink clay clasts 0.01-0.04' thick 43.0-45.0' - 50-60% black mottling					
45_ 215.6	45.0		10+	44.1-44.7' - Fracture zone, 0.01-0.02' thick clay infilling, highly fractured (crumbled)		– — 44.9-62.3' - fresh	- - -				
-			1	45.3' - Fracture, 15 deg, rough, undulating, 0.01' thick clay infilling, black stains		44.9-49.9' - dark reddish brown, mottled yellowish brown, reddish black, and light greenish gray	R9: 14:40-15:04 SC-2 collected – 45.3-45.8'				
-			0		- × × - × × - × ×	44.9-46.1' - 50-75% reddish black mottling; large white clasts up to 0.1' thick	]				
_	R9NQ 5 ft	100	0		× ×   × ×   × ×		-				

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PROJECT NUMBER:

338884

BORING NUMBER:

BGA-16 SHEET 4 OF 4

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687118.1 N, 2012814.9 E)

ELEVATION: 260.6 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS :			START : 7/17/06 09	:50	END: 7/17/06 16:45	LOGGER : EM
				DISCONTINUITIES		LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
- -	100%	ж.	0		S	46.1-47.2' - soft to hard, subrounded to subangular, up to 20% fine to medium sand; trace coarse sand; grades into very fine grained siltstone	- - -
50 210.6 - - -	50.0		0	- - -	× × × × × × × × × × × × × × × × × × ×	49.9-55.0' - dark reddish brown, mottled reddish black and greenish gray, soft 50.1' - white clay clasts 0.02' thick  51.8-53.0' - coarse sand sized clast	R10: 15:10-15:24
- - -	R10NQ 5 ft 102%	100	0 0	- - - -	× × × × × × × × × × × × × × × × × × ×	_ (white clay) - - -	- At 53.1': R-Scale = R2 - -
55 205.6 - - - -	55.0		0	- - -	× × × × × × × × × ×	55.0-60.0' - dark reddish brown, mottled reddish black, greenish gray, and yellowish brown, soft  56.3-60.0' - soft to hard 56.6-58.5' - 25% fine to medium sand	R11: 15:40-16:05
- - -	R11NQ 5 ft 100%	100	1 0	58.8' - Fracture, 10 deg, rough, undulating	× × × × × × × × × × × × × × × × × × ×	56.6-56.9' - trace coarse sand - - - -	
60 200.6 - -	60.0		0		× × × × × × × × × ×	60.0-65.0' - dark reddish brown, mottled reddish black and greenish gray, 45-50% fine to medium sand 60.0-60.6' - 20-25% fine to medium sand	R12: 16:11-16:35 SC-3 collected – 60.0-60.8'
-	R12NQ 4.7 ft 1 100%		0		× × × × × × × ×	- - -	At 62.1': R-Scale = R2
65_ 195.6	64.7		0	- -	× × × × × ×	_ _ Bottom of Boring at 64.7 ft bgs on 7/17/06 16:45	R-Scale performed after drilling on stored samples –
-						- // //////// 10.45 	- - - -

2BB-414 Rev. 1



PROJECT NUMBER:

338884

BGA-17

# **SOIL BORING LOG**

SHEET 1 OF 6

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687204.0 N, 2012991.7 E)

ELEVATION: 261.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

DRILLING EQUIPMENT AND METHOD: CME-550, 3-5/8 Tricone Bit, 24 Split Spoon, and 140 lb. Automatic Hammer ORIENTATION: Vertical

DRILLIN	RILLING EQUIPMENT AND METHOD: CME-550, 3-5/8 Tricone Bit, 24 Split Spoon, and 140 lb. Automatic Hammer ORIENTATION: Vertical									
WATER	LEVELS	: 9.7 ft b	ogs		START : 7/24/06 10:59 END : 7/2	26/0	08:50 LOGGER : LH			
DEPTH B	ELOW EX	(ISTING G	RADE (ft)	STANDARD	SOIL DESCRIPTION	,,	COMMENTS			
	INTERV	AL (ft)		PENETRATION TEST RESULTS		SO I OI IOBMAS				
	RECOVERY (in)				SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT. RELATIVE DENSITY OR	= = =	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND			
			#TYPE	6"-6"-6"-6"	CONSISTENCY, SOIL STRUCTURE, MINERALOGY	Ä	INSTRUMENTATION			
				(N)		Û	5			
261.6	0.0		0.0-2.0' - reddish brown, mottled black, dry to moist,		Clay (CL) 0.0-2.0' - reddish brown, mottled black, dry to moist					
		24.0	SS1SS	3-4-8-10	stiff, low plasticity, medium dilatancy, trace wood and					
		24.0	33133	(12)	roots (at top 0.2')					
	2.0			` /		7//				
-						<b>T</b>	_			
-	2.5				Clay (CL)					
-					2.5-4.3' - reddish brown, mottled black, dry, stiff, low	7//				
-		21.6	SS2SS	5-6-12-14	\plasticity, medium dilatancy 2.9-3.0' - reddish yellow, very stiff, fat clay pockets,	+	-			
-				(18)	nonlinear or horizontal black material (laminated) along	+//	-			
-	4.5				fractures within clay at 60 degrees 3.3-3.5' - reddish yellow, very stiff, fat clay pockets,	Æ	-			
5 <u> </u>	5.0				$-\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!$					
250.0	0.0				fractures within clay at 60 degrees					
_		20.4	SS3SS	10-20-22-25	$\sqrt{5.0-5.3'}$ - reddish brown, mottled strong brown, moist,		_			
				(42)	hard, low plasticity, medium dilatancy					
	7.0				Clay (CL)  5.3-6.0' - pale yellow, mottled black, moist, hard	4/				
					Clay (CL)					
	7.5				\\\ 6.0-6.8' - dark reddish brown, mottled black, moist,					
-					hard, black material is in chunks (sand to fine gravel sized)	H	7			
-		16.8	SS4SS	5-7-10-12 (17)	Clay (CL)		7			
-	0.5			(17)	7.5-7.9' - reddish brown, mottled black, very stiff, low	Ħ	-			
- 40	9.5				plasticity, medium dilatancy, fat clay pocket, vertical at 7.6-6.9'	Н	-			
10 <u> </u>	10.0				Clay (CL)					
-					7.9-8.1' - very dark gray, mottled yellowish red, moist,	1-1/2	-			
-		22.8	SS5SS	4-6-10-12	very stiff Clay (CL)	\ <i>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</i>	-			
_				(16)	8.1-8.5' - pale yellow, mottled black, moist, hard	F	-			
_	12.0				Clay (CL)	ď	4			
-	40.5				8.5-8.9' - very dark gray, mottled yellowish red and light gray, moist, very stiff					
_	12.5				Clay (CL)					
		20.4	SS6SS	10-12-15-18	10.0-11.9 - light yellowish brown, mottled black (in fractures) and reddish yellow, moist, very stiff					
		20.4		(27)	11.3-11.9' - reddish yellow, clay pockets		Ī			
]	14.5				Clay (CL) 12.5-13.4' - light yellowish brown, mottled black (in	$\mathcal{H}'$	4			
15						1	]			
246.6	15.0				the top					
-					Clay (CL) 13.4-14.2' - olive yellow, yellow, black and gray, moist,		7			
-		23.4	SS7SS	2-2-4-12 (6)	\very stiff, trace medium to coarse sand	$\square V$	<b>[</b> ]			
-	17.0			(0)	Clay (CL)	1	<b>1</b>			
-	17.0				15.0-17.0 - olive yellow, yellow, black and gray, moist, 24, trace medium to coarse sand	ď	4			
-	17.5				-\ 15.9' - coarse gravel sized piece of igneous rock from \	$\mathcal{A}$	-			
-					dike, discolored dark gray because of weathering  Clay (CL)	+	Driller Remark: Didn't have catcher, lost			
-		0.0	SS8SS	10-12-15-18	17.5' - lost sample	1	sample.			
-				(27)	•	1	_			
_	19.5					1	_			
20						$\perp$				
						┸				



PROJECT NUMBER:

338884

BGA-17

SHEET 2 OF 6

# **SOIL BORING LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687204.0 N, 2012991.7 E)

ELEVATION: 261.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

DRILLING EQUIPMENT AND METHOD: CME-550, 3-5/8 Tricone Bit, 24 Split Spoon, and 140 lb. Automatic Hammer ORIENTATION: Vertical

				I HOD : CIVIE-550,	, 3-5/8 Tricone Bit, 24 Split Spoon, and 140 lb. Autor			ORIENTATION : Vertical 08:50 LOGGER : LH		
		S : 9.7 ft b	ogs GRADE (ft)		START : 7/24/06 10:59 SOIL DESCRIPTION	END : 7/26	5/06 (	08:50 LOGGER : LH COMMENTS		
DEFIRE	INTERV		RADE (II)	PENETRATION	SOIL DESCRIPTION		.0G	CONNINCINTO		
	INTERV.		EDV /!\	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COL	LOR,	SYMBOLIC LOG	DEPTH OF CASING, DRILLING RATE,		
		KECOV	ERY (in)	011 011 011 011	MOISTURE CONTENT, RELATIVE DENSIT CONSISTENCY, SOIL STRUCTURE, MINERA	Y OR	1BOL	DRILLING FLUID LÓSS, TESTS, AND INSTRUMENTATION		
			#TYPE	6"-6"-6"-6" (N)	CONSISTENCY, SOIL STRUCTURE, WINNER	ALOGI	SYN	INSTRUMENTATION		
241.6 - - -						- - -				
- - - -	22.5	24.0	SS9SS	3-4-6-6 (10)	Clay (CL) 22.5-24.5' - olive yellow, yellow, black and gray stiff, at 22.5-23.5' more clay than rest of same n (<50%), trace medium to coarse sand	, moist, - naterial _				
25 236.6 - - -						 - - -		Driller's Remark: At 26.5' bgs material begins to be harder. At 27.0' it becomes even harder		
- - - -	27.5	9.6	SS10SS	19-50/6 (50/6")	Clay (CL) 27.5-28.3' - dusky red, mottled black and pale y moist, hard	/ellow, -				
30 231.6 - - -						 - - -		Soil sampling completed at 15:10 on 7/24/06		
- - - -	32.5 32.8	3.0	<u>\$\$11\$\$</u>	50/3 (50/3")	Clay (CL) 32.5-32.8' - dusky red, moist, hard, very fine sa gravel sized pieces of ground up siltstone. Bake Begin Rock Coring at 32.8 ft bgs See the next sheet for the rock core log	e zone	////	con company company		
35						- - - - - - -				



PROJECT NUMBER:

338884

BORING NUMBER:

BGA-17 SHEET 3 OF 6

# **ROCK CORE LOG**

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687204.0 N, 2012991.7 E)

ELEVATION: 261.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

				THOD : CIVIL-330, INQ DOUBLE Ballel				ONIENTATION: Vertical
WATER	LEVELS: 9.	7 ft bo	gs	START : 7/24/06 10	59		END: 7/26/06 08:50	LOGGER : LH
				DISCONTINUITIES	(D	Π	LITHOLOGY	COMMENTS
- ₽	CORE RUN, LENGTH, AND RECOVERY (%)		Ø	DESCRIPTION	SYMBOLIC LOG		DOOK TVDE COLOR	
NO H	Z, A, S.	(6)	流드	DESCRIPTION	<u> </u>		ROCK TYPE, COLOR, MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	N H H	(%) 🛭	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	ĬĞ	1	WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
E 등 등 등	SSISSISSISSISSISSISSISSISSISSISSISSISSI	g	N N	PLANARITY, INFILLING MATERIAL AND	Ĭ		AND ROCK MASS	DROPS, TEST RESULTS, ETC.
2222	ᆼ끸뿝	ď	E E	THICKNESS, SURFACE STAINING, AND TIGHTNESS	Ś	1	CHARACTERISTICS	
_	32.8			32.9' - Fracture, 45 deg, rough, planar	× :	<u>X</u> -	Partially Metamorphosed Siltstone	Rock coring began at 15:23 -
l _			4	32.9' - Fracture, 45 deg, rough, planar	X	1	At 32.8' - dark reddish gray, hard	on 7/24/06
				33.2' - Fracture, 20 deg, rough, planar, dark	× :	X	32.8-37.5' - slightly weathered	R1: 15:23-15:38 on
_			2	gold/orange (hematite) and black stains	× :	XF		07/24/06
-			-	33.8-34.0' - Fracture, 70 deg, rough, undulating	- × :	7		At 32.5-37.5': R-Scale = R5
35	R1NQ			34.3-34.8' - Fracture, vertical, rough, —	× :	<u>*</u>	_	At 32.5-37.5 . R-Scale – R5
226.6	4.7 ft	41	10+	undulating	× :	X		
_	101%			34.8-35.0' - Fracture zone, rough, undulating	× :	<b>7</b>		1
-				35.5-35.8' - Fracture zone, rough, undulating,	× :	<b>X</b> }-		1
l -			10+	some black stains		<u>*</u>		1
				36.2-36.5' - Fracture zone, rough, undulating, some black and hematite - dark gold/orange	× : × : × :	Â		
I -	27.5		10+	some black and nemalite - dark gold/orange stains, sediment infilling	$\times$	XT		1
-	37.5		\ A A A	36.8-37.0' - Fracture zone, rough, undulating,	×	<u>*</u>	37.5-39.0' - fresh	R2: 08:58-09:03 on
I -	R2NQ		1	hematite stains (dark gold/orange)	- × :	1	3.13 30.0 110011	07/25/06
	1.5 ft	80		37.6-37.9' - Fracture, 60 deg, rough,	× :	<u>X</u>		At 37.5-39.0': R-Scale = R5
I -	100% 39.0		0	undulating, linear features oriented up and	×	ď		1
-	55.5			down in fracture 39.1' - Fracture, horizontal, rough, stepped,	× :	1	Partially Metamorphosed Siltstone	R3: 09:10-09:25
-			4	dark gold/orange stains	× : × :	<b>X</b> -	At 39.0' - reddish black, hard, linear	_
40				39.4' - Fracture, horizontal, smooth, stepped, —	×	<u>L</u>	features may be weak foliations	At 39.0-44.2': R-Scale =
221.6				linear features	$\times$	Ŕ	39.0-49.2' - slightly weathered	10.
_			10+	39.6' - Fracture, 10 deg, rough, stepped, dark	× :	*		1
-				gold/orange stains	× :	<u>*</u>	41.0-44.2' - trace fine to medium	1
l -	R3NQ	0	10+	39.6-40.1' - Fracture, 80 deg, rough, undulating	× :	Ä.	grained sand sized white crystals,	1
	5.2 ft 96%	U		40.1' - Fracture, 30 deg, rough, undulating	× :	X	vugs (<0.01-0.06' diameter)	
	00,0			40.3-40.8' - Fracture zone, many different	× :	X	41.2-41.5' - gravel sized white hard	1
-			10+	fractures deg, rough, undulating, black stains,	1× :	*	material in rock	1
-				slickensided (in two opposing directions, 55	× :	**		1
I -			40.	deg and vertical 40.8-41.3' - Fracture, vertical, rough,	× :	<u> </u>		
			10+	undulating, black, yellow and dark gold/orange	X	K		
I -	44.2		$\times\!\!\times\!\!\times$	stains (40.75-40.9'), slickensided at	× :	<b>1</b>	44.2-44.6' - mottled gray and yellow	
-			10+	40.75-40.85'	× :	<b>X</b>  -	orange	R4: 09:38-10:10
45			10+	41.3-41.6' - Fractures (3), horizontal and 45	×	<u>Ł</u>	44.2-49.2' - gravel to coarse sand	1
216.6				deg, rough, undulating, black and dark	× :	Ŕ	sized metamorphosed white clasts;	Assuming full recovery, rock
I -			10+	gold/orange stains, 45, horizontal = slickensided, rough	× :	<b>X</b>	foliated in some areas, linear features throughout.	core is fractured so much that actually measuring it is
-				41.6' - Fracture, 35 deg, rough, planar, black	×	*	44.2-83.4' - bluish black	impossible
I -	R4NQ	40	, ,	stains, possible foliation	- × :	1	44.2-45.0' - vugs (0.01-0.03' thick)	At 44.2-49.2': R-Scale =
I _	5 ft 100%	18	10+	41.8-41.9' - Fractures (2), 50 deg and	× :	<b>X</b> L	and greenish gray inclusion material is	R5+
1	100%			horizontal, rough, undulating, black and dark	× ; × ; × ;	ď	soft in inclusions; vugs have yellowish	1
-			10+	gold/orange stains, white material in patches	Îŝ	<b>}</b>	silt in them 46.6-48.6' - Coarse sand sized white	1 1
-				41.9' - Fracture, 45 deg, rough, stepped, black stains, stepped/undulating, possible foliations	× : × :	<b>X</b>	clasts in linear (vertical) feature	-
I -				42.2-44.2' - Fracture zone, 10 deg, rough,	× : × :	<u></u>	Gasto III III oai (vortioai) leature	
			10+	undulating, black stains, rough and smooth,	- X	8		
I -	49.2			undulating, planar, and stepped, *slickensided	×	*	40.2.54.21 mo#leded	DE: 10:10 10:10
			10+	at 43.8-44.2	× :	<u>*</u>	49.2-54.2' - mottled weak red, gravel and coarse sized white clasts with	R5: 10:19-10:40
50			'''	44.2-45.3' - Fracture, smooth, stepped, dark gold/orange stains (iron oxide), microfractures	x :	<u></u>	vertical linear features throughout;	-
211.6				have white material (hard) in them, tightly	X	1	foliated, almost slate	
I -			10+	healed (most of core run)	× :	<u>*</u> [	49.2-57.7' - fresh	1
-				44.7' - Fracture, horizontal, rough, undulating,	× : × : × :	*		1 1
-	R5NQ		آ _م ا	black and dark gold/orange stains in one spot,	× ;	<b>X</b>		-
	5 ft 100%	15	10+	foliated	]× :	<u></u>		
	100%				×	$\mathbf{F}$		1
L -					× :	<b>X</b>		<u>                                     </u>
						1		
1					1	1		

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PROJECT NUMBER:

338884

BORING NUMBER:

BGA-17 SHEET 4 OF 6

# **ROCK CORE LOG**

ORIENTATION : Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687204.0 N, 2012991.7 E)

ELEVATION: 261.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

				THOD : OWE-550, NQ Double Barrel			ORIENTATION: Vertical
WATER	LEVELS: 9.	7 ft bo	ļs	START : 7/24/06 10	59	END: 7/26/06 08:50	LOGGER : LH
1	(9)			DISCONTINUITIES	O	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)		S	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	
AE R	7. A.	(%	FRACTURES PER FOOT		<b>1</b> 을	MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
T A V A	SE S	(%) Q	Z.	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	l BC	WEATHERING, HARDNESS, AND ROCK MASS	SMOOTHNESS, CAVING ROD
		a	유	THICKNESS, SURFACE STAINING, AND TIGHTNESS	1 ₹	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
F		_	10+	45.2' - Fracture, 10 deg, rough, undulating, no	× ×		
-				stains, yellow, dark gold/orange and black	××	54.2-56.4' - gravel sized white clasts	1
-	1		10+	stains, few foliations	Îx x	-	-
-	54.2			45.5' - Fracture, horizontal, smooth, stepped,	$\times$ $\times$	54.2-57.5' - coarse sand sized white	-
l _				yellow and dark gold/orange stains, foliated	× ×	- clasts in linear (vertical) feature	R6: 11:15-11:45
55			10+	45.7-46.1' - Fracture zone, rough, undulating, dark gold/orange, lime, yellow and black —	××	54.2-59.2' - gravel sized white clasts	
206.6	1			stains, undulating and stepped, gray, foliations	××		Driller Remark: Keep
-	-		3	46.1-46.5' - Fracture, vertical, rough,	$\times$ $\times$	-	having to stop because of -
_			"	undulating, black, yellow and orange/gold	× ×	-	circulation problems.
l _	R6NQ			stains	× ×	EG 4 EQ 2! year, fine condition with	At 54.2-59.2': R-Scale = R5+
	5 ft	28	10+	46.5' - Fracture, rough, undulating, black and	××	<ul> <li>56.4-59.2' - very fine sand sized vugs appearing as darker spots</li> </ul>	KOT
1 -	100%			orange/gold stains, parabolic shaped 46.9' - Fracture, horizontal and vertical, rough,	× ×	57.0' - trace weak red mottles	
1 -			6	planar, greenish gray and black stains,	××	_	At 57.5' water turns gray
1 -			"	foliations	× ×	Partially Metamorphosed Siltstone	from brown
1				47.3-48.0' - Fracture zone, rough, undulating,	× ×   × ×	At 57.7' - bluish black, very hard, fresh, no foliations or linear features	Driller's Remark: Rock is
1 -			10+	hard white infilling, black stains, foliations	××	present	getting harder with depth
1 -	59.2			48.0-48.3' - Fracture, vertical, rough, undulating, hard greenish gray to white	× ×	F '	1
-	-		40.	infilling, black, greenish gray and red stains	××	_ 59.2-83.4' - vugs present	R7: 14:04-14:15
60			10+	48.3' - Fracture, 10 deg, rough, undulating,	××	_	
201.6				hard white infilling, black stains	× ×		At 59.2-64.2': R-Scale = R5
_			3	48.6' - Fracture, 35 deg, rough, undulating,	× ×	-	_
-	-			hard white infilling 48.9' - Fracture, 45 deg, rough, undulating,	× ×	-	-
_	R7NQ		١	hard white infilling	××	_	_
	5 ft 84%	44	4	49.4-50.1' - Fracture zone, rough to planar,	× ×		Driller's Remark: At 61.6'
	04 76			undulating to smooth, white, hard infilling,	× ×		bgs rod dropped and bit kicked out, began losing 8-
-	1		2	weak red stains, foliated 50.9' - Fracture, horizontal, rough, stepped,	××	-	10 gallons a minute. Lost
-	-			hard white infilling	××	-	0.3' out of the end of the
_			$\times$	51.7' - Fracture, horizontal, rough, stepped,	× ×	_	core barrel
l _	64.0		$\bowtie$	hard white infilling	× ×		_
	64.2		$\sim$	51.9' - Fracture, horizontal, rough, undulating,	× ×		R8: 14:22-14:31
65	1		2	hard white infilling, foliations 52.1' - Fracture, 45 deg and 45 deg, rough,	× ×	-	14.22 14.01
196.6	-			planar, hard white infilling, weak red stains,	$\times$ $\times$	<del>-</del>	Drilling mud is red now
.55.5				opposing angles, foliations	××	-	- Draining mad is fed flow
1			1	52.4-53.8' - Fracture zone, rough, undulating,	lê ŝ		
1 -	R8NQ			hard white infilling, rough and smooth,	$\times$ $\times$		At 64.2-69.2': R-Scale = R5
1 -	5 ft	85	1	undulating and planar and stepped, foliations and linear features	× ×	-	-
1 -	93%		Ŀ	53.8-54.0' - Fracture, vertical, rough,	l× ×	-	-
1 -				undulating, hard white infilling	Jŝ ŝ	<b>-</b>	_
1			3	54.0' - Fracture, horizontal, rough, undulating,	× ×		
1				hard white infilling	× ×		1
1 -			1	54.2-54.5' - Fracture, vertical, rough, undulating, hard white infilling, foliated surface	Îx x	-	-
1 -	69.2			54.5' - Fracture, 20 deg, smooth, stepped, hard	* × ×	-	-
1 -				white infilling, foliations	$\times$ $\times$	<b>L</b>	R9: 14:37-14:47
70_			3	54.9-56.3' - microfractures, rough, undulating,	× ×		
191.6				tightly healed to loosely healed, white, hard	× ×		
1 -			1	infilling 54.9' - Fracture, 15 deg, rough, planar, hard	× ×	-	
1 -				white infilling, foliations	× ×	-	-
1 -	R9NQ			55.7-56.4' - Fracture, vertical, rough,	× ×	<u>-</u>	
1	5 ft	91	1	undulating, hard white infilling, foliations and	××		
1 -	100%			other linear features at 45 deg	× ×	<u> </u>	1
-	-			56.4' - Fracture, horizontal, smooth, undulating, hard white infilling, foliations	××	-	-
				and white initially, foliations	1^_^		
					1		

2BB-418 Rev. 1



PROJECT NUMBER:	BORING NUMBER:			
338884	BGA-17	SHEET	5 OF	6

ORIENTATION : Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687204.0 N, 2012991.7 E)

ELEVATION: 261.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

	2	,		THOD . CIVIL-000, NQ DOUBLE DAITE				ORIENTATION: Vertical
WATER	LEVELS: 9.	7 ft bo	ıs	START : 7/24/06 10	:59	_	END: 7/26/06 08:50	LOGGER : LH
	· · ·			DISCONTINUITIES	ď	L	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)		S	DESCRIPTION	90		ROCK TYPE, COLOR,	
A O H	ER'A	<u>@</u>	FRACTURES PER FOOT		SYMBOLIC		MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING,
TE S S Y	RES	(%) Q	FS F	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	BO		WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
E E E	S N N	Ø	RA	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	Σ.		AND ROCK MASS CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
СШВО	0715	ď			0,	<u>,                                    </u>	OI IA GAOTERIO TIO	
-	1		3	56.5' - Fracture, horizontal and horizontal,	√×	<b>X</b>		-
-	4			smooth, stepped, hard white infilling, undulating and planar, foliations	- × ×	<b>X</b> -		-
l _	74.0		0	56.9' - Fracture, 20 deg, smooth, planar, hard	×	$\mathbb{Z}$		_
	74.2			white infilling	××	X		R10: 08:21-08:30 on
75 -			1	57.0-57.3' - Fracture, 70 deg, rough,	<b>∀</b> ×	*		07/26/06
75 <u> </u>	-			undulating, hard white infilling, foliations and —	–×	+	=	
100.0				linear features	××	<b>X</b>		_
			2	57.1' - Fracture, horizontal, smooth, planar,	×	X		
_	1			hard white infilling 57.3' - Fracture, horizontal, smooth, planar,	×	<b>X</b>		-
-	R10NQ 5 ft	100		hard white infilling, tightly healed, foliations	- ×	<b>X</b>		-
_	100%	100	1	and linear features= horizontal	- × ×	X_		_
1	10070			57.5' - Fracture, 30 deg, rough, undulating,	×	8		
1 -			2	hard white infilling, foliations and linear	[™] ×	*		SC-1 collected
1 -	1			features 57.7' - Fracture, horizontal, smooth, planar,	⊢× ×	*		77.5-78.2' –
-				hard white infilling	-Îŝ	1		_
_	70.0		0	57.9' - Fracture, 10 deg, rough, planar, hard	]×	<b>X</b>		<u> </u>
	79.2			white infilling	$\mathbb{I}_{\times}$	χŢ		R11: 08:40-08:50
	1		1	58.2' - Fracture, horizontal, rough, planar, hard	∃Ŷ.	*		K11. 06.40-06.50
80 <u> </u>			'	white infilling	⊢× ×	**	_	
101.0	R11NQ 4.2 ft 100%			58.4' - Fracture, 20 deg, rough, undulating, hard white infilling	-×	<u>X</u>		First water level = 9.7' bgs taken 7/27/06 at 10:45
			2	58.5' - Fracture, 20 deg, smooth, undulating,	×	Ŕ		taken 7/27/00 at 10:43
-				hard white infilling, undulates once (concave)	××	*		-
-		100	2	59.0-59.1' - Fracture, smooth, stepped, hard	- × ×	<b>X</b> -		-
I -			-	white infilling, many angles, foliations on angle	×	X_		
				59.2-59.7' - Fracture zone, rough, undulating,	××	X		R-Scale performed during
_			3	some hard white infilling, stepped at bottom 60.5' - Fracture, horizontal, rough, undulating,	×××	<b>X</b>		rock core logging -
-	83.4			hard white infilling	٦×.	*		-
-	05.4			60.7' - Fracture, 20 deg, rough, undulating,	╪	╊	Bottom of Boring at 83.4 ft bgs on	=
<u> </u>				ground up rock and hard white infilling		L	7/26/06 08:50	_
				61.1' - Fracture, 45 deg, rough, undulating,				
05 -	1			hard white infilling 61.4' - Fracture, 20 deg, rough, undulating,	1	r		-
85 <u> </u>	-			ground up rock and hard white infilling	-	H	_	
170.0				61.6' - Fracture, 20 deg, rough, undulating,	4	L		_
				hard white infilling				
1 -				62.4' - Fracture, 45 deg, rough, undulating,	7	Γ		]
1 -				hard white infilling	1	F		-
1 -				62.7' - Fracture, 20 deg, rough, planar, hard white infilling	4	F		-
1 -				63.5' - Fracture, 20 deg, rough, planar, hard	1	L		_
				white infilling				
1 -	1			63.7' - Fracture, 20 deg, rough, undulating,	1	T		]
-	-			hard white infilling, black stains	1	F		-
1 -				64.6' - Fracture, 45 deg, rough, undulating, hard white infilling, linear features	4	F		-
1				64.9' - Fracture, horizontal, rough, undulating,	J	L		
90				hard white infilling, no linear features	1	Γ		]
171.6				65.8' - Fracture, 20 deg, rough, planar, hard	1	上	_	
1 -				greenish gray infilling	-	F		-
1 -				66.6' - Fracture, 45 deg, rough, planar, hard greenish gray infilling	1	L		_
1				67.4' - Fracture, 45 deg, rough, planar, hard				
1 -				greenish gray infilling	1	t		_
1 -	-			67.8' - Fracture, 45 deg, rough, planar, hard	1	F		-
-				greenish gray infilling	4	F		-
1					+	+		

2BB-419 Rev. 1



PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-17	SHEET 6 OF 6

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687204.0 N, 2012991.7 E)

ELEVATION: 261.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS  OUT HE WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS  FLUID LOSS, CORING RATE A SMOOTHNESS, CAVING RC CHARACTERISTICS  FLUID LOSS, CORING RATE A SMOOTHNESS, CAVING RC CHARACTERISTICS  FLUID LOSS, CORING RATE A SMOOTHNESS, CAVING RC CHARACTERISTICS  FLUID LOSS, CORING RATE A SMOOTHNESS, CAVING RC CHARACTERISTICS  FLUID LOSS, CORING RATE A SMOOTHNESS, CAVING RC CHARACTERISTICS  FLUID LOSS, CORING RATE A SMOOTHNESS, CAVING RC CHARACTERISTICS  FLUID LOSS, CORING RATE A SMOOTHNESS, CAVING RC CHARACTERISTICS  FLUID LOSS, CORING RATE A SMOOTHNESS, CAVING RC CHARACTERISTICS  FLUID LOSS, CORING RATE A SMOOTHNESS, CAVING RC CHARACTERISTICS  FLUID LOSS, CORING RATE A SMOOTHNESS, CAVING RC CHARACTERISTICS  FLUID LOSS, CORING RATE A SMOOTHNESS, CAVING RC CHARACTERISTICS  FLUID LOSS, CORING RATE A SMOOTHNESS, CAVING RC CHARACTERISTICS  FLUID LOSS, CORING RATE A SMOOTHNESS, CAVING RC CHARACTERISTICS  FLUID LOSS, CORING RATE A SMOOTHNESS, CAVING RC CHARACTERISTICS  FLUID LOSS, CORING RATE A SMOOTHNESS, CAVING RC CHARACTERISTICS  FLUID LOSS, CORING RATE A SMOOTHNESS, CAVING RC CHARACTERISTICS  FLUID LOSS, CORING RATE A SMOOTHNESS, CAVING RC CHARACTERISTICS  FLUID LOSS, CORING RATE A SMOOTHNESS, CAVING RC CHARACTERISTICS  FLUID LOSS, CORING RATE A SMOOTHNESS, CAVING RC CHARACTERISTICS  FLUID LOSS, CORING RATE A SMOOTHNESS, CAVING RC CHARACTERISTICS  FLUID LOSS, CORING RATE A SMOOTHNESS, CAVING RC CHARACTERISTICS  FLUID LOSS, CORING RATE A SMOOTHNESS, CAVING RC CHARACTERISTICS  FLUID LOSS, CORING RATE A SMOOTHNESS, CAVING RC CHARACTERISTICS  FLUID LOSS, CAVING RC CHA	WATER	LEVELS: 9.	.7 ft bo	ļs	START : 7/24/06 1	0:59		END: 7/26/06 08:50	LOGGER : LH
68.4' - Fracture, 45 deg, rough, undulating, hard white infilling, no linear features 69.8' - Fractures (2), horizontal, rough, undulating, hard white infilling 70.1' - Fracture (1), horizontal, rough, undulating, hard white infilling 70.5' - Fracture 45 deg, rough, undulating		(9)							
68.4' - Fracture, 45 deg, rough, undulating, hard white infilling, no linear features 69.8' - Fractures (2), horizontal, rough, undulating, hard white infilling 70.1' - Fracture (1), horizontal, rough, undulating, hard white infilling 70.5' - Fracture 45 deg, rough, undulating	DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%	R Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND		SYMBOLIC LO	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
hard white infilling 7.12 - Fracture, horizontal, rough, undulating, hard white infilling 7.22 - Fracture, 45 deg, rough, undulating, and the infilling response in the infill	100 161.6 - - 100 161.6 - - - 105 156.6				hard white infilling, no linear features 69.8' - Fractures (2), horizontal, rough, undulating, hard white infilling 70.1' - Fracture (1), horizontal, rough, undulating, hard white infilling 70.5' - Fracture, 45 deg, rough, undulating, hard white infilling 71.8' - Fracture, horizontal, rough, undulating, hard white infilling 72.2' - Fracture, 45 deg, rough, undulating, hard white infilling 72.9' - Fractures, horizontal, rough, undulating, hard white infilling 73.0' - Fracture, 20 deg, rough, undulating, hard white infilling 74.8' - Fracture, 30 deg, rough, undulating, hard white infilling 75.4' - Fracture, 45 deg, rough, undulating, hard white infilling 75.9' - Fracture, 20 deg, rough, undulating, hard white infilling 77.5' - Fracture, 20 deg, rough, undulating, hard white infilling 77.5' - Fracture, horizontal, rough, undulating, hard white infilling 78.2' - Fracture, horizontal, rough, undulating, hard white infilling 80.6' - Fracture, 20 deg, rough, undulating, hard white infilling 80.9' - Fracture, horizontal, rough, undulating, hard white infilling 81.2' - Fracture, horizontal, rough, undulating, hard white infilling 81.2' - Fracture, horizontal, rough, undulating, hard white infilling 81.2' - Fracture, horizontal, rough, undulating, hard white infilling 81.3' - Fracture, rough, undulating, hard white infilling 82.3' - Fracture, horizontal and 50 deg, rough, undulating, hard white infilling 83.3' - Fracture, horizontal, rough, undulating,				

2BB-420 Rev. 1



PROJECT NUMBER:	BORING NUMBER:
338884	BGA-18

#### **SOIL BORING LOG**

SHEET 1 OF 4

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686565.5 N, 2012711.3 E)

ELEVATION: 263.5 ft MSL (NGVD 29)

DRILLING CONTRACTOR: J. Little, S&ME

DRILLING EQUIPMENT AND METHOD: BK-51, Tricone Bit, 24 Split Spoon, 140 lb. Hammer and Cathead ORIENTATION: Vertical

DRILLIN	DRILLING EQUIPMENT AND METHOD: BK-51, Tricone Bit, 24 Split Spoon, 140 lb. Hammer and Cathead ORIENTATION: Vertical									
WATER	LEVELS	S: 8.4 ft l	ogs		START : 7/25/06 08:20 END : 7/2	<u>6/06 (</u>	09:38 LOGGER : JS/AT			
DEPTH B	ELOW EX	KISTING (	GRADE (ft)	STANDARD	SOIL DESCRIPTION	ڻ	COMMENTS			
	INTERV	AL (ft)		PENETRATION TEST RESULTS	OOU NAME LIGOO OPOLID OVALDOL. OOLOD	C LC	DEDTIL OF CACING DRILLING DATE			
		RECOV	ERY (in)		SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR	30 Li	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND			
			#TYPE	6"-6"-6"	CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	INSTRUMENTATION			
263.5	0.0			(N)	¬ Topsoil	14.7%;				
-		15.0	SS1SS	9-7-7-8 (14)	\(\sigma_0.0\cdot-0.2'\) - grass, gravel \(\sigma_1\) \(\sigma_0.2\cdot-0.2'\) - grass, gravel \(\sigma_1\) \(\sigma_0.2\cdot-0.4'\) - light brown sand, light gray gravel, moist, hard, loose, 60% fine - coarse angular gravel, fine to		- - -			
-	2.0				medium sand, 15-20% low plastic fines	1	-			
- - -	2.5	12.0	SS2SS	7-5-6-11 (11)	Clay (CL)  0.4-1.3' - reddish brown, some purple and white mottling, moist, stiff, low to medium plasticity, slow to rapid dilatancy, 1 thick irregular sandy lens, fine to medium sand  Silt With Sand To Clay (CL)  2.5-3.5' - reddish brown, scattered yellow mottling in last few inches in irregular laminations, moist, stiff, low		- - -			
5					\plasticity, rapid dilatancy, very fine to fine sand, content	<b> </b>	_			
258.5 - - -	5.0	16.0	SS3SS	7-21-25-36 (46)	Varies throughout  Lean Clay (CL) 5.0-5.5' - reddish brown, mottled orange and white, moist, stiff, low to medium plasticity, slow dilatancy, up to 15% very fine to fine sand, friable		- - -			
-	7.0				Clay (CL)	┨	-			
-	7.5				5.5-6.3' - reddish brown, greenish white mottling, dry to ∖moist, very hard, low plasticity, some bedrock pieces,  //	////	-			
-		14.0	SS4SS	32-35-45-50/5 (80)	\friable \textbf{Lean Clay (CL)} 7.5-8.7' - reddish brown, mottled weak red, green, olive yellow, moist, very hard, medium to high plasticity, no to ∫		-			
_	9.5			(55)	\slow dilatancy, very friable		1			
10	0.0					1	1			
253.5	10.0				No Recovery	1	7			
- -		0.0	SS5SS	18-15-17-19 (32)	10.0-12.0'		-			
_	12.0				-	┨	Soil sampling completed at 09:50 on 7/25/06			
-	12.5	3.0	SS6SS		¬ Clay (CL)	////	Drillers Remark: hard at 12.3' bgs -			
- - -	12.8	3.0	33033	50/3 (50/3")	12.5-12.8' - red, mottled purple and white, moist, very hard, low to medium plasticity, slow dilatancy Begin Rock Coring at 12.8 ft bgs See the next sheet for the rock core log	-	-			
15					-	1	-			
248.5					_	1	_			
-					-	1	-			
-					-	1	-			
-					-	1	1			
-						1	1			
-					·	1				
-					-	1	1			
-					<del>-</del>	1				
-					·	1				
20					<del>-</del>	1	1			
					-					

2BB-421 Rev. 1



PROJECT NUMBER: BORING NUMBER: **BGA-18** 338884

# **ROCK CORE LOG**

SHEET 2 OF 4

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (686565.5 N, 2012711.3 E)

ELEVATION: 263.5 ft MSL (NGVD 29) DRILLING CONTRACTOR: J. Little, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel  ORIENTATION : Vertical								
WATER LEVELS: 8	4 ft bo	gs	START : 7/25/06 08	:20	END: 7/26/06 09:38	LOGGER : JS/AT		
(%			DISCONTINUITIES	g	LITHOLOGY	COMMENTS		
DEPTH AND ELEVATION BELOW SURFACE (ft) CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.		
_ 12.8		0		× ×	Siltstone	Rock coring began at 10:00 _		
R1NQ 2.6 ft 1111% 15 248.5	86	NA 10+	-	× × × × × × × × × × × × × × × × × × ×	12.8-16.0' - dark reddish brown, mottled purple, green and yellow, very soft 12.8-14.4' - fine grained with up to 15% sand or coarse silt 12.8-15.4' - moderately weathered 14.4-14.9' - clay seam, same color as	on 7/25/06 R1: 10:21-10:28 on 07/25/06 At 13.8': R-Scale = R2 At 14.4': PP: 3.75 tsf  At 15.2': R-Scale = R2		
-		3	15.5' - Fracture, horizontal, rough, stepped, 0.01' clay infilling 15.6' - Fracture, horizontal, undulating, partial fracture (not open) 16.2-16.3' - Fractures (2), horizontal, smooth, undulating	× × × × · · · ·	rock 14.9-16.0' - very soft to soft, fine grained with up to 20-25% very fine to fine sand/coarse silt, 15.4-16.0' - fresh Sandstone	R1: 13.2 : R-Scale = R2		
R2NQ 5 ft 83% - 20 243.5 20.4	77	0	19.5' - Fracture, horizontal, rough, undulating 19.6' - Fracture, horizontal, rough, undulating, —		At 16.0' - dark reddish brown, soft, angular, poorly sorted, 70-80% fine to coarse sand to fine gravel 16.0-20.4' - fresh 16.3' - mottled faint green, black, and yellow, very fine sand to fine sand, 30% silt, trace scattered coarser grains to 0.02 17.2' - becoming coarser with depth,			
R3NQ 5 ft 100% 25 238.5 25.4	70	10+	0.05' relief 19.6-20.4' - presume clay layer that was washed out 20.7-20.9' - Fractures (3), horizontal, smooth, undulating, 0.05' relief 21.2-21.4' - Fracture zone, horizontal, bedrock fragments 21.5' - Fracture, horizontal, smooth, planar, 0.5mm clay infilling 21.7' - Fracture, horizontal, smooth, planar 21.7' - Fracture, horizontal, smooth, planar 21.9' - Fracture, horizontal, smooth, planar 22.4' - Fracture, horizontal, rough, undulating, black staining over ~30% of surface, 0.01' relief 22.5-25.4' - microfractures opening up as core	××××××××××××××××××××××××××××××××××××××	picking up to 10-15% medium grained sand to .1  18.1' - soft to hard, fine sand to coarse sand, subrounded to subangular, well sorted, multicolored sand to 0.2, trace silt  20.4-20.7' - moderately weathered 20.4-20.7' - clay seam, very soft  Siltstone  At 20.7' - reddish brown, mottled black and green, very soft 20.7-25.4' - moderately weathered  22.5' - green mottling, very soft to soft, subrounded to subangular, 10-15% very fine sand / coarse silt and picking	R3: 13:00-13:08 At 20.4': PP: 1.5 tsf Drillers Remark: Core from 20.4-22.4' very chewed up - due to water plugging up in hole At 22.6': R-Scale = R0-R1 At 23.3': R-Scale = R1-R2  At 24.7': R-Scale = R1-R2		
R4NQ 5 ft 92% 233.5 30.4	52	0 2 10+ 1 1 2	23.8' - Fracture, 15 deg, rough, undulating, 0.05' relief 24.3' - Fracture, 10 deg, rough, undulating, 0.02' relief 25.4' - Fracture, horizontal, rough, planar, white and yellow staining over 50% of area, black spots <0.05' mm over entire face, 0.005' relief 27.4' - Fracture, horizontal, smooth, undulating 27.7' - Fracture, horizontal, rough, undulating, 0.005' relief, a few black stains on face 28.7-28.8' - Clay seam, horizontal, smooth, undulating 29.8' - Fracture, horizontal, smooth, undulating, 0.005' relief 31.1' - Fracture, forizontal, smooth, undulating, 0.005' relief 31.6' - Fracture, 5 deg, rough, undulating 31.6' - Fracture, 2 deg, smooth, undulating, 0.01' relief	××××××××××××××××××××××××××××××××××××××	up medium sand, white and black 22.8' - less medium sand (<5%), trace rounded black clasts; becoming finer grained with depth 25.4-27.0' - dark reddish gray, mottled gray, purple, very soft, highly weathered, very fine grained, 20% fine to coarse rounded to subrounded gravel scattered throughout 27.0-27.4' - mottled dusky red, becomes a little harder 27.0-30.4' - moderately weathered 27.4-27.7' - clay seam and very soft bedrock 27.4-27.7' - clay seam, very weak bedrock 27.7-30.4' - reddish brown, mottled green and black, very fine to fine grained 27.7-28.6' - soft, becoming coarser with depth, fine grained by 28.8' with 15-20% very fine sand	R4: 14:00-14:10		

2BB-422 Rev. 1



PROJECT NUMBER: BORING NUMBER: **BGA-18** 338884 SHEET 3 OF 4

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (686565.5 N, 2012711.3 E)

ELEVATION: 263.5 ft MSL (NGVD 29) DRILLING CONTRACTOR: J. Little, S&ME

	DIRECTOR : 200.3 IT MISE (NOVE 29)  DIRECTOR : 3. Little, Salvie									
CORING	CORING EQUIPMENT AND METHOD: BK-51, NQ Double Barrel  ORIENTATION: Vertical									
WATER	LEVELS: 8.	4 ft bo	ıs	START : 7/25/06 08	:20	END: 7/26/06 09:38	LOGGER : JS/AT			
	(9)			DISCONTINUITIES	g	LITHOLOGY	COMMENTS			
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STANNING, AND TIGHTNESS	SYMBOLIC LOG	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.			
35 228.5	5 ft 99% 35.4	70	10+ 3 1 2	31.8' - Fracture, 10 deg, rough, undulating, 0.01' thick clay infilling, 0.02' relief 33.3' - Fracture, 2 deg, smooth, undulating, 0.01' relief 34.4' - Fracture, 10 deg, rough, undulating, 0.02' relief	X	30.4-31.6' - dusky red, mottled purple, green, coarse grained, 25% sand 30.4-64.2' - fresh 31.6-34.7' - very soft to soft, fine grained 33.3-34.28' - clay seam, disconformity 33.5-33.6' - clay seam 34.7-35.4' - 10% medium to coarse grained sand 35.4-36.5' - trace green mottles, soft, very fine grained 36.5-40.3' - soft to hard, very fine to fine grained, up to 25% very fine to fine grained sand	At 35.0': R-Scale = R2 R6: 16:18-16:26  At 36.0': R-Scale = R2			
- - - 40 223.5	R6NQ 5 ft 101% 40.4	94	0 0 2	37.4-37.7' - Fracture, 80 deg, rough, undulating  40.0' - Fracture, 5 deg, rough, undulating,	-	- - - - -	- - - - -			
- - - - - - - - 45 218.5	R7NQ 5 ft 98% 45.4	94	0 0	0.02' relief 40.3' - Fracture, 5 deg, rough, undulating, 0.02' relief 40.6' - Fracture, 20 deg, rough, undulating		40.3-40.4' - soft, very fine grained 40.4' - trace green mottles, large white clast covering 30% of length 0.1 to 1, clasts harder than surrounding material 40.4-41.2' - 60% covered by white clasts .04 to .5 in size, medium strong to strong rock, up to 10% very fine to fine sand	R7: No time recorded  At 40.9': R-Scale = R3-R4  -  At 42.0': R-Scale = R3-R4  -  -  At 44.9': R-Scale = R3			
- - - - - - 50 213.5	R8NQ 5 ft 100%	100	0 0 1 1 1	48.3' - Fracture, 5 deg, smooth, undulating, 0.01' relief 49' - Fracture, 20 deg, smooth, undulating, 0.02' relief 50.0' - Fracture, 25 deg, smooth, undulating, 0.01' relief 50.8-51.2' - Fracture, 80 deg, smooth,		45.4' - green mottling, very fine grained	R8: No time recorded  At 46.1': R-Scale = R3-R4  At 47.7': R-Scale = R3-R4  At 48.4': R-Scale = R3-R4  At 50.0': R-Scale = R3-R4  R9: No time recorded			
-	R9NQ		1	undulating, 0.05' relief, tight fit	× × × × × × × × × × × × × × × × × × ×	sand/coarse silt, trace white coarse sand sized clasts	At 51.9': R-Scale = R2 -			

2BB-423 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BGA-18

SHEET 4 OF 4

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686565.5 N, 2012711.3 E)

ELEVATION: 263.5 ft MSL (NGVD 29)

DRILLING CONTRACTOR: J. Little, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

COMING	<u>EQUIPMEN</u>	ORIENTATION : Vertical					
WATER	LEVELS: 8.	4 ft bo	gs	START : 7/25/06 08	:20	END: 7/26/06 09:38	LOGGER : JS/AT
	, (9)			DISCONTINUITIES	ō	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	D (%)	CTURES R FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS,	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
DEPT ELEV BELO SURF		A Q	FR/ PEF	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS		AND ROCK MASS CHARACTERISTICS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
-	5 ft 101%	90	0	52.3-52.4' - Fracture, rough, undulating, circular break, 1/4 deep in to core, complete fracture	× : × : × : × :	<ul> <li>52.1-53.2' - soft to hard, increasing sand content with depth, up to 50-60%</li> <li>very fine to fine grained</li> </ul>	At 52.7': R-Scale = R3-R4
-			1	53.7-53.9' - Fracture, 45 deg, smooth, undulating	× :	53.2-54.0' - 40% very fine to fine grained sand 53.8-53.9' - up to 50% green mottling	-
55_ 208.5_	55.4		0	_	× : × : × :	around fracture 54.0-55.4' - green and purple mottling, 5-10% very fine to fine sand/coarse	
-			0		X	silt, est. 10% small up to 1/4 white clasts, harder than surrounding	R10: No time recorded
-			0		×	material 56.2-56.8' - scattered medium sand,10-15% coarse sand to fine	At 56.6': R-Scale = R3-R4
-	R10NQ 5 ft 101%	100	0		× :	- gravel 56.8-57.2' - 40% fine to coarse sand 57.2-58.1' - trace green mottles in	At 57.7': R-Scale = R3
-			1		×	- streaks to 1/2 in length, trace medium grained sand 57.4-57.8' - sandy lens, up to 50%	At 58.5': R-Scale = R3-R4
60_ 203.5	60.4		0	59.3' - Fracture, 10 deg, rough, undulating, 0.03' relief	×	very fine to fine sand 58.1-58.8' - green mottling, 30-40% fine to coarse sand	SC-1 collected 59.3-60.4'
-			1	60.4-60.8' - Fracture, 70 deg, rough, undulating, 0.02' relief, tight fit	× ×   × ×   × ×	58.8-60.4' - purple mottles to 1/2, green mottles (15%) in streaks with some white mottling, white clasts	R11: No time recorded
-			0		× : × : × :	- throughout, varies from 5 to 30% 59.3-59.5' - large, irregular shaped white clast	At 61.2': R-Scale = R2  At 62.0': R-Scale = R2
-	R11NQ 5 ft	94	1	63.0-63.5' - Fracture, 70 deg, smooth,	- × :	- 60.4-65.4' - weak red, elongated green mottles (20-25%) up to 3 in length, trace purple mottles to 1, soft, very fine	At 64.4': R-Scale = R3 First water level = 8.4' bgs
-	94%		0	undulating, tight fit	× : × : × : × :	to fine sand, 5-10% sand 63.6-65.4' - trace green mottles, soft to hard, increasing sand content, up to	taken 7/26/06 at 12:15; second water level = 8.1' bgs taken 7/27/06 at 10:35
65_ 198.5	05.4		0	_	× :	50% 63.8-64.2' - trace small white clasts	R-Scale performed during
-	65.4				× :	Bottom of Boring at 65.4 ft bgs on 7/26/06 09:38	rock core logging
-						_	-
-					1	-	-
-						-	
70						-	-
193.5				_		-	
-						-	
_						-	-

2BB-424 Rev. 1



PROJECT NUMBER: BORING NUMBER: BCTA-1 338884 SHEET 1 OF 5

# **SOIL BORING LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (687669.0 N, 2013139.4 E)

ELEVATION: 260.4 ft MSL (NGVD 29) DRILLING CONTRACTOR: D. Hedges, S&ME

DRILLIN	G EQUII	PMENT A	AND MET	ГНОD : CME-550	, 3-5/8 and 2-7/8 Tricone Bit, 24 Split Spoon, and 140 lb. Autom	atic F	lamn	ner ORIENTATION : Vertical
WATER	LEVELS	S : 5.2 ft l	ogs		START : 7/18/06 15:25 END : 7/2	20/06	10:15	5 LOGGER : LH
DEPTH B	ELOW EX	KISTING (	SRADE (ft)	STANDARD	SOIL DESCRIPTION	٥		COMMENTS
	INTERV	AL (ft)		PENETRATION TEST RESULTS	COIL NAME LICCO CROUD SYMPOL COLOR	SYMBOLIC LOG		DEDTIL OF CACING PRILLING DATE
		RECOV	ERY (in)		SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR	ΣĽ	(TSF)	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND
			#TYPE	6"-6"-6"-6"	CONSISTENCY, SOIL STRUCTURE, MINERALOGY	3Y ME	PP (T	INSTRUMENTATION
260.4	0.0			(N)	Asphalt	0)	Ш	
-	0.0				0.0-0.3' - asphalt mixed with fines		1	-
-		15.6	SS1SS		☐ Gravel With Sand (GM) ☐ \( \)0.3-0.9' - gray, dry, loose, looks like a CA-6 fill	-///		-
-				(21)	Clay (CL)	7	1	-
_	2.0				0.9-1.2' - dark reddish brown, dry to moist, very stiff	┨		PT-1 collected
_	2.5				│ <b>Silty Sand (SM)</b>	+	ł	2.0-4.0'
-					\sqrt{clay} Sandy Clay (CL)	1		-
-		24.0	SS2SS	5-9-16-22 (25)	\ 2.5-3.4' - light greenish gray and very pale brown,	1	3.5	-
-	4.5			(23)	\moist, very stiff, little silt Silty Sand (SM)	<b>1</b> } }	•	-
5	4.0				$\sqrt{3.4-4.5}$ - pale brown, dry to moist, medium dense, little $$	1.111	l	-
255.4	5.0				Silt, <5% clay Silty Sand (SM)		1	PT-2 collected
-					5.0-6.4' - very pale brown, light yellowish brown, and	1		6.0-8.0' - Offset: 19.9' S54W of BCTA-1
-		16.8	SS3SS	12-27-32-42 (59)	black, moist, very dense, very fine to coarse grained, laminations in black, well to poorly sorted, subangular to	1  [	l	Lab Result USCS: SC
_	7.0			(00)	subrounded			-
_						1		-
_	7.5				Gravelly Sand (SW-SM)	9,61		-
_		00.0	00400	0.40.00.50/0	7.5-8.0' - pale brown, moist, dense, very fine grained, subangular to subrounded, little silt, poorly sorted		İ	-
-		22.8	SS4SS	9-16-36-50/3 (52)	Fine To Coarse Sand (SP-SM)	1	1	-
	9.5			(* )	\8.0-8.5' - light gray, moist, very dense, little silt,	Ш		_
10					Silt (ML)	1		_
250.4	10.0				8.5-9.4' - light gray and light brownish gray, moist, very dense, rapid dilatancy, laminations		1	
		10.8	SS5SS	28-50/4	Silt (ML)	Ш		
		10.0	00000	(50/4")	10.0-10.9' - light gray, moist, very dense, very fine to fine grained, trace to little very fine to fine sand, trace	_		_
	12.0				clay at 10.0-10.1' bgs			_
_						<u> </u>		_
_	12.5				Clay (CL) 12.5-14.1' - reddish brown, mottled reddish black and		1	_
		19.2	SS6SS		light greenish gray, moist, hard, laminated	1///	1	_
_	14.1			(78/9")		¥///	1	
						$\prod$		Soil sampling completed at 09:06 on 7/19/06 -
15					_	4	I	
245.4	15.5				Davin Daals Caring at 45 5 ft have	-		
_					Begin Rock Coring at 15.5 ft bgs See the next sheet for the rock core log	-		-
-						4		-
-						-		-
-						-		-
-						4		-
-						4		-
-						-		-
						-		-
20						+	$\vdash$	
$\overline{}$								Į

2BB-425 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BCTA-1

SHEET 2 OF 5

# **ROCK CORE LOG**

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687669.0 N, 2013139.4 E)

ELEVATION: 260.4 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	LEVELS : 5.	2 ft bo	ĮS	START : 7/18/06 15	:25	END : 7/20/06 10:15	LOGGER : LH
	(9)			DISCONTINUITIES	Ō	LITHOLOGY	COMMENTS
ON E	JN, AND RY (%	(	ZES JT	DESCRIPTION	IC LO	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
-	15.5 R1NQ 1.5 ft 60%	0	3	15.8' - Fracture, 45 deg, smooth, planar 16.1' - Fracture, horizontal, smooth, planar	- × × - × × - × ×	Siltstone  - At 15.5' - dark reddish brown, mottled reddish black and greenish gray, very soft	Rock coring began at 10:18 on 7/19/06 - R1: 10:18-10:23 on 7/19/06 At 15.5-15.7': R-Scale = R0
-	17.0		XXX			<ul> <li>15.7' - clay seam, very soft to medium stiff, friable material</li> </ul>	R2: 10:30-10:34
-	R2NQ 2.3 ft 100%	87	0			15.5-17.0' - highly weathered 17.0-24.0' - slightly weathered	At 17.8': R-Scale = R1 -
_	19.3		1	19.0-19.1' - Fracture, 45 deg, rough,		-	-
20_ 240.4			5	undulating, greenish gray and reddish black mottles in fracture	- × × × × - × ×	- 19.3-24.3' - trace very fine sand, some laminated bedding	R3: 11:18-11:27 -
-			4	19.7' - Fracture, horizontal, rough, planar 19.9' - Fracture, horizontal, rough, planar 20.1' - Fracture, horizontal, rough	-	-	- At 20.7-20.9': R-Scale = R0 _
-	R3NQ 5 ft 98%	56	3	20.3' - Fracture, horizontal, rough, planar 20.5' - Fracture, horizontal, rough, planar 20.7' - Fracture, horizontal, rough, undulating	- × × - × × - × ×	-	At 21.6': R-Scale = R4 At 21.8-22.0': R-Scale = R0
-			1	20.9' - Fracture, 20 deg, rough, planar, black stains 21.3' - Fracture, 65 deg, rough, undulating 21.6' - Fracture, 10 deg, rough, planar	- × × - × × - × ×	22.4-22.5' - 0.01-0.05' thick vugs _ 22.5-24.7' - gravel sized white clasts	_
	24.3		0	21.8' - Fracture, No deg, Yough, planal 21.8' - Fracture, horizontal and 20 deg, rough, undulating		- 24.0.05.21 freely	]
25_ 235.4	24.5		4	22.2' - Fracture, horizontal and vertical, rough, planar 22.9' - Fracture, horizontal, rough, planar	× ×   × ×   × ×	24.0-85.3' - fresh - 24.3-29.3' - very soft to soft	R4: 11:33-11:45 -
235.4			1	25.0' - Fracture, horizontal, rough, undulating 25.1' - Fracture, horizontal, rough, undulating 25.1' - Fracture, horizontal, rough, undulating	- × × - × × - × ×	-	-
-	R4NQ 5 ft 103%	97	0	25.2' - Fracture, horizontal, rough, undulating 25.6-25.8' - Fracture, 65 deg, rough, undulating	-	-	At 26.3': R-Scale = R2-R3 -
-			0		- × × - × × - × ×	-	-
-	29.3		0		- × × - × ×	-	-
30_ 230.4			3	29.4' - Fracture, horizontal, smooth, undulating 29.6' - Fracture, horizontal, smooth	-  × ×   × ×   × ×	-	R5: 11:51-12:02 – —
	R5NQ		0		× ×   × ×   × ×	-	At 30.8': R-Scale = R3 -
-	5 ft 97%	89	0		× ×   × ×   × ×	32.0-34.3' - coarse sand sized white	]
-			0		× ×   × ×   × ×	-	]
-	34.3		0 ***		X	- 34.3-35.3' - 0-40% very fine sand	- R6: 12:07-12:15 -
35 225.4			0	_	× × × × × ×		_

2BB-426 Rev. 1



PROJECT NUMBER:	BORING NUMBER:				
338884	BCTA-1	SHEET	3	OF	5

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687669.0 N, 2013139.4 E)

ELEVATION: 260.4 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	LEVELS : 5.	2 ft bo	ıs	START : 7/18/06 15	:25	END: 7/20/06 10:15	LOGGER : LH
	(9)			DISCONTINUITIES	Ō	LITHOLOGY	COMMENTS
QN (#)	N, AND 3Y (%	_	ZES T	DESCRIPTION	O LC	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
			0		× × × ×	<u>X</u>	At 35.6': R-Scale = R2
-	R6NQ 5 ft 101%	100	0		× > × > × > × >	<del>1</del>	
-			0		× > × > × > × >	37.5-38.5' - coarse sand sized white clasts	]
-	39.3		0		× > × > × >	<del>1</del> *- *-	R7: 14:02-14:11
40_ 220.4			0	_	× >	<del>}</del>	_
-			0		× > × > × >	} }	SC-1 collected – 40.3-41.3' –
_	R7NQ 5 ft	76	10+	41.8-42.1' - Fracture zone, rough, undulating	× > × > × >	41.1-42.6' - trace <0.01 to 0.05' thick vugs	]
-	95%		1	42.5' - Fracture, horizontal, rough, planar	×	7 *- *- *-	- At 42.8': R-Scale = R2-R3 -
-			6	43.4' - Fracture, horizontal, rough, planar 43.5' - Fracture, horizontal, rough, planar	× × × × × × × × × × × × × × × × × × ×	43.4-44.3' - very soft, laminated bedding	-
45 <u>-</u> 215.4	44.3		10+	43.7' - Fracture, horizontal, rough, planar 43.8' - Fracture, horizontal, rough, planar 44.3' - Fracture, horizontal, rough, planar	× > × > × > × >	43.8-44.3' - siltstone is almost black 44.3-67.7' - soft	R8: 14:16-14:25 -
-	DONO		3	44.5' - Fracture, horizontal, rough, planar 44.5' - Fracture, horizontal, rough, planar 44.6' - Fracture, horizontal, rough, planar 45.0' - Fracture, horizontal, rough, planar	× > × > × > × >	X X X	-
-	R8NQ 5 ft 94%	67	0	45.1' - Fracture, horizontal, rough, planar 45.2-45.4' - Fracture zone, horizontal, rough, planar 45.7' - Fracture, horizontal, rough, planar 46.5' - Fracture, horizontal, rough, planar	× > > × > × > × > × > × > × > × > × > ×	X X X X X	At 47.1': R-Scale = R3
-	49.3		3	47.9' - Fracture, horizontal, rough, planar 48.3' - Fracture, horizontal, rough, planar 48.7' - Fracture, horizontal, rough, planar 48.9' - Fracture, horizontal, rough, planar 49.4' - Fracture, horizontal, rough, planar	× > × > × > × > × >	X X X X X	- - R9: 14:33-14:41 -
50 210.4 - -			0	50.3' - Fracture, rough, planar 50.3' - Fracture, rough, planar	× > × > × > × > × >	<del>_</del>	
-	R9NQ 5 ft 94%	92	1	51.5' - Fracture, horizontal, smooth, undulating	× > > > > > > > > > > > > > > > > > > >	* *- *- *-	At 51.7': R-Scale = R2
- - - 55_	54.3		0 0 ××× 1	54.4' - Fracture, horizontal, rough, planar	× > > > > > > > > > > > > > > > > > > >	** ** ** ** ** **	- - - R10: 08:03-08:18 on - 7/20/06
205.4					× >	3	

2BB-427 Rev. 1



PROJECT NUMBER:	BORING NUMBER:	
338884	BCTA-1	SHEET 4 OF 5

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687669.0 N, 2013139.4 E)

ELEVATION: 260.4 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

00111110	D EQUIT WEN	1 / (14	D IVIL	THOD . CIVIE-330, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS: 5.	2 ft bo	ļs_	START : 7/18/06 15	:25	END: 7/20/06 10:15	LOGGER : LH
	<u>(%</u>			DISCONTINUITIES	၅	LITHOLOGY	COMMENTS
NO III	ANG RY (°	_	ZES T	DESCRIPTION	O LC	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
			0			_	
_	R10NQ 5 ft 92%	90	1	56.8' - Fracture, 45 deg, rough, undulating	× × × × × × - × ×	- -	At 56.2': R-Scale = R3-R4
_			0		× ×   × ×   × ×   × ×	- - -	-
60_ 200.4	59.3		1	59.8' - Fracture, horizontal, rough, undulating –	- × × - × × - × × - × ×	- 59.3-64.3' - reddish black coarse sand to fine gravel sized clasts	R11: 08:28-08:36 and - 08:37-08:40
-	R11NQ		0		- × × - × × - × ×	- - -	
_	5 ft 101%	100	2	62.1' - Fracture, horizontal, rough, undulating 62.5' - Fracture, 45 deg, rough, undulating	× × × × × × - × ×	62.5-64.3' - gravel sized white clasts	-
-	64.3		0	63.2' - Fracture, 20 deg, rough, undulating		- - -	-
65_ 195.4			0	-	- (x x x x x x x x x x x x x x x x x x x	- 64.3-69.3' - gravel sized white clasts 	R12: 08:47-08:59 -
-	R12NQ 5 ft	93	1	66.7' - Fracture, horizontal, rough, undulating	× ×   × ×   × ×   × ×	- 65.8-66.0' - 20% very fine sand	-
- - -	105%		0	68.3-68.9' - Fracture zone, horizontal, rough,	- × × - × × - × × - × × - × ×	- - 67.7-69.3' - very soft to soft	
- 70	69.3		10+ XXX 0	undulating 68.4-69.0' - Fracture zone, horizontal and vertical, rough, undulating	- × × × × × ×	- - 69.3-72.9' - soft 	R13: 09:10-09:27 -
190.4 - -			0			- -	-
-	R13NQ 5 ft 104%	92	0		- × × - × × - × × - × ×	- - -	
-			3	72.9' - Fracture, horizontal, smooth, planar 73.2' - Fracture, horizontal, rough, planar 73.2' - Fracture, horizontal, rough, planar	-  × ×   × ×   × ×   × ×	72.9-73.5' - very soft to soft, laminated bedding	-
75_ 185.4	74.3		0	73.4' - Fracture, horizontal, rough, planar, partially stepped 73.5' - Fracture, horizontal, rough, planar 73.5' - Fracture, horizontal, rough, planar	- × × - × × - × × - × × - × ×	- - -	R14: 09:33-09:44
			0	73.5' - Fracture, horizontal, rough, planar 73.5' - Fracture, horizontal, rough, planar –	$\times$ $\times$	_	SC-2 collected

2BB-428 Rev. 1



PROJECT NUMBER:	BORING NUMBER:					
338884	BCTA-1	SHEET	5	OF	5	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687669.0 N, 2013139.4 E)

ELEVATION: 260.4 ft MSL (NGVD 29) DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS : 5.	2 ft bo	ıs	START : 7/18/06 15	:25	END : 7/20/06 10:15	LOGGER : LH
	(%			DISCONTINUITIES	ρg	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (#)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
-	R14NQ 5 ft 100%	100	0 0		× × × × × × × × × × × × × × × × × × ×	- _ 76.6-79.3' - soft -	
80 180.4	79.3		0 1 10+ 10+ 3		× × × × × × × × × × × × × × × × × × ×	- - 79.3-80.1' - very soft to soft - 80.1-82.0' - laminated bedding	R15: 09:51-10:07 -
-	R15NQ 5 ft 101%	65		olive stains, mostly horizontal (almost every 0.05'), smooth to rough planar, stained olive  82.0' - Fracture, horizontal, rough, undulating 82.3' - Fracture, horizontal, rough, undulating 82.4' - Fracture, horizontal, rough, undulating	× × × × × × × × × × × × × × × × × × ×	- 81.3-81.8' - clay seam, 0.55' thick 82.0-84.3' - soft	At 81.3-81.8': R-Scale = R0
- - 85_ 175.4	84.3 R16NQ 1 ft 85.3 140%	100	0 0	- - - -	× × × × × × × × × × × × × × × × × × ×	- - 84.3-85.3' - very soft to soft  - Bottom of Boring at 85.3 ft bgs on	At 84.7': R-Scale = R2  First water level = 5.2' bgs taken 7/20/06 at 14:05  R-Scale performed after drilling on stored samples
90 170.4						- Bottom of Borning at 65.3 it bgs on 7/20/06 10:15	unilling on stored samples 7
165.4							

2BB-429 Rev. 1



PROJECT NUMBER: BORING NUMBER: BCTA-2 338884 SHEET 1 OF 6

# **SOIL BORING LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (687760.2 N, 2013343.4 E)

ELEVATION: 261.0 ft MSL (NGVD 29) DRILLING CONTRACTOR: D. Hedges, S&ME

DRILLIN	DRILLING EQUIPMENT AND METHOD : CME-550, Tricone Bit, 24 Split Spoon, and 140 lb. Automatic Hammer  ORIENTATION : Vertical  WATER LEVELS : 8.5 ft bgs  START : 7/13/06 16:55  END : 7/18/06 12:17  LOGGER : LH/EM											
WATER	LEVELS	: 8.5 ft b	gs		8/06	12:17	LOGGER : LH/EM					
DEPTH B	ELOW EX	(ISTING G	RADE (ft)	STANDARD	SOIL DESCRIPTION	ڻ		COMMENTS				
	INTERV	AL (ft)		PENETRATION TEST RESULTS	COLL NAME TIGOS CECTE CAMBOL COLOR	SYMBOLIC LOG		DEDTIL OF CACING DRILLING DATE				
		RECOVI	ERY (in)		SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR	30Li	(TSF)	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND				
	#TYPE 6"-6"-6"				CONSISTENCY, SOIL STRUCTURE, MINERALOGY			INSTRUMENTATION				
261.0				(N)	_ Asphalt	o	윤					
-					0.0-0.3'	::	1	-				
-	0.8				Base Gravel			-				
-		16.8	SS1SS	2-3-5-7	Clay (CL)	<i>\\\\\</i>		-				
-		10.0	33133	(8)	0.8-2.2' - reddish brown, mottled yellow and light gray, - moist, stiff, slow dilatancy, 10-15% fine to coarse sand,			PT-1 collected				
-	2.8				subrounded to subangular, pockets of fine to medium	┨		2.0-4.0'				
-					grained sand	┨		-				
-	3.3				Sandy Clay & Clay (CL) 3.3-4.5' - olive yellow, mottled light gray and reddish			-				
-		21.6	SS2SS	5-5-7-10	brown, moist, stiff, up to 30% fine to medium sand	<i>\\\\\</i>		-				
		21.0	33233	(12)	Clay (CL)		3.0	-				
5 <u> </u>	5.3				$_{\neg}$ 4.5-5.1' - reddish brown, mottled yellow and light gray, $_{\neg}$	<b>Y</b> ///		_				
-					moist, stiff, slow dilatancy, 10-15% fine to coarse sand, subrounded to subangular, pockets of fine to medium	┨		-				
-	5.8				\\grained sand \\/ -			-				
-		20.4	66366	5-8-11-11	Clay (CL)  5.8-6.5' - reddish brown, mottled yellow and light gray,	<b>Y</b> ///	ı	-				
-			(19)	moist, very stiff, low to medium plasticity, slow dilatancy,   -	┨							
-	7.8				10-15% fine to coarse sand, subrounded to subangular grains, pockets of fine to medium grained sand, trace	-		-				
-					coarse sand	1		PT-2 collected				
-	8.3				Lean Clay (CL) - 8.3-9.8' - reddish brown and olive yellow, moist, stiff,			8.0-10.0'				
-		18.6	SS4SS	5-7-8-6	medium plasticity, slow dilatancy, alternating laminated	<i>\\\\\</i>		Offset: 12.5' S38E of BCTA-2 Lab Results USCS: CH w/Sand				
		10.0	33433	(15)	color change with top reddish brown becoming olive yellow, 10% fine to medium grained sand	<i>\///</i>	1.5- 2.5	-				
10 251.0	10.3				yellow, 10 % lifte to friedluff graffied safid	-	1	_				
-					-	_		-				
-	10.8				Fat Clay (CH) 10.8-11.7' - olive yellow, mottled light gray and light red,	<b>///</b>	1	PT-3 collected				
-		22.2	SS5SS	3-6-14-20	dry to moist, very stiff, high plasticity, no dilatancy		1	11.0-13.0'				
-		22.2	33333	(20)	Clay (CL)	<i>\\\\\</i>	2.0- 2.75	-				
-	12.8				11.7-12.6' - reddish brown, moist, very stiff, rapid dilatancy, trace (<5%) very fine and coarse sand	<b>Y</b> ///	1	-				
-					-	<u> </u>		-				
-	13.3				Clay (CL) 13.3-14.7' - reddish brown, moist, very stiff, slow to	<b>/</b> //		-				
-		16.8	SS6SS	11-19-50/4	rapid dilatancy, trace (<5%) very fine and coarse sand.	<i>\\\\\</i>		-				
- 45		10.0	33033	(69/10")	pockets of fat clay (CH) light gray	<b>Y</b> ///	3.0	-				
15 <u> </u>	15.3				_	┨		_				
-					-	<del> </del>		-				
-	15.8				Clay (CL) 15.8-17.4' - reddish brown, black mottling, moist, hard,	<b>///</b>		-				
-		19.2	SS7SS	6-14-25-50/4	slow to rapid dilatancy, trace (<5%) very fine and coarse	<b>V</b> ///	1	-				
-		10.2	30,00	(39)	sand, pockets of light gray fat clay to 16.5'	<b>\</b> ///	5.0+	-				
-	17.8				-	<b>f</b> ′′′	1	-				
-						1,,,	1	-				
-	18.3				Clay (CL) 18.3-19.4' - red, dry to moist, hard, low to medium	<b>///</b>		-				
-		11.0	SS8SS	35-50/5	plasticity, slow to rapid dilatancy, lessens with depth,	<b>\</b> ///		-				
20		1.0		(50/5")	trace very fine sand	1	1	-				
20						1		-				
							L					



PROJECT NUMBER:	BORING NUMBER:
338884	BCTA-2

#### **SOIL BORING LOG**

SHEET 2 OF 6

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687760.2 N, 2013343.4 E)

ELEVATION: 261.0 ft MSL (NGVD 29) DRILLING CONTRACTOR: D. Hedges, S&ME

DRILLING EQUIPMENT AND METHOD: CME-550, Tricone Bit, 24 Split Spoon, and 140 lb. Automatic Hammer ORIENTATION: Vertical

DRILLIN	G EQUIF	PMENT A	AND MET	THOD : CME-550	Tricone Bit, 24 Split Spoon, and 140 lb. Automatic Hammer			ORIENTATION : Vertical	
WATER	LEVELS	6 : 8.5 ft b	ogs		START : 7/13/06 16:55 END : 7/1	8/06	12:1	7 LOGGER : LH/EM	
DEPTH B	ELOW EX	KISTING C	SRADE (ft)	STANDARD	SOIL DESCRIPTION	(D		COMMENTS	
	INTERV	AL (ft)		PENETRATION TEST RESULTS		Ĭ			
		RECOVI	FRY (in)	IESI KESULIS	SOIL NAME, USCS GROUP SYMBOL, COLOR,	SYMBOLIC LOG	<u></u>	DEPTH OF CASING, DRILLING RATE,	
		I KEOOVI			MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	l B	(TSF)	DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION	
			#TYPE	6"-6"-6" (N)	GONGIOTENOT, GOIE OTROCTORE, WINNERVIEGOT	S	윤	TO THOME INTO THE	
241.0	20.3			( )		H	H		
-						┨		-	
- - -	20.8	14.4	SS9SS	22-16-50/4 (66/10")	Clay (CL) 20.8-22.0' - red, mottled black, olive yellow, and light greenish gray, dry to moist, hard, low to medium plasticity, lessens with depth, trace very fine sand 21.0-21.3' - mottled light greenish gray, black, and olive yellow, dry to moist, hard, fine sand sized mica, breaks			Drillers Remark: Lost ~250 gallons of water during drilling and soil sampling	
-					into horizontal 0.01' beds	┨		Soil sampling completed at 09:40 on 7/14/06	
-	23.3	3.0	SS10SS	50.5	Sandy Silt (ML)	Ш	1	771-700	
	23.5			50/3 (50/3")	23.3-23.5' - dark reddish brown, light gray and olive mottling, moist, hard, low plasticity, rapid dilatancy, fine	1	1	-	
				(30/3)	to medium grained, subrounded to subangular,	1	1	_	
25					micaceous, 20-25% sand, very fine to fine grained	1	1	_	
236.0					Begin Rock Coring at 23.5 ft bgs See the next sheet for the rock core log		1		
					See the flext sheet for the rook core log		1	]	
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231.0						1		_	
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+0_						T	t		

2BB-431 Rev. 1



PROJECT NUMBER:

338884

BOTING NUMBER:

BCTA-2

SHEET 3 OF 6

# **ROCK CORE LOG**

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687760.2 N, 2013343.4 E)

ELEVATION: 261.0 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	ER LEVELS : 8.5 ft bgs		ıs	START : 7/13/06 16	START : 7/13/06 16:55 END : 7/18/06 12:17		LOGGER : LH/EM	
	<u> </u>			DISCONTINUITIES	၂ ဗွ	LITHOLOGY	COMMENTS	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.	
- 25 236.0 - - - - -	23.8 R1NQ 0.3 ft 24.5 67% 0.7 ft 86% R3NQ 5 ft 106%	0 0	3 2 1 0	24.8' - Fracture, horizontal, smooth, stepped 25.0' - Fracture, horizontal, smooth, undulating 26.3' - Fracture, horizontal, smooth, planar 26.8-26.9' - Vug, 0.08' thick, extends <0.05' into core, 0.12' wide in clayey material. 27.0' - Contact between siltstone and sandstone, horizontal, smooth, planar, stained black in sandstone, with 45 deg clipped off area	- X X X X X X X X X X X X X X X X X X X	Sandstone  23.5-23.8' - very dark gray, mottled reddish black and pale yellow, very soft to soft, subangular to subrounded, well sorted, highly weathered, very fine to fine grained, very thin beds  Siltstone  At 23.8' - dark reddish brown, mottled reddish black and olive yellow, very soft, highly weathered  24.5-27.0' - reddish black and greenish gray mottling 25.3-25.5' - clay seam, 0.25' thick, medium stiff to stiff, friable  Sandstone	Rock coring began at 10:30 on 7/14/06 - R1: 10:33-10:40 on 7/14/06 At 23.5-24.5': R-Scale = R0 R2: 11:10-11:15 - R3: 11:37-11:55 At 24.5-27.0': R-Scale = R0-R1 - At 27.0-28.4': R-Scale = R3 - At 28.4-34.5': R-Scale = R0-R1	
30 231.0 - - - -	29.5 R4NQ 5 ft 97%	0	10+ 10+ 10+ 10+	28.3' - Fracture, 10 deg, smooth, planar, black stains 28.4' - Contact between siltstone and sandstone, 10 deg, smooth, planar, black stains 28.7' - Fracture, horizontal, smooth, undulating 29.0' - Fracture, horizontal, smooth, undulating 29.7' - Fracture, horizontal, rough, undulating 29.8' - Fracture, horizontal, rough, undulating	- X X X X X X X X X X X X X X X X X X X	medium bedding, highly weathered  Siltstone 28.4-34.9' - dark reddish brown, mottled reddish black and olive yellow, very soft 28.4-34.5' - highly weathered 29.0-29.3' - clay seam, 0.3' thick, hard, friable 29.9-30.9' - clay seam, with breaks, stiff, 0.95' thick 31.5-32.1' - clay seam, with breaks,	R1	
-	34.5		10+	33.7' - Fracture, horizontal, smooth, planar 34.6' - Fracture, horizontal, smooth, planar	- × × × × × × × × × × × × × × × × × × ×	stiff, 0.6' thick 31.9-33.3' - clay seam, with breaks, stiff, 0.4' thick stiff, 0.4' thick 34.5-34.9' - soft, fresh	- - - R5: 09:36-09:42 and 09:47-	
35 226.0 - - -	R5NQ 5 ft 96%	94	0 0	OT.O - 1 Tacture, Horizontal, Smooth, pland		Sandstone 34.9-40.4' - dark reddish brown to dark reddish gray, soft, medium bedding, subangular to subrounded, well sorted, fresh, very fine sand to fine grained sand 34.9-36.1' - reddish black mottling	09:50 on 7/18/06 —  -  -  At 37.4': R-Scale = R4-R5	
40	39.5		0 0 ××× 1	_	- · · · · · · · · · · · · · · · · · · ·	38.2-38.3' - 30-40% silt lense	R6: 10:00-10:07	
221.0	R6NQ 5 ft 97%	90	1 4 0	40.2-40.6' - Fracture, 70 deg, rough, undulating 41.1' - Fracture, 70 deg, rough, undulating 42.1-42.1' - Fracture (3), horizontal, rough, planar 42.3' - Fracture, horizontal, rough, planar	- X X X X X X X X X X X X X X X X X X X	Siltstone  40.4-41.5' - dark reddish brown, mottled reddish black, soft, laminated to very thin bedding, fresh, 40% very fine sand, trace fine to medium grained sand	- - At 41.5': R-Scale = R2 - - -	

2BB-432 Rev. 1



PROJECT NUMBER:

338884

BOTING NUMBER:

BCTA-2

SHEET 4 OF 6

# **ROCK CORE LOG**

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687760.2 N, 2013343.4 E)

ELEVATION: 261.0 ft MSL (NGVD 29) DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	LEVELS : 8.	5 ft bo	IS	START : 7/13/06 16	:55	END : 7/18/06 12:17	LOGGER : LH/EM
	(9)			DISCONTINUITIES		LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
- 45 216.0 -	44.5		1 1	44.1' - Fracture, horizontal, rough, planar 45.3' - Fracture, horizontal, rough, undulating 46.1' - Fracture, 30 deg, rough, undulating	0 0000	Sandstone  41.5-45.1' - white and very dark gray, soft to hard, laminated to thin bedding, subangular to subrounded, poorly sorted, very fine to coarse grained, trace fine to medium gravel in bands of coarser material  41.5-44.5' - fresh 44.5-45.1' - moderately weathered	R7: 10:11-10:22
- - - -	R7NQ 5 ft 104% 49.5	80	4 2	46.7' - Fracture, 10 deg, rough, undulating 46.7' - Fracture, horizontal, rough, undulating, parabolic shaped 46.9' - Fracture, horizontal, rough, planar 47.5' - Fracture, horizontal, rough, undulating 48.0' - Fracture, horizontal, smooth, planar 48.3' - Fracture, horizontal, smooth, planar 48.4' - Fracture, horizontal, smooth, planar 48.6' - Fracture, horizontal, smooth, planar		Conglomerate  45.5-46.6' - white, greenish gray, and very dark gray, hard, medium bedding, subangular to subrounded, poorly sorted, moderately weathered, very fine sand to coarse gravel 46.0-46.05' - clay seam, very soft, 40% sand, 0.03' thick  Sandstone	- - - 
50 211.0 - - - -	R8NQ 5 ft 98%	98	0 0	48.6 - Fracture, nonzontal, smooth, stepped 48.8' - Fracture, 35 deg, rough, undulating 49.4' - Fracture, 30 deg, smooth, planar, very dark gray stains, clay may be from laminated shale bed <0.01' thick of which the fracture is in the middle.		At 46.6' - very dark gray and white, soft to hard, laminated to medium bedding 46.7-47.5' - very soft 46.7-49.5' - moderately weathered 47.5-59.2' - fresh 49.5-54.5' - soft to hard 49.5-50.1' - beds on 30 deg angle 52.0-54.5' - no gravel	R8: 10:28-10:36
- - - - 55	54.5		0			53.1-54.5' - becomes coarse grained  54.5-59.2' - dark gray, white, and	- - - R9: 10:40-10:47
206.0	R9NQ 5 ft	100	0 0			reddish brown, soft, subrounded, poorly sorted, very fine to coarse grained 54.9-58.2' - 0-30% fine gravel	
-	105% 59.5		0			- Shale - 58.8-59.2' - black, laminated bedding,	- - - - -
60 201.0 - - - - -	R10NQ 5 ft 100%	100	0 0			resn Sandstone 59.2-67.1' - dark gray, white, and reddish brown, soft, medium bedding, subrounded, poorly sorted, fresh, very fine to coarse grained sand	R10: 10:52-11:01
					<u> </u>		

2BB-433 Rev. 1



PROJECT NUMBER:	BORING NUMBER:	
338884	BCTA-2	SHEET 5 OF 6

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687760.2 N, 2013343.4 E)

ELEVATION: 261.0 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

				THOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS : 8.	5 ft bo	IS	START : 7/13/06 10 DISCONTINUITIES	$\top$	END : 7/18/06 12:17 LITHOLOGY	LOGGER : LH/EM  COMMENTS
<u>ء</u>	(%)		<i>(</i> 0		90		COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
-	64.5		0		-:::	-	
65_ 196.0			0	-	- - - - ::::	64.5-67.1' - finer with depth.	R11: 11:03-11:13
-			0		-	-	At 65.5': R-Scale = R2
-	R11NQ 5 ft 99%	99	0	67.0-67.1' - Contact between siltstone and	- : : : : : : : : : : : : : : : : : : :	- Siltstone	
-	9976		0	sandstone, 40 deg, tight fit	- × × × × × × × × × × × × × × × × × × ×	At 67.1' - dark reddish brown, mottled greenish gray and reddish black, soft, fresh	
-	00.5		0		- × × × × × × × ×	- <b>"</b> 0011 -	At 68.2': R-Scale = R3.5-R4
70 <u> </u>	69.5		0	-		69.5-79.5' - 0-20% very fine sand to fine sand	R12: 11:17-11:30
-			0		- × × × × × × × × × × × × × × × × × × ×	- -	
-	R12NQ 5 ft 101%	100	0		- × × × × × × × × × × × × × × × × × × ×	-	
-	10170		0		- × × - × ×	<del>-</del>	At 72.7': R-Scale = R2
-	74.5		0		- × × × × × × × × ×	-	
75 <u> </u>	14.0		0	-	- (x x x x x x x x x x x x x x x x x x x	<u>-</u>	R13: 11:34-11:49
-			1	75.9-76.1' - Fracture, 70 deg, rough, undulating	- × ×		
-	R13NQ 5 ft 91%	84	3	76.6' - Fracture, horizontal, rough, planar, greenish gray stains	- × × × × × × × ×	<del>-</del>	
-			1	76.9' - Fracture, horizontal, smooth, planar 77.0' - Fracture, horizontal, smooth, planar	× × × × × × × × × × × × × × × × × × ×		At 77.4': R-Scale = R2-R3
-	79.5				- × × × × × × × × ×	-	
80_ 181.0			0	-	           	_	R14: 11:57-12:08
-			0		× × × × × × × × × × × × × × × × × × ×		
-	R14NQ 5 ft 105%	100	0		- × ×	_	At 82.3': R-Scale = R3
-			0		- × × × × × × × × × × × × × × × × × × ×		7. 02.0 . 11 Oddie – 110
			_				-

2BB-434 Rev. 1



PROJECT NUMBER:	BORING NUMBER:			
338884	BCTA-2	SHEET	6 OF	6

 PROJECT : PEC COLA, New Hill, NC
 LOCATION : (NAD 27) (687760.2 N, 2013343.4 E)

 ELEVATION : 261.0 ft MSL (NGVD 29)
 DRILLING CONTRACTOR : D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

MATERILEPIES 8 5   Those   STRATT / 7/1306 1ess   SEND	CORING	5 EQUIPMEN	II AN	D IVIE	THOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
SZE AND DEPTH OF CASING,   SZE AND DEPTH TYPE, GREATATION, ROUGHNESS,   SZE AND DEPTH OF CASING,   SZE AND DEPTH TYPE, GREATATION, ROUGHNESS,   SZE AND DEPTH TYPE, GREATATION, ROUGHNESS,   SZE AND DEPTH OF CASING,   SZE AND DEPTH OF CA	WATER	LEVELS: 8.	5 ft bo	ıs	START : 7/13/06 16	55	END: 7/18/06 12:17	LOGGER : LH/EM
86 84.5 RISNO 100 200 117.0 100 200 117.0 100 200 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.		<u> </u>			DISCONTINUITIES	U	LITHOLOGY	COMMENTS
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86 84.5 RISNO 100 200 117.0 100 200 117.0 100 200 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 100 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.0 117.		8 년 원	R	<u> </u> Б. Е.	THICKNESS, SURFACE STAINING, AND TIGHTNESS	S	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
8. Scale performed after drilling on stored samples (R15.12:13-12:17)						××		First water level = 8.5' bgs
8. Scale performed after drilling on stored samples (R15.12:13-12:17)	-			0	-	lê ê	-	taken 7/18/06 at 14:34;
8. Scale performed after drilling on stored samples (R15.12:13-12:17)	-	84.5 R15NO	100	XXX	-	× ×	-	
90 171.0	85_	85.0 0.5 ft	100	W .		××	Datters of Davis and OF O file and an	R-Scale performed after —
90 171.0	176.0	\130%/			_		Bottom of Boring at 85.0 π bgs on - 7/18/06 12·17	drilling on stored samples
171.0 							1710/00 12:11	\R15: 12:13-12:17
171.0 								
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PROJECT NUMBER:	BORING NUMBER:				
338884	BCTA-3	SHEET	1	OF	3

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687448.8 N, 2013227.8 E)

ELEVATION: 260.3 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

DRILLING EQUIPMENT AND METHOD: CME-550, 3-5/8 & 2-15/16 Tricone Bit, 24 Split Spoon and 140 lb. Automatic Hammer ORIENTATION: Vertical

WATER				TIOD : OWIL 000	3-5/8 & 2-15/16   Incone Bit, 24 Split Spoon and 140 lb. Automa START : 7/21/06 14:34 END : 7/2		
			RADE (ft)	OTANDADD.	SOIL DESCRIPTION	П	COMMENTS
	INTERV		- (/	STANDARD PENETRATION	· · ·		-
			ERY (in)	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,	2	DEPTH OF CASING, DRILLING RATE,
			#TYPE	6"-6"-6" (N)	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
260.3 - - -	2.0	24.0	SS1SS	2-3-5-5 (8)	Clay (CL) 0.0-2.0' - reddish brown, mottled white and reddish black, dry, stiff, trace gravel and roots		- - -
-	2.5				Clay (CL) 2.5-4.3' - reddish brown, mottled white and reddish		PT-1 collected
-	4.5	21.6	SS2SS	5-8-12-13 (20)	black, dry, very stiff, trace gravel and roots		3.0-5.0'
5_						1	
255.3 _ _	5.0	18.0	SS3SS	3-6-8-9 (14)	Clay (CL) 5.0-6.5' - reddish brown, olive yellow mottling, dry, stiff, trace gravel and roots		PT-2 collected
_	7.0				-		4 6.0-8.0' - -
-	7.5	18.0	SS4SS	3-15-45-50/4 (60)	Clay (CL) 7.5-9.0' - reddish brown, mottled reddish black and light greenish gray mottling, moist, hard, laminated beds at 8.3-9.0' 7.6-7.8' - yellow Clay seam		- - -
- 10	9.5				-	ł	-
10 250.3 - -	10.0 _10.3 <i>[</i>	3.0	SSSSS	50/3 (50/3")	Clay (CL) 10.0-10.3' - reddish brown, mottled reddish black and light greenish gray mottling, moist, hard, clay seam, trace very fine sand		Soil sampling completed at 15:40 on 7/21/06
- -	13.6				- - -		- - -
- - 15	13.0				Begin Rock Coring at 13.6 ft bgs See the next sheet for the rock core log		-
245.3 - -					- -		-
-					- - -		
-					- - -		
20					-	-	-
ldot			L			_	

2BB-436 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BCTA-3

SHEET 2 OF 3

## **ROCK CORE LOG**

ORIENTATION : Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687448.8 N, 2013227.8 E)

ELEVATION: 260.3 ft MSL (NGVD 29) DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	LEVELS : 12	2.4 ft b	gs	START : 7/21/06 14	:34	END : 7/21/06 17:36	LOGGER : LH
	(%			DISCONTINUITIES	ő	LITHOLOGY	COMMENTS
gz €	ZAN ZAN Z		FRACTURES PER FOOT	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
AE NE	8 F.A	D (%)	F.00	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	<b>7</b>	MINERALOGY, TEXTURE,	FLUID LOSS, CORING RATE AND
ENOY.	#250	αD	AC F	PLANARITY, INFILLING MATERIAL AND	MB	WEATHERING, HARDNESS, AND ROCK MASS	SMOOTHNESS, CAVING ROD
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R	윘핌	THICKNESS, SURFACE STAINING, AND TIGHTNESS	S	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
	13.6 R1NQ		_	13.8' - Fracture, horizontal, rough, undulating	× >	Siltstone	Rock coring began at 16:10
_	0.8 ft 14.4 81%	50	2	14.1' - Fracture, horizontal, rough, undulating	12 3	13.6-14.4' - dark reddish brown, very	on 7/21/06
-	81%_		×××		<del>  * : :</del>	soft, moderately weathered, laminated	R1: 16:10-16:19 on 7/21/06
15			1	14.6' - Fracture, horizontal, smooth, planar	<b>.</b>	beds, grades to sandstone	At 13.6-24.4': R-Scale = R0- R1
245.3					]:::	Sandstone - 14.4-19.4' - very dark reddish gray,	R2: 16:28-16:33
			1		:::	some black, dark reddish brown and	
-			'	16.0' - Fracture, horizontal, rough, undulating	1:::	white, very soft to soft, laminated to	1 7
-	R2NQ			16.5' - Fracture, horizontal, rough, undulating	<b>-</b> 1∷∷	<ul> <li>medium bedding, very fine sand to</li> </ul>	-
-	5 ft	84	2		- :::	coarse sand, subangular to subrounded, moderately weathered,	-
l _	94%				<b>]</b> :::	- well to poorly sorted	_
			1	117.7' - Fracture, horizontal, rough, undulating	1:::	16.5-17.4' - beds on 45 degree angle	
				3	]∷:	17.4-17.6' - clay seam, firm, 0.15'	1
-					1:::	thick, friable, black stains	_
-	40.4		0	,	<b>-</b> 1∷:	-	Drillers Remark: Rod
_	19.4		XXX		× >	Siltstone	dropped at 18.9-19.4'
20_			10+	_	\	19.4-20.5' - dark reddish brown and	R3: 16:40-16:51
240.3				20.2' - Fracture, horizontal, smooth, undulating	××	reddish black, mottled light gray and	
-				20.5' - Fracture, horizontal, rough, undulating	1	pale yellow, very soft, laminated	1 -
-			3	21.0' - Fracture, parabolic shaped, smooth,	1:::	bedding 19.4-19.9' - firm, 0.5' thick with a few	-
-	R3NQ			undulating, little black stains	<b>-</b>  :::	breaks, friable	-
_	5 ft	45	4	21.2' - Fracture, horizontal, smooth, undulating	<b>_</b>  :::	19.4-20.2' - highly weathered	_
	97%			21.5' - Fracture, horizontal, rough, undulating 21.7' - Fracture, horizontal, smooth, undulating	]:::	20.2-20.5' - moderately weathered	_
			3	21.8' - Fracture, parabolic shaped, smooth,	:::	Sandstone At 20.5' - very dark reddish gray,	
_			3	undulating, little black stains	1:::	black, dark reddish brown and white,	
-				22.1' - Fracture, horizontal, rough, planar	<b>1∷</b> ∶	mottled pale yellow, very soft to soft,	-
-			2	22.6' - Fracture, horizontal, smooth, undulating 23.1' - Fracture, horizontal, rough, undulating	<b>-</b>  ∷∷	<ul> <li>laminated to medium bedding, very</li> </ul>	_
_	24.4		XXX	23.4' - Fracture, horizontal, rough, undulating	1:::	fine sand to coarse sand, subangular to subrounded, well to poorly sorted	R4: 16:55-17:01
25			0	23.8' - Fracture, horizontal, rough, undulating	:::	20.5-24.4' - moderately weathered	K4. 10.33-17.01
235.3					1:::	24.4-29.4' - light red, dark reddish	At 24.4-31.9': R-Scale = R1-
-				,	1:::	gray, and white, soft, very fine sand to	R2 -
-			0		-{∷∷	coarse sand, subangular to subrounded, poorly sorted, trace fine	-
-	R4NQ				4:::	to coarse gravel	-
_	5 ft	99	0		<u> </u> :::	24.4-31.9' - slightly weathered	_
	99%				1:::		
			0		1:::	Ī	1
-			١		1:::	<u> </u>	-
-			0		1:::	-	-
-					<b>-</b>  ∷∶	  -	-
l _	29.4		$\times\!\!\times\!\!\times$		1:::	- 20.4.26.61 limbt array, doubt array, and	DE: 47:00 47:40
30			0		:::	29.4-36.6' - light gray, dark gray, and dark greenish gray, soft, very fine	R5: 17:08-17:16
230.3			_ ଁ	_	1	sand to coarse sand, subangular to	
1 -					1 ::	rounded, poorly sorted, some	1
-			0		<b>-</b> 1∷:	_ laminated beds	-
1 -	R5NQ				<b>-</b> 1∷:	<b>-</b>	-
1 -	5 ft	100	0		<b>]</b> :::	- 31.9-36.6' - fresh	]
1	100%				1	51.3-50.0 - IIESII	1
1 -					1 ::	Γ	At 32.5': R-Scale = R3
1 -			0		1∷:	†	-
<u> </u>					1	-	-
1					1		

2BB-437 Rev. 1



PROJECT NUMBER:	BORING NUMBER:	
338884	BCTA-3	SHEET 3 OF 3

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687448.8 N, 2013227.8 E)

ELEVATION: 260.3 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

00				THOD : CIVIE-330, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS : 12	2.4 ft b	gs	START : 7/21/06 14	:34	END : 7/21/06 17:36	LOGGER : LH
	<u> </u>			DISCONTINUITIES	စ္က	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)		FRACTURES PER FOOT	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	SIZE AND DEDTH OF CASING
AE > B	RUR H. / IER	(%) О	J. L. C	DEDTH TYPE OPIENTATION POLICUNIESS	<b>1</b> 💥	MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
H S O A	ZOV	) O «	ACT R FC	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	MBQ.	WEATHERING, HARDNESS, AND ROCK MASS	SMOOTHNESS, CAVING ROD
SEE	SHR	A Q	FR/	THICKNESS, SURFACE STAINING, AND TIGHTNESS	S	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
			0		1:::	33.3-33.6' - laminated beds on 45	
-	34.4		U		<b>†∷∷</b>	degree angle	-
					<b>-</b>  ∷∷	-	R6: 17:19-17:26
35 <u> </u>			0	_	<b>-</b>  ∷∷		
					4:::	-	_
I _			3		]::::	_	At 35.6': R-Scale = R3
					1:::		
	R6NQ 5 ft	81	3	36.6' - Contact between sandstone and	××	Siltstone	1
_	102%	01	٦	siltstone, pieces of siltstone mixed in with	1××	36.6-37.8' - dark reddish brown,	-
-				sandstone above, tightly healed 37.0' - Fracture, 20 deg, rough, undulating	× ×	<ul> <li>reddish black mottling, soft, fresh,</li> <li>trace medium grained sand</li> </ul>	-
-			0	37.0 - Fracture, 20 deg, rough, undulating 37.2' - Fracture, 20 deg, rough, planar	-	Sandstone	At 39.0': R-Scale = R3
-				37.4' - Fracture, horizontal, smooth, planar	<b>-</b>  ::::	<ul> <li>37.8-40.5' - light gray, dark gray, and</li> </ul>	R7: 17:33-17:36
-			0	37.5' - Fracture, horizontal, rough, undulating 37.6' - Fracture, horizontal, rough, undulating	4:::	dark greenish gray, soft, laminated to	
	39.4			37.6 - Fracture, nonzontal, rough, undulating 37.8' - Fracture, horizontal, smooth, planar	]:::	medium bedding, very fine sand to coarse sand, subangular to rounded,	First water level = 12.4' bgs taken at 7/22/06 at 17:17 -
40	R7NQ 1.1 ft	100	0	37.9' - Contact between sandstone and	<b> </b> :::	poorly sorted, fresh	SC-1 collected
220.3	40.5 100%	100	U	siltstone, horizontal, tightly healed	<b>1</b> :::	38.6-39.1' - laminated beds on 35	39.4-40.5'
-	40.0				1	degree angle	R-Scale performed after – drilling on stored samples
_						Bottom of Boring at 40.5 ft bgs on 7/21/06 17:36	drilling on stored samples
-					-	-	-
_						-	_
l _						_	_
-					1	=	1
-						-	-
-						-	-
45 <u> </u>				<del>-</del>	-	<del></del>	
210.5						=	_
_						_	_
					1	_	1
-						-	-
-					1	-	-
-						-	-
-					-	-	-
-					4	<u>-</u>	_
I _					1	_	
50							
210.3				_	1	_	
-					1	-	1
-					1	-	
-					1	-	-
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					1		
					1		I

2BB-438 Rev. 1



PROJECT NUMBER: BORING NUMBER: BCTA-4 338884 SHEET 1 OF 3

## **SOIL BORING LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (687562.0 N, 2013436.5 E)

ELEVATION: 262.8 ft MSL (NGVD 29) DRILLING CONTRACTOR: D. Hedges, S&ME

DRILLIN	DRILLING EQUIPMENT AND METHOD: CME-550, 3-5/8 Tricone Bit, 24 Split Spoon and 140 lb. Automatic Hammer ORIENTATION: Vertical								
WATER	LEVELS	S: 19.0 ft	bgs		START : 7/20/06 14:30 END : 7/21/06 12:04 LOGGER : LH				
DEPTH B	ELOW EX	KISTING C	SRADE (ft)	STANDARD	SOIL DESCRIPTION g COMMENTS				
	INTERV	AL (ft)		PENETRATION TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY				
		RECOV	ERY (in)		SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY				
			#TYPE	6"-6"-6"-6"	CONSISTENCY, SOIL STRUCTURE, MINERALOGY 불 는 INSTRUMENTATION				
262.8	0.0			(N)	¬ Topsoil				
_	0.0				\\\0.0\docdordolong{\docdordolong}				
-		19.2	SS1SS	2-5-6-7 (11)	\ Clay (CL) \ 0.2-1.6' - reddish brown, mottled light greenish gray,				
_					⊢ white and brownish yellow, dry, trace roots				
-	2.0				\ \ 0.4' - black piece of vesicular rock with iron oxide on out \ / _ \ \ side				
-	2.5				Clay (CL)				
-					2.5-4.0' - reddish brown, mottled light greenish gray,				
-		18.0	SS2SS	3-4-8-10	\text{\white and brownish yellow, moist, trace roots} \\ 2.9-3.3' - 0-40\% very fine to fine sand \\ \end{array}				
-	4			(12)	3.7-4.0' - 0-40% very fine to fine sand				
	4.5				-				
5 257.8	5.0				Clay (CL)				
-					\ 5.0-6.8' - reddish brown, mottled light greenish gray, / -				
-		21.0	SS3SS	4-7-14-16	\white and brownish yellow, moist, trace roots 5.3-5.4' - sand pocket				
-				(21)	5.5-5.6' - sand pocket				
-	7.0				5.6-5.7' - sand pocket 6.0' - sand pocket				
-	7.5				6.2-6.4' - large gravel, siltstone				
-					Clay (CL) 7.5-8.7' - reddish brown, mottled light greenish gray, PT-2 collected				
-		14.0	SS4SS	6-7-10-14	white and brownish yellow, moist, very stiff, trace roots - 8.0-10.0'				
-				(17)	-				
- 40	9.5				-				
10 <u> </u>	10.0				□ Clay (CL)				
-					\ 10.0-11.5' - reddish brown, mottled light greenish gray, / -				
-		17.4	SS5SS	3-6-8-10	\white and brownish yellow, moist, trace roots 10.2-10.6' - dark gray and very pale brown, moist, soft PT-3 collected				
-	40.0			(14)	= 13.0-15.0'				
-	12.0				Offset: 9.6' N53W of BCTA-4 Lab Results USCS: CL				
-	12.5				Clay (CL)				
-					12.5-13.8' - reddish brown, mottled light greenish gray,				
-		19.2	SS6SS	5-8-10-11	white and brownish yellow, moist, trace roots				
-	44-			(18)	Fat Clay (CH)				
	14.5				\\\\13.8-14.1' - brownish yellow, red mottling, moist, stiff				
15 <u> </u>	15.0				Fat Clay (CH)				
-					15.0-16.1 - yellowish red, yellow mottling, moist, soft to				
-		21.0	SS7SS	5-9-16-18	medium stiff, becomes clay with depth  Clay (CL)  2.2				
-	47.0			(25)	16.1-16.8' - reddish brown, mottled light greenish gray,				
-	17.0				white and brownish yellow, moist, trace roots				
-	17.5				Clay (CL)				
-					17.5-19.2' - reddish brown, mottled light greenish gray,				
-				8-10-12-20	white and brownish yellow, moist, trace roots 18.5-19.2' - black mottling				
-	46.5			(22)	<u> </u>				
	19.5								
20									

2BB-439 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BCTA-4

SHEET 2 OF 3

## **SOIL BORING LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687562.0 N, 2013436.5 E)

ELEVATION: 262.8 ft MSL (NGVD 29) DRILLING CONTRACTOR: D. Hedges, S&ME

DRILLING EQUIPMENT AND METHOD: CME-550, 3-5/8 Tricone Bit, 24 Split Spoon and 140 lb. Automatic Hammer ORIENTATION: Vertical

WATER				TIOD : OIVIL 000	, 3-5/8 Tricone Bit, 24 Split Spoon and 140 lb. Automa START : 7/20/06 14:30	END : 7/2		12.04	URIENTATION : Vertical  LOGGER : LH
			RADE (ft)	OTANDADD.	SOIL DESCRIPTION	LIND . 1/2		2.04	COMMENTS
	INTERV		- (/	STANDARD PENETRATION					-
			ERY (in)	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLO	DR,	CIC	<u>(</u>	DEPTH OF CASING, DRILLING RATE,
		I LEGOV	#TYPE	6"-6"-6" (N)	MOISTURE CONTENT, RELATIVE DENSITY CONSISTENCY, SOIL STRUCTURE, MINERAL		SYMBOLIC LOG	PP (TSF)	DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
242.8 - - - -	20.0	17.0	SS9SS	15-30-50/5 (80/11")	Clay (CL) 20.0-21.8' - reddish brown, mottled reddish black light greenish gray, moist, hard	and - - -		4.5+	
- - - -	22.5	22.8	SS10SS	28-38-39-45 (77)	Clay (CL) 22.5-24.4' - reddish brown, mottled reddish black light greenish gray, moist, hard, laminated horizobeds 23.6-23.8' - fractured area in hard clay	c and -			PT-4 collected 23.0-25.0' Offset: 9.6' N53W of BCTA-4 Lab Results USCS: CL w/Sand
25 237.8 - - -	25.0 27.0	21.6	SS11SS	15-20-25-30 (45)	Clay (CL) 25.0-26.8' - reddish brown, mottled light olive gra olive, light greenish gray and dark reddish gray, r very stiff to hard, laminated in areas	ay, - moist, ₋			_
- -	27.5	24.0	SS12SS	5-10-38-50/4	Clay (CL) 27.5-29.5' - reddish brown, mottled light olive gra olive, light greenish gray and dark reddish gray, r very stiff to hard, laminated in areas				
30_ 232.8	29.5			(48)	Clay (CL)	-			-
- -	32.0	6.0	SS13SS	50/6 (50/6")	30.0-30.5' - reddish brown, mottled reddish black greenish gray, and olive yellow, moist, hard, lamin	nated			
- - -	32.5 32.7 33.4	1.2	<u>\$\$14\$\$</u>	50/2 (50/2")	Clay (CL) 32.5-32.6' - reddish brown, moist, hard, laminated Begin Rock Coring at 33.4 ft bgs See the next sheet for the rock core log	d /- -			Soil sampling completed at 10:12 on 7/21/06
35						- - - - - -			_
40						-			



PROJECT NUMBER:

338884

BORING NUMBER:

BCTA-4

SHEET 3 OF 3

## **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687562.0 N, 2013436.5 E)

ELEVATION: 262.8 ft MSL (NGVD 29)

DRILLING CONTRACTOR: D. Hedges, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

COMING	LQUIFIVILIV	I AIN	J IVIL	IHOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS: 19	0.0 ft b	gs	START : 7/20/06 14	:30	END : 7/21/06 12:04	LOGGER : LH
	- (%			DISCONTINUITIES	ပ္ခ	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)		FRACTURES PER FOOT	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
AFL > B	ID F, F, F, F, F, F, F, F, F, F, F, F, F,	(%) _Q	75 00	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	<b>7</b> 5	MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND
FF PT PT PT PT PT PT PT PT PT PT PT PT PT	NG- CO'	ο	AC R F	PLANARITY, INFILLING MATERIAL AND	MB	AND ROCK MASS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
		ď	E.E.	THICKNESS, SURFACE STAINING, AND TIGHTNESS	ly	CHARACTERISTICS	DNOI 3, TEST NESOLTS, ETC.
	33.4 R1NQ	100	0		- × >	Siltstone	Rock coring began at 11:04
-	34.1 0.7 ft \\100%/	100			- × >	L At 33.4' - dark reddish brown, mottled reddish black and greenish gray, soft,	on 7/21/06 _
-	(10070)		0		-\x >	slightly weathered to fresh	R1: 11:04-11:08
35				_	_ × >	34.1-39.1' - dark reddish brown,	
227.8					] × >	mottled olive yellow, soft	R2: 11:13-11:29
			0		\ \ \ \ \		At 35.0': R-Scale = R3-R4
1 7	R2NQ				<b>1</b> × >	_	1
_	5 ft	96	10+			-	-
-	98%				-  × >	- 36.9-37.0' - clay seam, firm, 0.14'	-
-			0		- <b> </b> × >	_ thick, friable	-
_			_		- × >	_	-
_			_		-\x >	_	
	39.1		0		$\times$ >		
	00.1		~~~		- × >	39.1-44.1' - 0-40% very fine sand	R3: 11:35-11:49
40			0		- × >	throughout	44 00 01: D 01 D0 D0
222.8				_	- <b> </b> ×	_	At 39.8': R-Scale = R2-R3
-			0		<b>-</b>  × ;	-	SC-1 collected
-					- <b> </b> × ;	-	40.5-41.5' –
_	R3NQ 5 ft	96	5		- × >	-	1
	102%	90	5		× >	_	_
				42.3' - Fracture, horizontal, rough, planar	- × ×		
			0	42.3' - Fracture, 55 deg, smooth, planar, tightly	Ţŝ {	42.6-42.9' - clay seam, firm, 0.42'	
1 7				healed	- × × × × × × × × × × × × × × × × × × ×	thick, friable	1
_			0	42.6' - Fracture, horizontal, rough, undulating 43.0' - Fracture, horizontal, rough, undulating	\(\hat{x}\)	-	At 43.5': R-Scale = R3-R4
I -	44.1		$\overline{\mathcal{M}}$	3	1× >	- 44.1-45.3' - 0-40% very fine sand	- R4: 11:54-12:04
l			0		<b>-</b>  × >	44.1-45.5 - 0-40 % very line sand	14. 11.54-12.04
45 <u> </u>				_	- × >	_	_
217.0			0		_ × >	-	
			U		× >		At 46.9': R-Scale = R3-R4
	R4NQ				× >		First water level = 19.0' bgs
	5 ft 101%	100	0		\ \ \ \ \	_	taken 7/21/06; second water - level = 22.9' bgs taken
_	10176				× >	=	7/22/06 at 17:20
-			1	47.5' - Fracture, 60 deg, rough, undulating	- × >	-	1
-				, 3, 5,	- × ×	-	R-Scale performed after
-			0		<b>-</b>   × >	-	drilling on stored samples -
-	49.1				_ × >		_
_					<b>.</b>	Bottom of Boring at 49.1 ft bgs on 7/21/06 12:04	] _
50				_	_	//21/00 12:04 	
212.8							
					1		1
-					1	-	1
-					1	-	1
-					-	<b>-</b>	-
-					-	-	-
-					4	-	1
					-		1
							1

2BB-441 Rev. 1



PROJECT NUMBER:	BORING NUMBER:					
338884	BCTA-5	SHEET	1	OF	5	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688529.9 N, 2012723.2 E)

ELEVATION: 243.5 ft MSL (NGVD 29)

DRILLING CONTRACTOR: M. Mosely, S&ME

DRILLING EQUIPMENT AND METHOD: CME-550, Tricone Bit, 24" Split Spoon, and 140 lb. Automatic Hammer ORIENTATION: Vertical WATER LEVELS: 1.2 ft bgs START: 7/31/06 09:35 END: 8/1/06 16:15 LOGGER: EM SOIL DESCRIPTION COMMENTS DEPTH BELOW EXISTING GRADE (ft) STANDARD LOG PENETRATION INTERVAL (ft) TEST RESULTS SYMBOLIC SOIL NAME, USCS GROUP SYMBOL, COLOR DEPTH OF CASING, DRILLING RATE, RECOVERY (in) MOISTURE CONTENT, RELATIVE DENSITY OR DRILLING FLUID LOSS, TESTS, AND CONSISTENCY, SOIL STRUCTURE, MINERALOGY INSTRUMENTATION #TYPE 6"-6"-6"-6" (N) 243.5 0.0 Top Soil 0.0-0.1' - dark brown, moist, stiff, roots/organics Clay (CL) SS1SS 4-7-9 7.2 0.1-0.6' - brown, dry to moist, low to medium plasticity, (16)rapid dilatancy, 10-15% fine to medium sand 20 2.5 Fat Clay (CH) 2.5-3.2' - strong brown, light gray mottling, moist, stiff, PT-1 collected high plasticity, slow dilatancy 10.8 SS2SS 4-6-8-10 3.0-5.0 Clay (CL) (14)3.2-3.4' - yellowish red, medium plasticity, slow to rapid 4.5 dilatancy 5 238.5 5.0 5.0-6.5' - dark reddish brown, light greenish gray mottling, moist, very stiff, medium plasticity, slow to SS3SS 10-12-15-18 18.0 rapid dilatancy, <5% fine sand, mottles have 5'-10% PT-2 collected (27)6.0-8.0' Offset: 2.0' S33W of BCTA-5 7.0 Lab Results USCS: CL 7.5 Sandy Silt (MH) 7.5-9.0' - weak red, black and strong brown mottling, hard, low to medium plasticity, rapid dilatancy, 30-35% fine to medium sand, <5% clay 18.0 SS4SS 13-19-26-34 (45)9.5 10 SS5SS Clay (CL) 10.0 2.0 233.5 Soil sampling completed at 11:30 on 7/31/06 10.2 10.0-10.2' - dark red, light gray mottling, moist, hard, low to medium plasticity, slow to rapid dilatancy 50/2 (50/2")Begin Rock Coring at 10.4 ft bgs See the next sheet for the rock core log 15 228.5 20



PROJECT NUMBER:

338884

BORING NUMBER:

BCTA-5

SHEET 2 OF 5

## **ROCK CORE LOG**

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688529.9 N, 2012723.2 E)

ELEVATION: 243.5 ft MSL (NGVD 29)

DRILLING CONTRACTOR: M. Mosely, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

0011111	J LQUII WILI	. ,	U 141L	THOD : CIVIL-330, INQ DOUBLE Barrel			ORIENTATION: Vertical				
WATER	LEVELS : 1.	2 ft bo	ıs	START : 7/31/06 09	:35	END: 8/1/06 16:15	LOGGER : EM				
	3)			DISCONTINUITIES	ŋ	LITHOLOGY	COMMENTS				
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.				
<u>-</u>	10.4	ľĽ	3	10.4' - Fracture, <5 deg, rough, undulating, black stains	× ×	Siltstone At 10.4' - dark reddish brown	Rock coring began at 11:35 on 7/31/06				
-	R1NQ		5	10.7' - Fracture, horizontal and <5 deg, rough, undulating 10.8' - Fracture, horizontal and <5 deg, rough,	× × × × × × × ×	10.4-11.6' - highly weathered 10.4-14.4' - greenish gray and black mottling, 15% fine sand	R1: 11:35-11:53 on 7/31/06 At 10.6-10.7': PP: 1.0 tsf At 11.2': R-Scale = R1				
-	4 ft 103%	50 -	0	undulating 11.1' - Fracture, horizontal and <5 deg, rough, undulating		10.6-10.7' - clay seam, 0.15' thick 10.7-11.3' - voids 11.3-11.7' - very soft to soft, white	-				
-							0	11.2' - Fracture, horizontal and <5 deg, rough, undulating 11.3' - Fracture, horizontal and <5 deg, rough,	× ×   × ×	clasts ~0.01' thick, hardness increases down core 11.6-19.5' - slightly weathered	At 13.6': R-Scale = R2
15_ 228.5	14.4		1	undulating 11.6' - Fractures (2), horizontal and <5 deg 14.8' - Fracture, 70 deg, rough, undulating,	× × × × × ×	14.4-19.4' - trace greenish gray mottling, soft, 10% fine to medium	R2: 08:00-08:16 on 8/1/06				
			0	10-15% limonite	× × × × × ×	sand gradually increases to 30-35% down core with 10% coarse grained sand (subrounded grains)	At 15.5': R-Scale = R3				
-	R2NQ 5 ft 100%	94	0		× × × × × ×	-	-				
-			2	18.1' - Fracture, 20 deg, smooth, undulating,	× ×   × ×   × ×		-				
-	19.4		1	20% black stains, 10% limonite 18.3' - Fracture, 20 deg, smooth, undulating, 20% black stains, 10% limonite	× × × × × × × ×		At 18.6': R-Scale = R3				
20_ 223.5			1	19.0' - Fracture, 35 deg, smooth, undulating, 20% black stains		19.4-22.0' - soft, 30% fine to medium sand that gradually increases to 60% fine to medium sand, 10% coarse	R3: 08:40-09:00 -				
-			2	white 20.4' - Fracture, 10 deg, smooth, undulating 21.0' - Fracture, 20 deg, smooth, undulating	× × × × × × × ×	seen in 0.05' bands at 20.2' and 21.4' at 20 degree angles 19.5-24.4' - moderately weathered	- - At 21.2': R-Scale = R3				
-	R3NQ 5 ft 96%	85	1	21.7' - Fracture, 40 deg, rough, undulating	× ×   × ×   × ×	22.0-24.1' - up to 40% coarse grained	- N. 21.2. N-Ocale - NO				
_			2	22.9' - Fracture, <5 deg, rough, undulating 23.3-23.5' - Fracture zone, 60 deg and 5 deg,	X	<ul> <li>sand and small pebbles, subrounded grains, some fine grained rip up clasts scattered throughout</li> </ul>	At 22.5': R-Scale = R3-R4				
-	24.4		10+ XXX	upper surface rough, lower surface smooth; undulating, lower surface <5 deg, undulating, smooth	× × × × × × × ×	- 23.9-24.1' - hard 24.1-24.4' - very soft, very fine to fine	- - - -				
25 <u> </u>			0	23.6' - Fracture, 60 deg, smooth, undulating 24.1' - Fracture, 45 deg, smooth, undulating, V-shaped, also contact between coarse	× × × × × ×	grained, large pebble sized voids or weathering 24.4-29.4' - dusky red, greenish gray	R4: 09:05-09:21 ————————————————————————————————————				
-	R4NQ		0	material with fine material	× × × × × × × ×	mottling, soft, 10% fine grained sand 24.4-46.1' - fresh 25.7-26.2' - up to 15-20% fine to	At 26.0': R-Scale = R2				
-	5 ft 103%	100	0		× ×   × ×   × ×	medium grained sand - -	SC-1 collected				
-			0		× × × × × × × ×	-	At 27.6': R-Scale = R3				
-	29.4		0 ***		× ×   × ×   × ×	- -	R5: 09:30-09:47				
30 <u> </u>			0		× × × ×		At 30.0': R-Scale = R3-R4				

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PROJECT NUMBER:	BORING NUMBER:	
338884	BCTA-5	SHEET 3 OF 5

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688529.9 N, 2012723.2 E)

ELEVATION: 243.5 ft MSL (NGVD 29)

DRILLING CONTRACTOR: M. Mosely, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	TER LEVELS : 1.2 ft bgs		IS	START : 7/31/06 09:35		END: 8/1/06 16:15	LOGGER : EM	
	_ (%			DISCONTINUITIES	g	LITHOLOGY	COMMENTS	
QN €	AND ≪ AND	_	ZES T	DESCRIPTION	CLC	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.	
_			0		× × × × × ×	29.4-34.4' - trace greenish gray and black mottling, soft, fine sand gradually decreases to <5% at bottom	-	
-	R5NQ 5 ft 98%	98	0	32.4' - Fracture, 5 deg, smooth, undulating	× × × × × ×	of run - -	-	
-			1	oz.4 Tractare, o deg, smooth, andulating		- -	-	
-	34.4		0	34.4-39.4' - Microfractures throughout core	× × × × × ×	33.6' - white to pink clasts 0.02'-0.03'  34.4-39.4' - trace greenish gray	At 34.0': R-Scale = R5 R6: 09:58-10:15	
35 <u> </u>			1	with white and greenish gray infilling 34.8' - Fracture, 5 deg, rough, undulating, V-shaped	× × × × × × × ×	mottling, soft, fine to medium grained sand increases gradually down run, hard white clasts up to 0.1' thick at		
-	R6NQ 5 ft	91	1 	35.4' - Fracture, 5 deg, rough, undulating	× × × × × ×	bottom and top of run	 At 36.6': R-Scale = R3-R4	
-	98%	31	1	37.1' - Fracture, <5 deg, rough, undulating		- - -		
-			2		× × × × × ×	- -	-	
40_ 203.5	39.4		1	39.1' - Fracture, <5 deg, rough, undulating 39.2' - Fracture, <5 deg, rough, undulating 39.6' - Fracture, vertical, smooth, undulating	× × × × × ×	39.4-44.4' - trace greenish gray mottling, soft, fine to medium sand sized white clasts stop at 42.8'	R7: 11:01-11:19	
-			0		× × × × × ×	Sized write clasts stop at 42.0	At 40.5': R-Scale = R3	
-	R7NQ 5 ft 100%	95	1	41.7' - Fracture, 5 deg, smooth, undulating	× × × × × ×	- -	-	
-			0			- - -	At 42.9': R-Scale = R3-R4 -	
-	44.4		0		× × × × × ×	- 44.4-46.1' - grades to sandstone	- R8: 11:25-11:45	
45 <u> </u>			0		× × × × × × • × ×			
-	R8NQ	100	0		× ×	Sandstone 46.1-49.4' - gray, soft to hard, medium	-    -	
-	5 ft 102%	100	0			to thick bedding, fine sand to medium sand, fresh, 40-50% silt	-	
-			0			- - -	-	
50_ 193.5	49.4		0		× × × × × ×	<del>-</del> 	R9: 13:20-13:35	
180.0					××			

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PROJECT NUMBER:	BORING NUMBER:	
338884	BCTA-5	SHEET 4 OF 5

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688529.9 N, 2012723.2 E)

ELEVATION: 243.5 ft MSL (NGVD 29)

DRILLING CONTRACTOR: M. Mosely, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

CORING	5 EQUIPMEN	II AN	D ME	THOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical		
WATER	LEVELS: 1.	2 ft bo	S	START: 7/31/06 09:	35	END: 8/1/06 16:15	LOGGER : EM		
	(%)			DISCONTINUITIES	စ္တ	LITHOLOGY	COMMENTS		
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.		
-			0	-	× × × × × ×	Siltstone 49.4-66.6' - dusky red, mottled greenish gray and black, soft to hard,	-		
-	R9NQ 5 ft 100%	100	0	-	× × × × × × ×	fresh, gravel sized white clasts, 5-15% fine to medium sand, coarser grained and finer grained areas	-		
-			0	-	× × × × × ×		]		
-	54.4		0	-	× × × × × ×	- -	At 53.9': R-Scale = R3 - R10: 13:39-13:58 -		
55_ 188.5_			0	_	× × × × × ×	_			
-	R10NQ 4.5 ft		0	-	× × × × × ×	-			
-	100%		0	-	× × × × × ×	-	-		
-	58.9		0	- -	× × × × × ×	-	At 58.0': R-Scale = R3		
60_			0		× × × × × × ×	58.9-66.6' - 10-15% fine to medium sand	R11: 14:04-14:20 -		
183.5				0	0		× × × × × ×		At 60.2': R-Scale = R3-R4
-	R11NQ 5.3 ft 100%		0	-	× × × × × ×		-		
-			0	-	× × × × × × × ×		-		
-	64.2		0	-	× × × × × ×	-	- R12: 14:28-14:40		
65_ 178.5			0	<u> </u>	× × × × × × × × × × × × × × × × × × ×	<u></u>	1812. 14.20-14.40		
-	R12NQ		0	-	× × × × × × ×				
-	5.2 ft 100%	100	0	66.6' - Contact between siltstone and sandstone		Sandstone 66.6-74.1' - gray, mottled black and reddish brown, soft, laminated to	] :		
-			0	-		medium bedding, fine sand to coarse sand, fresh, reddish brown sand sized clasts	At 67.9': R-Scale = R3-R4 -		
- - 70	69.4		0	-		- 69.4-74.1' - trace small pebbles	R13: 14:48-14:58		
173.5			0			_			

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PROJECT NUMBER:	BORING NUMBER:				
338884	BCTA-5	SHEET	5 OF	5	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688529.9 N, 2012723.2 E)

ELEVATION: 243.5 ft MSL (NGVD 29)

DRILLING CONTRACTOR: M. Mosely, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

CORIN	G EQUIPMEN	II ANI	D ME	THOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	R LEVELS : 1.	2 ft bg	s	START : 7/31/06 09	35	END: 8/1/06 16:15	LOGGER : EM
	_ @			DISCONTINUITIES	g	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SUBFACE (#)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
			0			-	-
	R13NQ 5 ft 104%	100	1	71.7' - Fracture, 5 deg, rough, undulating		- 71.8-72.0' - dark gray laminations on 20 degree angles	- - -
			0		: : :   : : :   : : :	-	At 72.9': R-Scale = R3-R4 -
	74.4		2 ***	74.1' - Contact between siltstone and sandstone, 20 deg, smooth, undulating, <0.01'	::: × > × >	73.8' - grain size decreases to fine to medium sand Siltstone	R14:15:30-15:43
75 <u></u> 168.5	-		0	thick clay infilling	× > × > × > × >	At 74.1' - dusky red, mottled greenish gray, very soft to soft, fresh, very fine grained	
	R14NQ		0		× > × > × >	74.4-84.1' - 0-10% fine sand 75.5-79.4' - mottled yellowish brown and black	-
	5 ft 102%	100	0		× > × > × > × >	- 75.5-84.1' - soft to hard	At 76.9': R-Scale = R3-R4 -
			0		× > × > × > × >		SC-2 collected 78.5-79.4' –
80 <u> </u>	79.4		0	79.9' - Fracture, 60 deg, smooth, undulating	× > × > × > × >	_	R15: 15:50-16:02
100.5	R15NQ 4.7 ft l 100%	94	1 0	· · · · · · · · · · · · · · · · · · ·	× > × > × > × > × > × > × > × > × > × >		First water level = 1.2' bgs taken 8/1/06 at 18:05; - second water level = 0.3' bgs taken 8/2/06 at 16:15
	84.1		0	· ·	× > × > × > × > × >	_ _ _	- - R16: 16:08-16:15
85 <u> </u>	R16NQ 2.2 ft		1	84.6' - Fracture, <5 deg, smooth, undulating to planar	- × × × × × ×	<del>-</del>	
	86.3		0		× > × > × >	- Bottom of Boring at 86.3 ft bgs on 8/1/06 16:15	At 85.5' R-Scale = R3 (performed at a later date) R-Scale performed during rock core logging
90 <u></u> 153.5	-					-	

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PROJECT NUMBER:

338884

BORING NUMBER:

BCTA-6 SHEET 1 OF 5

## **SOIL BORING LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688618.1 N, 2012946.1 E)

ELEVATION: 239.8 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

DRILLIN	DRILLING EQUIPMENT AND METHOD: CME-550, Tricone Bit, 24" Split Spoon, and 140 lb. Automatic Hammer ORIENTATION: Vertical										
WATER	LEVELS	3 : 9.0 ft b	gs		START : 7/26/06 14:40 END : 7/2	7/06	15:46	LOGGER : JS/LH			
DEPTH B	ELOW EX	CISTING C	RADE (ft)	STANDARD	SOIL DESCRIPTION	ტ		COMMENTS			
	INTERV	AL (ft)		PENETRATION TEST RESULTS		13					
		RECOV	ERY (in)		SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR	٦ ا	(TSF)	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND			
	#TYPE 6"-6"-6"			CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	PP (T	INSTRUMENTATION				
239.8	0.0			(N)	Sandy Silt (ML)	ίχ	₫				
	2.0	7.0	SS1SS	4-5-6-10 (11)	0.0-0.4' - pale brown, dry to moist, soft in spoon, 35% very fine to fine sand, non-plastic fines, leaves, roots  Sandy Silt (ML)  0.4-0.6' - yellowish red, heavily mottled, moist, stiff, 35-40% very fine to medium sand, non-plastic	<del></del>		- - -			
- - -	2.5 4.5	12.0	SS2SS	6-5-7-12 (12)	Clayey Sand (SC) 2.5-3.3' - yellowish red, heavily mottled, moist, medium dense, fine to coarse grained, medium to high plasticity, well graded, 30-40% fines Sandy Silt (ML) 3.3-3.5' - reddish brown, trace white mottling, moist,	- //// - //// 		- - - -			
5					stiff, low plasticity, rapid dilatancy, 25-30% very fine to fine sand	1		_			
234.8	5.0 7.0	16.0	SS3SS	12-16-18-19 (34)	Sandy Silt (ML) 5.0-6.3' - reddish brown, trace white mottling, moist, stiff, low plasticity, rapid dilatancy, 25-30% very fine to fine sand; last 3 are laminated greenish white and orange, white is highly plastic	- - - 1	4.5	PT-1 collected - 6.0-8.0' -			
- -	7.5	20.0	SS4SS	11-23-31-32 (54)	Sandy Silt (ML) 7.5-9.2' - reddish brown, trace white mottling, moist, stiff, low plasticity, rapid dilatancy, up to 20% very fine sand to coarse silt	-	3.0				
	9.5					╁	l				
10						<u> </u>	1	Soil sampling completed at 16:00 on			
229.8 	\\\\ 10.2 \  \	2.0	<u>\$8558</u>	50/2 (50/2")	Sandy Silt (ML)  10.0-10.2' - reddish brown, trace white mottling, moist, stiff, low plasticity, rapid dilatancy, up to 20% very fine sand to coarse silt  Begin Rock Coring at 10.2 ft bgs  See the next sheet for the rock core log			7/26/06			
						T		-			

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PROJECT NUMBER:

338884

BORING NUMBER:

BCTA-6 SHEET 2 OF 5

## **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688618.1 N, 2012946.1 E)

ELEVATION: 239.8 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

COMING	LQUIFIVILIN	I AIN	D IVIE	HOD : CME-550, NQ Double Barrel		ORIENTATION: Vertic	aı
WATER	LEVELS: 9.0	0 ft bg	s	START : 7/26/06 14	40	END : 7/27/06 15:46 LOGGER : JS/LH	
	Ç@			DISCONTINUITIES	ğ	LITHOLOGY COMMENTS	
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS  ROCK TYPE, COLOR, SIZE AND DEPTH OF CA FLUID LOSS, CORING RA SMOOTHNESS, CAVING	TE AND ROD
	848	R	X.F.	THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYI	CHARACTERISTICS DROPS, TEST RESULTS	, ETC.
-	10.2		10+		× × × ×	Sandstone 10.2-10.7' - dusky red, very soft, very fine sand to fine sand, highly  Rock coring began at 16 on 7/26/06 R1: 16:30-16:46 on 7/26	6/06
_	R1NQ		10+		× × ×	\text{weathered, 35% fines (silt)}	R0
-	4.8 ft 100%	0	10+	12.9-14.5' - Sandy silt seam		weathered, very fine grained  At 12.0-12.6': R-Scale =  10.7-11.5' - clay seam  At 12.9-14.5': R-Scale =	R0
_			10+			Clay (CL) 12.0-12.6' - highly weathered, some bedrock pieces Siltstone	
15 <u> </u>	15.0		0	14.5' - Contact between siltstone and sandstone, 5 deg, rough and stepped, black mottling on 50% of surface	× × × ×	12.6-12.9' - dusky red, trace green and black mottling, very soft, highly weathered, very fine grained R2: 08:10-08:23 on 7/27	7/06
-			2	14.9' - Fracture, 20 deg, rough, undulating, 0.005' relief 16.1' - Fracture, 45 deg, rough, planar 16.2' - Fracture, horizontal, smooth, planar	× × × × × ×	Sandy Silt (ML) 12.9-14.5' - highly weathered Sandstone	
-	R2NQ 5 ft 90%	86	2	17.2' - Fracture, horizontal, smooth, planar 17.5' - Fracture, horizontal, smooth, planar	× × × × × ×	14.5-15.0' - dark gray, black mottling, soft, very fine sand to fine sand, highly weathered	
-	30 /0		0		× × × × × ×	Siltstone     At 15.0' - dark reddish brown, mottled     greenish gray and reddish black, very     soft to soft, fresh	
20	20.0		0	_	× × × × × ×		_
219.8 - -			0		× × × × × ×	20.0-22.4' - soft R3: 08:40-08:56 At 20.0-25.0': R-Scale = (performed during rock of	
-	R3NQ		0		× × × × × ×	logging)	
-	5 ft 101%	100	0		<del>*****</del> 	Sandstone 22.4-23.8' - white, dark gray, and dark greenish gray, mottled dark reddish	
_			1	23.9' - Fracture, 60 deg and 30 deg, rough,	× × × ×	brown and greenish gray, soft, medium bedding, subangular to subrounded, fresh, very fine to fine	
25 <u> </u>	25.0		1 	24.2' - Fracture, 45 deg, rough, undulating	× × × × × ×	- \sand, well sorted, trace medium sand / Siltstone At 23.8' - dark reddish brown, mottled greenish gray and reddish black, very  At 25.0.30.0': R_Scale =	_
-			0		× × × × × × × ×	soft to soft, fresh, gravel sized white clasts throughout 25.0-30.0' - coarsening with depth	R2
-	R4NQ 5 ft 100%	100	0		× × × × × ×	25.0-27.9' - very soft	
-	100 /6		0		× × × × × ×	- 27.9-30.0' - soft, 0-30% very fine to fine sand	
30	30.0		0		× × × × × ×		_
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2BB-448 Rev. 1



PROJECT NUMBER:

338884

BOTING NUMBER:

BCTA-6

SHEET 3 OF 5

## **ROCK CORE LOG**

ORIENTATION : Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688618.1 N, 2012946.1 E)

ELEVATION: 239.8 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

COMING	LQOII WILL	II AIN	DIVIL	THOD : CIVIE-550, NQ Double Barrel					JRIENTATION : Vertical
WATER	LEVELS: 9.	0 ft bo	gs	START : 7/26/06 14	40		END: 7/27/06 15:46		_OGGER : JS/LH
				DISCONTINUITIES	ני)	Γ	LITHOLOGY		COMMENTS
oz €	CORE RUN, LENGTH, AND RECOVERY (%)		S	DESCRIPTION	SYMBOLIC LOG		ROCK TYPE, COLOR,		
~ 등 병	A'UN H, A	(%	R P		9	1	MINERALOGY, TEXTURE,		SIZE AND DEPTH OF CASING, LUID LOSS, CORING RATE AND
F S O S	ZE F SOX	(%) Q	PE	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	l B	1	WEATHERING, HARDNESS, AND ROCK MASS	Ι'	SMOOTHNESS, CAVING ROD
DEPTH AND ELEVATION BELOW SURFACE (ft)	S H S	R Q	FRACTURES PER FOOT	THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYN	ı	CHARACTERISTICS		DROPS, TEST RESULTS, ETC.
			2			+	29.8-30.0' - <10% medium to coarse /	R	5: 09:26-09:30 and 09:31-
			-	30.4' - Fracture, 20 deg, rough, undulating	]:::	$: \Gamma \setminus$	sand		9:39
_				30.8' - Fracture, 10 deg, rough, undulating 31.2' - Fracture, horizontal, rough, undulating	1:::	[ \	Conglomerate		_
-			4	31.3-31.4' - Fractures (2), horizontal and 45	<b>1∷</b> ∶	1	30.0-30.3' - moderately weathered, on 45 degree bed, coarse sand and fine		=
-	R5NQ			deg, rough, undulating	<del> </del> ∷∷	╌	to medium gravel		-
-	5 ft	72	4	31.5' - Fracture, 45 deg, rough, planar	× ;		Sandstone		=
_	96%			32.2' - Fracture, horizontal, rough, undulating 32.3' - Fracture, horizontal, rough, undulating	× ?	<u>}</u> _\	At 30.3' - white, dark gray, and dark		_
_			1	32.3' - Fracture, horizontal, rough, undulating,	]× 3	%L \	greenish gray, mottled dark reddish brown and greenish gray, soft,	Λ,	t 33.3-33.4': R-Scale = R0 -
-			'	contact between sandstone and siltstone	× × × ×	X	laminated to thin bedding, moderately		t 33.4-33.8': PP: 2.9 tsf
_				33.0' - Fracture, horizontal, rough, undulating 33.9' - Fracture, 45 deg, rough, undulating	× >	*	weathered	At	t 33.4-33.8': R-Scale = R0
25 -	05.0		1		××	*	30.7-31.3' - 30-40% coarse sand to medium gravel		-
35 <u> </u>	35.0		XXX	34.8' - Fracture, 45 deg, rough, undulating,	×	╁	31.6-32.0' - laminated to thin beds		t 34.8-34.8': R-Scale = R0
			0	0.03' thick, very soft, friable	× S	8	Siltstone	I R	6: 09:50-10:05
_					× >		At 32.3' - dark reddish brown, mottled		_
					××	X	greenish gray and reddish black, very soft, laminated bedding		
			0		××	*	32.3-35.0' - moderately weathered		_
-	R6NQ				× ×	*	33.3-33.4' - clay seam, 0.03' thick,		_
-	5 ft	93	0		×	1	friable, very soft, has siltstone in it		-
_	93%				lx ?		33.4-33.8' - clay seam, 0.35' thick, very soft		-
_			0		× :		33.9-34.8' - <5% gravel and coarse		_
					××		sand sized white clasts		
			0		× ×	X	35.0-40.0' - fresh 35.0-55.0' - very soft to soft		_
40	40.0				× ;	XT .	33.0-33.0 - Very Soit to Soit		_
199.8	40.0		$\sim$	_	× ;	*	40.0-50.0' - moderately weathered	R	7: 11:57-12:08
-			10+	40.3' - Fracture, horizontal, rough, planar	×××	+	, , , , , , , , , , , , , , , , , , ,		-
_				40.3-40.9' - Fracture zone, rough, undulating	×	3			=
_			1				41.4-41.6' - trace gravel sized white		_
			l .	41.7' - Fracture, horizontal, rough, undulating	× ; × ; × ;	X	clasts		
	R7NQ					<b>X</b>			
_	5 ft 103%	84	0		××	*			7
-	10070				× ×	*	43.0-45.0' - gravel sized white clasts		-
-			0		×	1	g		=
_					× ?	8			=
_			0		× >				_
45	45.0				××	X			
194.8			XXX	_	××		•	R	8: 12:15-12:28
_			0		××	*			7
-					× ;	*			<del>-</del>
-			0		×	}			_
_					× >	8			_
l _	R8NQ 5 ft	99	0		××	1	47.3-47.8' - coarse sand and fine		
	103%	55			××	X	gravel sized white clasts		
_				48.1' - Fracture, horizontal, rough, undulating	××	*	48.1-48.3' - laminated bedding	۸.	- t 48.2-48.3': R-Scale = R0
-			1		1× ;	*	48.2-48.3' - clay seam, very soft, 0.08'	At	140.2-40.3 . R-3Cale = RU _
-					× 3	<u>+</u>	thick, friable		-
-			0		× S	+			=
50	50.0		XXX	_	lŝ ŝ	1	-		
			^ ×		1 ^{× ×}	T		1	
					1	1			

2BB-449 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BCTA-6

SHEET 4 OF 5

## **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688618.1 N, 2012946.1 E)

ELEVATION: 239.8 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

COMING	LQUIFIVILI	II AN	DIVIL	THOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS : 9.	0 ft bo	ıs	START : 7/26/06 14	:40	END : 7/27/06 15:46	LOGGER : JS/LH
_	CORE RUN, LENGTH, AND RECOVERY (%)			DISCONTINUITIES	90	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	Z AZ	(9	FRACTURES PER FOOT	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR, MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING,
VAT OW FAC	S E R G T E	R Q D (%)	CTU	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	1B01	WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
SEE	SHS	RO	FRA	THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYN	AND ROCK MASS CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
_			0		- × ×	50.0-66.9' - fresh	R9: 12:41-12:57
_			Ľ		- X X	- 50.8-52.4' - laminated beds	At 50.0-55.0': R-Scale = R2 (performed during rock core
_			1		_ × ×	-	logging)
_			·	51.9' - Fracture, horizontal, rough, planar	_ × ×	_	SC-1 collected 50.9-51.9'
_	R9NQ 5 ft	100	1		- × × × ×	-	-
_	106%			52.6' - Fracture, 15 deg, rough, planar	× ×	<del>-</del>	_
_			0		×××	=	-
_					_ × ×	- -	-
_			10+	54.3-54.5' - Fracture zone, 60 deg, rough,	_ × × × ×	=	-
55 <u> </u>	55.0			planar	× ×  × ×		D40: 40:40 40:00
104.0			$\stackrel{\circ}{\otimes}$		-  × ×	55.0-60.0' - soft, coarse grained silt	R10: 13:12-13:28
-					× ×	-	-
_			0		- × ×	-	-
_	DAONO				- × ×	-	_
_	R10NQ 5 ft	94	0		_ × × × ×	_	-
_	94%				× ×	-	-
_			0		- × ×	-	-
_					- × ×	-	-
_			0		- × ×	-	-
60 <u> </u>	60.0		$\bowtie$	-	× ×	_	R11: 13:50-14:00
175.0			0		_ × × ×	-	K11. 13.30-14.00
_					$-1^{\hat{\times}}_{\hat{\times}}^{\hat{\times}}$	-	-
-			0		- × ×	-	-
_	R11NQ				- × ×	_	-
-	5 ft	98	0		- × ×	-	-
-	98%				- × × × ×	_	-
-			0		- x x	-	-
_					- × ×	-	-
			0		- × ×	_	-
65_ 174.8	65.0		~~	_	× ×	_	R12: 14:07-14:21
			0		- × ×	-	-
-						-	-
-			0		-  × ×	-	-
-	R12NQ			66.9' - Contact between sandstone and	- <del> `````</del>	- Sandstone	┨ -
-	5 ft	100	0	siltstone, horizontal, mixed up siltstone pockets in sandstone and vice versa	- ∷:	At 66.9' - white, dark gray, and dark greenish gray, stained dark reddish	-
-	102%			iii sailustoile allu vice velsä	- ∷∷	<ul> <li>brown, soft, laminated to medium</li> </ul>	-
-			0		<b>-</b>  ∷∷	bedding, very fine sand to coarse sand, subangular to subrounded,	-
-						poorly sorted, bedding on 15-20	SC-2 collected
			0		- ∷:	degree angle 66.9-80.0' - fresh	69.0-70.0' -
70	70.0		$\sim$	_			_
							1

2BB-450 Rev. 1



PROJECT NUMBER:

338884

BOTING NUMBER:

BCTA-6

SHEET 5 OF 5

## **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688618.1 N, 2012946.1 E)

ELEVATION: 239.8 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

 CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel
 ORIENTATION : Vertical

 WATER LEVELS : 9.0 ft bgs
 START : 7/26/06 14:40
 END : 7/27/06 15:46
 LOGGER : JS/LH

WATER	LEVELS: 9.	0 ft bo	ıs	START : 7/26/06 1	4:40	END: 7/27/06 15:46	LOGGER : JS/LH
				DISCONTINUITIES		LITHOLOGY	COMMENTS
gz €	7.4× 0%) 0%)		ES	DESCRIPTION	7	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
_			0		-:::	68.9-69.4' - 20-50% silt 70.0-80.0' - very soft	R13: 15:12-15:19
-			0		-	70.0-60.0 - Very Soit	At 71.0': R-Scale = R2 (performed during rock core - logging)
_	R13NQ 5 ft 101%	100	0				-
-			0			-	-
75_ 164.8	75.0		0		<u>-</u>  :::	_	- R14: 15:26-15:31
104.0			0		-	- -	First water level = 9.0' bgs
-	R14NQ		0		-	- -	taken 7/28/06 at 14:45
-	5 ft 102%	100	0		-	-	-
-			0		-	- -	-
80_ 159.8	80.0		0	-	  -  :::	- 80.0-82.4' - slightly weathered	R15: 15:37-15:46
-			5		-	- 80.2' - 1/2 orange stained clast	-
-	R15NQ		1		-:::	- 81.8-82.0' - dark gray to black silty laminae	At 81.4': R-Scale = R2 (performed during rock core logging)
-	5 ft 102%	82	0	82.4' - Fracture, horizontal, rough, undulating, 0.02' relief 82.8' - Fracture, horizontal, smooth,	- × × × × × × × × × × × × × × × × × × ×	82.1-82.4' - rust colored stains at 30 degrees, 1 mm thick Siltstone	
-			0	undulating, 0.01' relief	- × × × × × × × × × × × × × × × × × × ×	82.4-85.0' - dark reddish brown, green mottling, soft, slightly weathered, very fine to fine grained, trace very fine sand, 20 degree bedding	At 83.7': R-Scale = R2 (performed during rock core logging)
85 <u>-</u> 154.8 -	85.0		<b>~~</b>		- × ×	Bottom of Boring at 85.0 ft bgs on 7/27/06 15:46	R-Scale performed after drilling on stored samples unless otherwise specified
-						- -	-
-						<u>-</u>	-
-							
90						- -	-

2BB-451 Rev. 1



PROJECT NUMBER:	BORING NUMBER:				
338884	BCTA-7	SHEET	1	OF	3

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688279.2 N, 2012780.6 E)

ELEVATION: 232.8 ft MSL (NGVD 29)

DRILLING CONTRACTOR: M. Mosely, S&ME

DRILLING EQUIPMENT AND METHOD : CME-550, 3-7/8 Tricone Bit, 24" Split Spoon, 140 lb. Hammer ORIENTATION : Vertical

				TIOD : OME GOO	974DT - 9/2/06 40:22	2/06	16:40 LOCCED AT
WATER DEPTH B			RADE (ft)		START : 8/2/06 10:32 END : 8/2  SOIL DESCRIPTION	Т	COMMENTS
I DELIUB			יי∧טה (ון)	STANDARD PENETRATION	SOIL DESCRIPTION	- 5	O
	INTERV			TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,	<u>-</u>	DEPTH OF CASING, DRILLING RATE,
		RECOVI	ERY (in)		MOISTURE CONTENT, RELATIVE DENSITY OR	2	DRILLING FLUID LOSS, TESTS, AND
			#TYPE	6"-6"-6" (N)	CONSISTENCY, SOIL STRUCTURE, MINERALOGY		INSTRUMENTATION
232.8	0.0	0.6	SS1SS	2-3-5-7 (8)	No Recovery 0.0-0.1' - wood and debris, approx. 0.05' (1/2') concrete chunks		-
_	2.0					╀	-  -
_	2.5				No Recovery	╁	-  -
- -		0.0	SS2SS	11-13-15-18 (28)	2.5-4.5' - tree bark/wood, possibly backfill	-	- - -
	4.5					╁	-  -
5 227.8 - -	5.0	7.8	SS3SS	12-25-36-44 (61)	Clay (CL) 5.0-5.7' - dark reddish brown, moist, hard, low to medium plasticity, slow to rapid dilatancy, top of sample still lots of wood shavings; 10-15% very fine sand (<0.0002"), possibly backfill to 6.35'		- - - -
	7.0				( -0.0002 ), possibly backing to 0.00		
						<u> </u>	_
-	7.5	10.2	SS4SS	23-28-50/4 (78/10")	Clay (CL) 7.5-8.4' - dark reddish brown, pale green mottling, dry to moist, hard, medium plasticity, slow to rapid dilatancy, trace very fine sand, weathered siltstone		- - -
-	9.5					$\mathbb{Z}$	Sail compling completed at 14/49 on 9/2/06
10 <u> </u>	10.0 r	2.0	SS5SS,		¬ Clay (CL)		Soil sampling completed at 14:48 on 8/2/06
	10.2	2.0	,33333	50/2 (50/2")	10.0-10.2' - dark reddish brown, moist, hard, low to medium plasticity, slow to rapid dilatancy, trace very fine sand  Begin Rock Coring at 10.2 ft bgs See the next sheet for the rock core log		- - -
- - - 15					_	- - -	- - - -
217.8						- - - - - -	- - - - - -
20_						1	
		l	1				į.

2BB-452 Rev. 1



PROJECT NUMBER:

338884

BOTING NUMBER:

BCTA-7 SHEET 2 OF 3

## **ROCK CORE LOG**

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688279.2 N, 2012780.6 E)

ELEVATION: 232.8 ft MSL (NGVD 29)

DRILLING CONTRACTOR: M. Mosely, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	LEVELS : 3.2 ft bgs START : 8/2/06 10:32		END: 8/2/06 16:40	LOGGER : AT			
	(%)			DISCONTINUITIES	G	LITHOLOGY	COMMENTS
92 €	Ä, AND 3Y (3	_	ES T	DESCRIPTION	C LOG	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
-	10.2		0		× × × × × ×	Siltstone At 10.2' - dusky red, trace green and purple mottling, soft, 10% very fine to fine sand	Rock coring began at 15:10 _ on 8/2/06 R1: No time recorded
-	R1NQ		1	11.8-12.1' - Fracture	× × × × × ×	10.2-15.0' - slightly weathered to moderately weathered	-
-	4.8 ft 67%	48	0	12.5' - Fracture, 25 deg, smooth, undulating	× ×   × ×   × ×	-	At 12.3': R-Scale = R2-R3 (performed during rock core logging)
-				13.5' - Fracture, 10 deg, smooth, undulating 14.2' - Fracture, 10 deg, smooth, undulating	- × × - × × - × ×	- -	At 13.0': R-Scale = R2-R3 (performed during rock core logging) - At 14.0': R-Scale = R2-R3
15 <u>2</u> 17.8	15.0		3	14.7' - Fracture, 30 deg, smooth, undulating 15.0-15.1' - Fracture 15.2' - Fracture, horizontal, smooth, undulating	× ×   × ×   × ×	15.0-15.7' - dark reddish brown, 10% - very fine to fine sand, mottled purple to	(performed during rock core logging)  At 14.7': R-Scale = R2-R3 (performed during rock core
-			0	15.3' - Fracture, horizontal, smooth, undulating 15.9' - Fracture, horizontal, smooth, undulating	× × × × × ×	black, reddish black, and white, harder than matrix  15.0-20.0' - moderately weathered	logging) - R2: No time recorded _
-	R2NQ 5 ft 95%	69	0		- × × - × × - × ×	15.7-40.0' - dark reddish brown, green mottling, 10% very fine sand, 10% white clasts, harder than matrix 17.2-17.5' - clay seam	At 16.8': R-Scale = R3-R4 (performed during rock core logging)
-	95%		0		× ×   × ×   × ×	17.2-17.5 - day seam 17.9-18.2' - clay seam -	At 17.2-17.5': R-Scale = R0 - At 17.9-18.2': R-Scale = R0 -
20	20.0		0		× × × × × ×	-	At 19.0': R-Scale = R3-R4 (performed during rock core logging)
212.8			1	20.4' - Fracture, 25 deg, smooth, undulating, 0.02' relief, loose	× × × × × ×	20.0-38.8' - fresh	R3: 8:35-8:42
-			2	21.4' - Fracture, 20 deg, smooth, undulating, fairly tight	× × × × × ×	21.5-21.6' - soft to hard, large irregular shaped green mottling	At 21.0': R-Scale = R2
-	R3NQ 5 ft 103%	92	1	21.5' - Fracture, 10 deg, smooth, undulating, loose 22.3' - Fracture, 20 deg, smooth, undulating,	× × × × × ×	- -	-
-			0	fairly tight	× ×   × ×   × ×	-	SC-1 collected 23.6-24.7'
25 207.8	25.0		0	-	× × × × × ×	-	
-			0		× × × × × ×	- 26.0-26.9' - soft to hard, 25% very fine	-
-	R4NQ		1	26.5' - Fracture, 60 deg, rough, planar, secondary fracture 10 deg, smooth and undulating	- × × - × × - × ×	to fine sand, harder than overlying and underlying material	
-	- 5 ft - 98%	98 1	1	undulating 27.3' - Fracture, 65 deg, rough, planar, secondary fracture horizontal, smooth and undulating	× × × × × ×	-	:
-			1	28.5' - Fracture, horizontal, rough, undulating, 0.02' relief	× × × × × ×	-	-
30	30.0		0	-	× × × × × ×		-

2BB-453 Rev. 1



PROJECT NUMBER:	BORING NUMBER:	
338884	BCTA-7	SHEET 3 OF 3

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688279.2 N, 2012780.6 E)

ELEVATION: 232.8 ft MSL (NGVD 29)

DRILLING CONTRACTOR: M. Mosely, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

CORINC	LQUIFIVILIV	II AIN	DIVIE	IHOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS: 3.	2 ft bo	ļs	START : 8/2/06 10:	32	END : 8/2/06 16:40	LOGGER : AT
1	(%			DISCONTINUITIES	ő	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)		FRACTURES PER FOOT	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
ATIC ACE	I RU	R Q D (%)	FS	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	30LI	MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND
EPT URIO	ORE	Ø	ZAC ER F	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	YMB	AND ROCK MASS CHARACTERISTICS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
	074	œ	正正				
-			2	30.1' - Fracture, horizontal, smooth, undulating	- × ×	_ 30.0-35.0' - very dusky red, soft to hard	R5: 9:18-9:32
-				30.9' - Fracture, horizontal, smooth, undulating	- × ×	<del>-</del>	-
-			1	Od Cl. Frankins basis and large the conduction	<b>→</b> × >	<del>}</del>	-
-	R5NQ			31.6' - Fracture, horizontal, smooth, undulating	- × × ×	}-	-
-	5 ft	93	0		- × >	}-	-
_	93%				- × >	}-	At 33.0': R-Scale = R2
-			0		- × >	-	At 33.0 : N-3cale = N2
_					- × >	1	-
_			0		_ × >	_	-
35	35.0		$\boxtimes$	_	× ;	_	
197.8			0		_ × >	1	R6: 9:41-9:55
					]× >	1	1
			1	36.2' - Fracture, 20 deg, rough, planar	× >	35.9-36.2' - laminated beds in matrix	
			'		× >	26 9 40 0' fining unwords assumes	1
-	R6NQ	00			- × >	<ul> <li>36.8-40.0' - fining upwards sequence, well graded, very fine to coarse sand,</li> </ul>	1
-	5 ft 99%	99	0		× >	multicolored, laminated beds	At 37.7': R-Scale = R4-R5
_					1ê 3	}	First water level = 3.2' bgs
-			0		-12.5	-	taken 8/3/06 at 18:30; second water level = 3.6'
-				39.0' - Fracture, 20 deg, rough, planar,	<b>-</b>  :::	- Sandstone 38.8-40.0' - dark reddish brown, fresh,	bgs taken 8/4/06 at 15:46
- 40	40.0		1	greenish-gray stains	- ∷:	very fine to coarse sand, banded	R-Scale performed after
40 <u> </u>	40.0		~~~		+	Bottom of Boring at 40.0 ft bgs on	drilling on stored samples
-					-	- 8/2/06 16:40	-
-					1	-	-
-					-	-	-
-					-	-	-
-					-	-	-
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2BB-454 Rev. 1



PROJECT NUMBER:	BORING NUMBER:				
338884	BCTA-8	SHEET	1	OF	3

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688410.9 N, 2013044.2 E)

ELEVATION: 227.0 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

DRILLING EQUIPMENT AND METHOD : CME-550, 2-15/16 Tricone Bit, 24" Split Spoon, 140 lb. Hammer ORIENTATION : Vertical

					, z=13/10 THICOHE DIL, Z4 SPIIL SPOOT, 140 ID. FIAITHEEL ONIENTATION . VERILGE
WATER			RADE (ft)		START : 8/10/06 08:23 END : 8/10/06 13:29 LOGGER : AT  SOIL DESCRIPTION COMMENTS
DEPIRE			אייאחב (ונ)	STANDARD PENETRATION	0 CONVINIENTS
	INTERV			TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, 이 DEPTH OF CASING, DRILLING RATE,
		RECOVI	ERY (in)		MOISTURE CONTENT, RELATIVE DENSITY OR DRILLING FLUID LOSS, TESTS, AND
			#TYPE	6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY  BY MOISTURE CONTENT, RELATIVE DENSITY OR INSTRUMENTATION
227.0 - - -	0.0	18.0	SS1SS	1-1-2-0 (3)	Clay (CL) 0.0-2.0' - reddish yellow, moist, very soft, low plasticity, rapid dilatancy
	2.5 4.5	16.8	SS2SS	2-2-3-5 (5)	Clay (CL) 2.5-3.5' - reddish yellow, moist, soft, low to medium plasticity, slow to rapid dilatancy, 20% very fine to fine sand Sandy Silt (ML) 3.5-3.9' - reddish yellow, moist, soft, 40% very fine to
5					medium sand, black organics
222.0	5.0 7.0	16.8	SS3SS	17-22-27-50/4 (49)	Sandy Silt (ML)  5.0-5.4' - reddish yellow, moist, soft, 40% very fine to medium sand, black organics  Clay (CL)  5.4-6.4' - dark reddish brown, dry to moist, stiff to hard, low to medium plasticity, slow to rapid dilatancy
					PT-1 collected
- -	7.5	7.2	SS4SS	36-26-20-25 (46)	Clay (CL) 7.5-8.1' - dark reddish brown, dry to moist, stiff to hard, low to medium plasticity, slow to rapid dilatancy
	9.5				]
10 217.0 _	10.0	10.8	SS5SS	45-50/3 (50/3")	Clay (CL) 10.0-10.9' - dark reddish brown, mottled greenish gray, dry to moist, hard, slow to rapid dilatancy
	12.0			, ,	
					]
_	12.5 14.5	4.8	SS6SS	50/4 (50/4")	Clay (CL)  12.5-12.9' - dark reddish brown, mottled greenish gray, dry to moist, hard, slow to rapid dilatancy
15	14.5				Soil sampling completed at 10:58 on 8/10/06
15	15.0 15.1	0.5	<u>(</u> \$\$7\$\$,	50/0.5 (50/0.5")	Clay (CL) 15.0-15.1' - dark reddish brown, mottled greenish gray, dry to moist, hard, slow to rapid dilatancy Begin Rock Coring at 15.1 ft bgs See the next sheet for the rock core log
20					++

2BB-455 Rev. 1



PROJECT NUMBER:

338884

BOTING NUMBER:

BCTA-8

SHEET 2 OF 3

## **ROCK CORE LOG**

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688410.9 N, 2013044.2 E)

ELEVATION: 227.0 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	LEVELS : 2.	1 ft bo	ıs	START : 8/10/06 08	:23	END : 8/10/06 13:29	LOGGER : AT
	(9)			DISCONTINUITIES	ŋ	LITHOLOGY	COMMENTS
Qz €	CORE RUN, LENGTH, AND RECOVERY (%)		ES	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	TH.,	R Q D (%)	CTURES FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	팅	MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND
THE SHAPE	ORE	ο	FRAC PER F	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	ΥMB	AND ROCK MASS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
2 2 2 2		ď	田田	THICKNESS, SURFACE STAINING, AND TIGHTNESS		CHARACTERISTICS	<u> </u>
-	15.1		1		$\begin{array}{c} \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times$	Siltstone 15.1-21.4' - dusky red, mottled	Rock coring began at 11:09 on 8/10/06
_					Į̂x x̂}	greenish gray, soft to hard, 10-15%	R1: 11:09-11:33
_			0	16.1' - Fracture, 50 deg, rough, undulating, greenish white staining, 0.2' relief		very fine to fine sand  15.1-19.5' - slightly weathered	1 4
_	R1NQ			greensi write stairing, 0.2 Teller	× ×	-	At 16.7': R-Scale = R3
-	4.4 ft	93	1		××	_	1
l _	98%		·	17.7' - Fracture, 30 deg, rough, undulating,	× ×	_	
_			1	0.05' relief	I× ×	_	
_			·	19.0' Fracture 16 deg white infilling	× ×	_	
	19.5		0	18.9' - Fracture, 16 deg, white infilling 18.9' - Clay seam, 16 deg, white infilling, 0.05'	]×		1
20_				thick	]× *[	19.5-21.4' - moderately weathered	R2: No time recorded
207.0			1		1× ×	— 19.7-21.4' - small (<0.25 to 0.375") sandstone lineations	7
-				20.4' - Fracture, 20 deg, smooth, undulating, 0.2' relief			At 20.7': R-Scale = R3
-			1	21.0' - Fracture, 5 deg, smooth, undulating,	l× ×	=	At 20.7 : N=Scale = 110
-	R2NQ			0.05' relief 21.4' - Contact between siltstone and		Sandstone	1 1
-	5 ft 94%	60	4	sandstone, sharp	1:::1	21.4-24.5' - reddish gray, soft to hard, moderately weathered, 60% very fine	1
-	3470			21.9' - Fracture, 10 deg, smooth, undulating	<del> </del> ∷:⊦	to medium, poorly graded, dark	1
-			5	22.2' - Fracture, 25 deg, rough, undulating 22.5' - Fracture, horizontal, smooth,	╂∷⊹	reddish brown silt lenses; poorly laminated	At 23.0': R-Scale = R3-R4
-				undulating, 0.3 gray clay infilling	╂∷⊹	-	1
-			2	22.6' - Fracture, 10 deg, smooth, planar 23.2-23.6' - Fracture, 20 deg, smooth,	╂∷⊹	-	1 -
-	24.5		XXX	undulating	 × ×	Siltstone	R3: No time recorded
25 <u> </u>			2	23.4-23.5 - Fracture, 25 deg, smooth, undulating	I× X	- At 24.5' - dusky red, mottled greenish	No lime recorded —
				23.5' - Fracture, 15 deg, smooth, planar	×	gray and dark reddish-black, soft to hard, 10-15% very fine to fine sand	1
_			0	23.8' - Fracture, 15 deg, smooth, planar 23.9' - Fracture, 10 deg, smooth, planar	I× ×	- 24.5-29.5' - slightly weathered	1
_				26.1' - Fractures (2), horizontal and 50 deg,	× ×   × ×	-	1
l _	R3NQ 5 ft	98	0	smooth, undulating 26.3' - Fracture, 25 deg, smooth, undulating	$\times$ $\times$	_	<u> </u>
l _	103%			26.5 - Fracture, 25 deg, smooth, undulating	]× ×	_	<u> </u>
			0		]×	_	]
			0		1× ×		At 28.0': R-Scale = R3
1			0		*	_	1
1	29.5		U		]× × [	-	1
30			$\stackrel{\circ}{\times}$		1× × 1	29.5-34.5' - fresh, red clasts, from	R4: No time recorded
197.0			2	20.21 Fracture 60 dec amonth undulation	$\times$ $\times$		
-				30.3' - Fracture, 60 deg, smooth, undulating 30.6' - Fractures (2), 10 deg and 50 deg,	× × × × × ×	-	1
-			0	smooth, undulating	1×	-	1
-	R4NQ			31.6' - Contact between siltstone and	× × × ×	-	
-	5 ft 99%	93	0	sandstone, sharp	1××	31.9-34.5' - poorly bedded, slight	
-	99%				l× ⊁	laminations visible	-
-			0		√× ×	-	SC-1 collected – 32.8-33.7'
-					I× ≯	-	JZ.U-JJ.1
-			0		××	-	At 33.8': R-Scale = R3-R4 -
-	34.5				××	-	R5: No time recorded
35					× × × ×	<del></del>	
1					1 1		

2BB-456 Rev. 1



PROJECT NUMBER:	BORING NUMBER:	
338884	BCTA-8	SHEET 3 OF 3

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688410.9 N, 2013044.2 E)

ELEVATION: 227.0 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

COMING	LQUIFIVILIV	I AIN	DIVIL	THOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS: 2.	1 ft bo	ıs	START : 8/10/06 08	:23	END: 8/10/06 13:29	LOGGER : AT
				DISCONTINUITIES	ניו	LITHOLOGY	COMMENTS
07 Ê	CORE RUN, LENGTH, AND RECOVERY (%)		Ś	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	
NE NE	CUN 4, A ER)	(%	滿		임	MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
HE SE	RE FIGURE	(%) 🛭	F.F.	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	BO	WEATHERING, HARDNESS,	SMOOTHNESS, CAVING ROD
DEPTH AND ELEVATION BELOW SURFACE (ft)	S S S S S S S S S S S S S S S S S S S	S O	FRACTURES PER FOOT	THICKNESS, SURFACE STAINING, AND TIGHTNESS	λ×	AND ROCK MASS CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
	0 1	ш	0	<u> </u>			
_			$\stackrel{\circ}{}$		× ×	34.5-37.6' - fresh, 30-40% very fine to fine sand	At 35.5': R-Scale = R3-R4
_			0		$\times$ $\times$	-	At 55.5 : R-Scale - R5-R4
			ľ		× ×		
	R5NQ				$\begin{array}{ccc} \times \times \times \end{array}$	36.5-37.6' - well bedded, highly	First water level = 2.1' bgs
-	5 ft 100%	91	0		1××	- laminated silt and sand layers	taken 8/10/06 at 18:14;
-	100 /6			27 Cl	- <del>X. X</del>	- One datas	second water level = 1.5' bgs taken 8/11/06 at 14:05
-			2	37.6' - Contact between siltstone and sandstone, 30 deg, smooth, planar	<b>.</b> ∷	Sandstone At 37.6' - gray, soft to hard, fresh, well	
_				37.9' - Fracture, 20 deg, smooth, undulating	<u> </u>	graded, well laminated beds, red stain	_
				, G, , , G	:::	at contact of beds, 39.0-39.5' cross	At 38.5': R-Scale = R3-R4
_	39.5		0		1:::	bedding	1
40	,				1:::	_ 39.5-41.0' - laminations disappear	R6: No time recorded
40 <u> </u>	R6NQ	100	0	_	<b>-</b> [∷:	<ul> <li>with depth, becomes poorly graded</li> </ul>	<del></del>
- 157.5	1.5 ft 100%	100			4:::	_ with depth	l
I _	41.0		0		[:::		R-Scale performed during rock core logging
I -						Bottom of Boring at 41.0 ft bgs on	TOCK COTE TOGGITTS
_					1	- 8/10/06 13:29	1 7
-					1	-	-
-					-	<del>-</del>	-
_					1 1	=	_
-					1	-	1
l					1	=	-
45 <u> </u>				_	4	_	-
102.0					1 1		_
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55				_	]	<u></u>	
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2BB-457 Rev. 1



PROJECT NUMBER:	BORING NUMBER:	
338884	BCA-1	SHEET 1 OF 6

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686832.1 N, 2014476.2 E)

ELEVATION: 256.2 ft MSL (NGVD 29)

DRILLING CONTRACTOR: J. Little, S&ME

DRILLING EQUIPMENT AND METHOD: BK-51, 2-15/16 Tricone Bit, 24 Split Spoon, 140 lb. Hammer and Cathead ORIENTATION: Vertical

				HOD : BK-51, 2-	15/16 Tricone Bit, 24 Split Spoon, 140 lb. Hamme				ORIENTATION : Vertical
WATER					START : 8/2/06 08:11 END : 8/3/06 09:  SOIL DESCRIPTION				LOGGER : LH COMMENTS
DEPIH B	ELOW EX		KADE (II)	STANDARD PENETRATION	SOIL DESCRIPTION		90		COMMENTS
	INTERV			TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, O	SYMBOLIC LOG	(TSF)	DEPTH OF CASING, DRILLING RATE,	
	RECOVERY (in)				MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY				DRILLING FLUID LÓSS, TESTS, AND INSTRUMENTATION
			#TYPE	6"-6"-6" (N)	CONSISTENCY, SOIL STRUCTURE, MINE	SYN	PP (	INSTRUMENTATION	
256.2 - -	0.0	18.0	SS1SS	6-9-10-10 (19)	Clay (CL) 0.0-1.5' - reddish brown, mottled yellow and black, dry, stiff, medium to low plasticity, slov	reddish - v dilatancy _			
_	2.0			(10)		-			
- - -	2.5	13.0	SS2SS	5-7-8-9 (15)	Clay (CL) 2.5-3.6' - reddish brown, mottled yellow and dry, stiff, medium to low plasticity, fill	light gray, -			
	4.5					-			
5 251.2 - -	5.0	11.5	SS3SS	5-5-6-8 (11)	Clay (CL) 5.0-6.0' - olive brown, mottled reddish brown and yellow, moist, stiff, sand pockets and cla				ST-1 collected
_	7.0			(11)		=	1		6.0-8.0'
						-			
-	7.5	6.5	SS4SS	3-3-5-5 (8)	Clay (CL)  7.5-8.0' - light yellowish brown, mottled reddimoist, trace organics and sand	ish brown,			
	9.5			. ,		_	]		
10	10.0						///		
246. <u>2</u> - -	10.0	8.0	SS5SS	2-1-2-1 (3)	Clay (CL) 10.0-10.7' - light yellowish brown, mottled re- brown, moist, soft	ddish -			ST-2 collected 11.0-13.0'
_	12.0					_			
-	12.5				Clay (CL)	_	///		
-		10.0	SS6SS	2-1-1-2 (2)	12.5-13.4' - light yellowish brown and reddisl moist, very soft, fill	h brown, -			
-	14.5					-			
15 <u> </u>	15.0	10.0	SS7SS		Clay (CL) 15.0-15.9' - light yellowish brown and reddisk moist, soft, fill	h brown, -			
-				(3)		-			
-	17.0					-			
- - -	17.5	14.0	SS8SS	2-2-2-2 (4)	Clay (CL) 17.5-18.7' - reddish brown, light olive brown, yellowish brown, soft, mixture of all previous	and light - soils, fill _		1.0	ST-3 collected 18.0-20.0'
-	19.5			(4)		-			
20 20	13.3					_	1		



PROJECT NUMBER:	BORING NUMBER:	
338884	BCA-1	SHEET 2 OF 6

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686832.1 N, 2014476.2 E)

ELEVATION: 256.2 ft MSL (NGVD 29) DRILLING CONTRACTOR: J. Little, S&ME

DRILLING EQUIPMENT AND METHOD: BK-51, 2-15/16 Tricone Bit, 24 Split Spoon, 140 lb. Hammer and Cathead ORIENTATION: Vertical

DRILLIN	IG EQUIF	PMENT A	AND MET	HOD: BK-51, 2-	15/16 Tricone Bit, 24 Split Spoon, 140 lb. Hammer and Catheac	<u> </u>		ORIENTATION : Vertical		
WATER	LEVELS	: 26.6 ft	bgs		START: 8/2/06 08:11 END: 8/3	3/06 09	9:14	LOGGER : LH		
DEPTH E	BELOW EX	(ISTING G	RADE (ft)	STANDARD	SOIL DESCRIPTION	ניז		COMMENTS		
	INTERV	AL (ft)		STANDARD PENETRATION TEST RESULTS		SYMBOLIC LOG				
		RECOV	ERY (in)	TEST NESOLIS	SOIL NAME, USCS GROUP SYMBOL, COLOR,	1 3	Œ	DEPTH OF CASING, DRILLING RATE,		
			#TYPE	6"-6"-6"	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	MBC	(TSF)	DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION		
			#1112	(N)	· · · · · · · · · · · · · · · · · · ·	S	윤			
236.2	20.0				Clay (CL)					
-					20.0-21.2' - soft, mixture of all previous soils, fill	<b>V</b> ///	1			
-		14.0	SS9SS	2-2-2-3 (4)		<b>1</b> ///	0.5			
-	22.0			(4)		1		-		
-	22.0					1				
-						┨		-		
-						┨				
-						-		-		
-						4				
I -						1	l			
25	05.5					1,,,,	l	_		
231.2	25.0				Clay (CL) 25.0-26.2' - medium stiff, mixture of all previous soils	<b>V</b> ///	1			
		14.0	SS10SS	2-3-3-3	20.0 20.2 - Medidin Still, mixture of all previous SOIIS		1			
		14.0	551055	2-3-3-3 (6)		7///	0.9			
-	27.0			(-)		1				
-	20					1		ST-4 collected		
-						1		27.0-29.0'		
-						1				
-						┨				
-						┨				
-						4		-		
30 <u> </u>	30.0				No Recovery	+-		_		
	30.0				30.0-32.0'	4				
-		0.0	SS11SS	3-4-4-4		4				
_				(8)		_				
_	32.0					_				
l _						╛				
l _										
						1				
-						1				
35						1				
221.2	35.0				Clay (CL)	///	1	_		
-					35.0-37.5' - dark reddish brown, moist, hard, low plasticity, slow dilatancy			-		
-		9.0	SS12SS	11-24-26-36	piasucity, Siow uliatarity	1				
-				(50)		┨				
-	37.0					-	l			
-						4	l			
-						4	l			
-						4				
_						_				
I _										
40	39.5						L			

Rev. 1



PROJECT NUMBER:	BORING NUMBER:		
338884	BCA-1	CHEET	2 OE 6

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686832.1 N, 2014476.2 E)

ELEVATION: 256.2 ft MSL (NGVD 29) DRILLING CONTRACTOR: J. Little, S&ME

DRILLING EQUIPMENT AND METHOD: BK-51, 2-15/16 Tricone Bit, 24 Split Spoon, 140 lb. Hammer and Cathead ORIENTATION: Vertical

DRILLIN	IG EQUII	PIVIENT	AND ME	HOD : BK-51, 2-	15/16 Tricone Bit, 24 Split Spoon, 140 lb. Hamm	er and Cathe	ead			ORIENTATION : Vertical
WATER					START : 8/2/06 08:11	END :	8/3/	06 09	14	LOGGER : LH
DEPTH B			GRADE (ft)	STANDARD	SOIL DESCRIPTION	SOIL DESCRIPTION				COMMENTS
	INTERV	AL (ft)		PENETRATION TEST RESULTS	S SOIL NAME LISCS CROUD SYMBOL COLOR					
	RECOVERY (in)				SOIL NAME, USCS GROUP SYMBOL, MOISTURE CONTENT, RELATIVE DEN	COLOR, ISITY OR		SYMBOLIC LOG	Ű.	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND
			#TYPE	6"-6"-6"-6"	CONSISTENCY, SOIL STRUCTURE, MIN	IERALOGY		MB	(TSF)	INSTRUMENTATION
				(N)				SY	ЬР	
216.2		2.0	SS13SS	50/4	Clay (CL) 39.5-39.7' - dark reddish brown, moist, hard	d low	1_			Drillers Remark: refusal at 39.5' bgs will try to sample at 39.5-41.5'
		2.0	001000	(50/4")	plasticity, laminated	ı, 10 <b>v</b> v	_			try to sumple at 65.5 41.5
	41.5						_			
_							_	1		
_							_			•
-							-			
-							-			-
-							-			Soil sampling completed at 11:43 on
<u>,                                    </u>							-			8/2/06
45 <u> </u>	45.0	0.0	SS14SS		_ No Recovery			$\vdash$		
	45.3	1 0.0	001700	50/2	\45.0-45.3'		/-			
-				(50/2")	Begin Rock Coring at 45.3 ft bgs		-			
-					See the next sheet for the rock core log		_			
_							_			
							_			_
_							_	1		
50							_	l		
206.2								1		_
-							-			
-							-			
_							-			-
-							-			
-							-			
-							-			
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55							_			_
201.2							_			
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							-			
60										
										<u> </u>

2BB-460 Rev. 1



PROJECT NUMBER:

338884

BCA-1 SHEET 4 OF 6

## **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686832.1 N, 2014476.2 E)

ELEVATION: 256.2 ft MSL (NGVD 29)

DRILLING CONTRACTOR: J. Little, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS : 26	6.6 ft b	gs	START : 8/2/06 08:	11	END: 8/3/06 09:14	LOGGER : LH
				DISCONTINUITIES		LITHOLOGY	COMMENTS
gz £	CORE RUN, LENGTH, AND RECOVERY (%)		ES	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	: RUI TH, /	(%) O	CTURES R FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS,		MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND
EPT EV/ JRF	ORE	Ø	FRAC PER F	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	YMB	AND ROCK MASS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
		ď	##		Ś	CHARACTERISTICS	
-	45.3		10+	45.3' - Fracture zone, rough, undulating	1:::	- Sandstone 45.3-46.4' - dark reddish gray, mottled	Rock coring began at 14:36 – on 8/2/06
-			10.	ACO ACAL Franking many many hard define	<b>∃</b> ∷:	reddish black and light greenish gray,	-
-			10+	46.2-46.4' - Fracture zone, rough, undulating	- × ;	very soft to soft, very fine sand, subangular to subrounded, well	R1: 14:36-14:46 on 8/2/06
-			10+	47.0' - Fracture, 45 deg and horizontal,	- x :	\ \ \sorted, highly weathered	-
-	R1NQ			smooth, undulating	- x :	Siltstone	-
-	5 ft 94%	34	1	47.8' - Fracture, horizontal, rough, undulating	- × ;	46.4-69.5' - dark reddish brown, mottled reddish black and greenish	-
_	0.70				- × ;	gray, very soft to soft	At 48.2': R-Scale = R1
_			1	48.6' - Fracture, horizontal, rough, undulating	- × ;	46.4-46.7' - clay seam, very soft,	-
_					- × ×	friable 46.4-46.8' - highly weathered	
50			2	_		46.8-50.3' - moderately weathered to	
206.2	50.3		XXX	50.3' - Fracture, horizontal and 45 deg, rough,	× ;	highly weathered 48.5-48.7' - laminated	R2: 14:57-15:05 -
			2	planar	_ x ;	48.6-48.7' - laminated	14.07-10.00
					]× ;	× 47.8-47.9' - laminated 49.3-49.5' - laminated	1
			5		× ;	49.4-49.9' - clay seams alternating	1
_				52.1' - Fracture, horizontal, smooth, planar,	× ;	with siltstone, very soft, friable,	1
-	R2NQ 5 ft	72	3	black stains	- × ;	2 0.01-0.02' thick each 49.8-50.0' - laminated	1
_	98%			52.4' - Fracture, rough, planar, black stains 52.6' - Fracture, rough, planar, black stains	-  × ;	50.3-50.8' - laminated	-
-			0	, 5,1	- × ;	<ul> <li>50.3-61.3' - moderately weathered</li> <li>51.8-51.9' - clay seams with siltstone,</li> </ul>	At 53.5': R-Scale = R3
-			U		- × ;	very soft, friable, 0.01' thick each	-
					- × ×	51.8-52.6' - laminated 53.3-55.3' - gravel sized white clasts	-
55 <u> </u>	55.3		0	_	- × ;	Solution of the contract of th	_
					- × ;	<u>}</u> -	R3: 15:12-15:21 -
-			0		- ^;	<u>}</u> -	-
_					- ^ ;	<u>}</u> -	At 56.1': R-Scale = R3-R4
_			0		× ;	<u>}</u>	_
_	R3NQ			57.2-57.8' - Series of vertical and angled	$\frac{1}{x}$	<u></u>	_
_	5 ft	86	2	fractures, some tightly healed, rough, undulating	× ;	57.5-58.0' - white clasts	_
	101%			ŭ	×××	<u>1</u>	
			0	58.4' - Fracture, 60 deg, slickensided, undulating, black stains	_ × ;		
				58.9' - Fracture, horizontal, rough, planar	× ;	× 59.2-59.7' - vugs	Ī
60			4	59.2' - Fracture, horizontal, rough, planar, black stains	\	59.8-59.9' - clay seam, 0.07' thick,	]
196.2	60.3			59.7-59.8' - Fractures (2), horizontal, rough,	× ;	very soft, some siltstone in it	D4: 45:00 45:40
-			8	planar, black stains 60.3-60.6' - Fractures (4), horizontal, rough,	× ;	60.3-65.3' - soft	R4: 15:28-15:40 -
-				planar, black stains	<b>-</b>  × ;	60.6-60.8' - clay seam, very soft, friable material, some siltstone within	
-			3	60.6' - Fracture (0), rough, planar, black stains	- <b> </b> × ;	61.3-69.5' - fresh	-
-				60.8-60.9' - Fractures (2), 45 deg, rough, planar, black stains	- × ;	00 0 00 41 0 05141	
-	R4NQ	60		61.1-61.2' - Fractures (2), 40 deg, rough,	- × ;	×L 62.2-62.4' - 0.05' thick, 0.1' long vugs	
-	5 ft 90%	68	0	planar, black stains 62.0-62.2' - Fractures (2), horizontal, rough,	- × ;	*	-
-				planar, black stains	- × ×	<del>}</del>	-
-			0		- × ;	4	-
_			0		_ × ;	<b>3</b> -	-
65	65.2			<del>-</del>	× ;   × ;	<u></u>	_
191.2	υ <b>ວ</b> .ა				<del> </del> ^.	1	
					1		
	·					•	

2BB-461 Rev. 1



PROJECT NUMBER:

338884

BCA-1 SHEET 5 OF 6

## **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686832.1 N, 2014476.2 E)

ELEVATION: 256.2 ft MSL (NGVD 29)

DRILLING CONTRACTOR: J. Little, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

WATER	_EVELS : 26.6 ft bgs			START : 8/2/06 08:	11	END: 8/3/06 09:14	LOGGER : LH		
	(9)			DISCONTINUITIES	ō	LITHOLOGY	COMMENTS		
gz €	×AN SND SND		SL	DESCRIPTION		ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,		
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.		
-			0		× × × × × ×	- 65.3-69.5' - soft -	R5: 15:47-15:57 -		
-			0		× × × × × ×	-	_		
-	R5NQ 5 ft 100%	100	0		× × × × × ×	_	]		
-	100%		0		× × × × × ×	-	SC-1 collected 68.6-69.4'		
70_ 186.2	70.2		1	69.1' - Contact between siltstone and sandstone, horizontal, smooth, planar, slightly gradational, tightly healed	Î X X	Sandstone — 69.5-72.9' - dark reddish brown, dark	<u> </u>		
100.2	70.5		0	69.4' - Fracture, horizontal, rough, undulating 69.8' - Fracture, horizontal, rough, planar		gray and white, soft to hard, very fine sand to coarse sand, subangular to rounded, poorly sorted, fresh	At 70.1': R-Scale = R5 R6: 16:28-16:35		
-			1	71.8-72.0' - Fracture, rough, undulating	- - - - - - - -	70.3-72.9' - soft to hard, very fine sand to coarse sand, subangular to rounded, poorly sorted			
-	R6NQ 5 ft 64%	44	3	72.2-72.4' - Fracture, rough, undulating 72.9' - Contact between siltstone and	× × × ×	- Siltstone			
-				sandstone, horizontal, rough, undulating 73.0-73.5' - Fractures (2), rough, undulating	× × × × × ×	At 72.9' - dark reddish brown, mottled reddish black and greenish gray, very soft, fresh			
75 <u></u> 181.2	75.3			- -	× ×   × ×   × ×	_ 73.5-75.0' - no recovery	4		
-			2	75.4' - Fracture, horizontal and vertical, rough, undulating	× × × × × × × ×	- 75.3-80.3' - soft -	R7: 08:00-08:08 on 8/3/06 - At 75.8': R-Scale = R3 -		
-			3	76.3-76.4' - Fractures (2), 30 deg, rough, planar 76.8' - Fractures (2), horizontal, rough, planar	× × × × × ×	-			
-	R7NQ 5 ft 98%	92	0		× × × × × ×	-	-		
-			0		× × × × × ×	-	-		
80 <u> </u>	80.3		1	80.0' - Fracture, horizontal and 10 deg, rough, undulating		- Sandstone	R8: 08:16-08:23		
			1	80.9' - Fracture, rough, undulating		At 80.3' - white, dark reddish gray, and dark greenish gray, soft to hard, very fine sand to coarse sand, subangular	-		
-	R8NQ		0		 	to subrounded, poorly sorted, fresh, trace fine gravel coarsens with depth			
-	5 ft 100%	100	0	82.6' - Contact between siltstone and sandstone		-	At 82.9': R-Scale = R3		
-			1	84.3' - Fracture, 35 deg, rough, undulating		-			
85 <u>171.2</u>	85.3		0	_	:::	_	-		



PROJECT NUMBER:	BORING NUMBER:		
338884	BCA-1	CHEET	6 OF 6

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (686832.1 N, 2014476.2 E)

ELEVATION: 256.2 ft MSL (NGVD 29)

DRILLING CONTRACTOR: J. Little, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

00111110	J LQOII WILIY	7 (1 4	D IVIL	THOD . BR-31, NQ Double Barrer			ORIENTATION : Vertical
WATER	LEVELS: 26	6.6 ft b	gs	START : 8/2/06 08:	11	END: 8/3/06 09:14	LOGGER : LH
	<u> </u>			DISCONTINUITIES	ניו	LITHOLOGY	COMMENTS
oz Ê	- <u>1</u> 8%		Ś	DESCRIPTION	Š	ROCK TYPE, COLOR,	
₹ <u>6</u> 8	EF, A	(%	RA P		일	MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND
FESSE	# <u>F</u>	(%) _Q	ES	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND	IBO	WEATHERING, HARDNESS, AND ROCK MASS	SMOOTHNESS, CAVING ROD
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	S O	FRACTURES PER FOOT	THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
	034					95 2 00 21 0 209/ ground at	R9: 08:32-08:38 -
			0		1:::	<ul> <li>85.3-90.3' - 0-20% gravel at</li> <li>85.3-85.5', 87.2-87.6, 88.1-89.1, and</li> </ul>	N9. 00.32-00.30
-				86.0' - Fracture, horizontal, rough, undulating	:::	89.5-90.3'.as 80.3-85.3'	1 1
-					-	-	1 -
-			1		1:::	_	1 4
l _	R9NQ			87.2' - Fracture, 35 deg, rough, undulating, in	:::	_	
	5 ft	100	0	shale pockets			
-	100%			87.7' - Fracture, horizontal, rough, planar	1:::	=	At 88.0': R-Scale = R3
-					<b> ∷∷</b>	-	1 1
-			0			_	1 -
_					<b>.</b> :::	<del>-</del>	-
90			1				
166.2	90.3			89.9' - Fracture, horizontal, rough, undulating 90.2' - Fracture, 10 deg, rough, planar	1:::		
-			0	90.2 - Fracture, 10 deg, fough, planar	1:::	<ul><li>90.3-92.2' - trace &lt;0.01' thick vugs</li></ul>	R10: 08:43-08:53
-			U	01.11 Fracture harizontal rough undulating	-	-	1 -
-				91.1' - Fracture, horizontal, rough, undulating	-	_	1 -
_			10+	04 Ol Frantissa none hasinastal savah	<u> </u> :::		At 91.9': R-Scale = R4
	R10NQ			91.9' - Fracture zone, horizontal, rough, undulating	××	Siltstone	<b>-</b>
	5 ft	96	0	92.2' - Contact between siltstone and	$\times$ $\times$	At 92.2' - dark reddish brown, mottled	SC-2 collected – 92.3-93.2'
-	98%	00		sandstone, horizontal, rough, planar	× ×	reddish black and greenish gray, soft	1 02.0 00.2
-				92.3' - Fractures (2), horizontal, rough, planar	$\times$ $\times$	_ to very soft, fresh 92.2-92.3' - laminated	-
_			0	92.8' - Fracture, 10 deg, rough, undulating 93.2-94.9' - Fractures (3)	× ×	- 92.7-95.3' - gravel sized white clasts	1 4
l _				` ′	× ×	_	
95			0	94.5' - Fracture, horizontal, rough, undulating	× ×		
161.2	95.3		$\sim$	_	××		1
-			40.	95.3' - Fracture zone, horizontal, rough,	× ×	- 95.3-100.3' - soft	R11: 09:01-09:14 -
-			10+	undulating 95.9' - Fracture, 10 deg, rough, planar	$+\times$	-	1 -
-				96.2' - Fracture, horizontal, rough, undulating	× × × ×	<del>-</del>	-
l _			0	96.3' - Fracture, horizontal, rough, undulating	× ×	_	
				96.4-96.5' - Fracture zone, horizontal, rough,	× × × ×		1
-	R11NQ 5 ft	82	0	undulating, 0.05' thick 96.6' - Fracture, 10 deg, rough, undulating	$\times$ $\times$	-	1 1
-	102%	02	U	50.0 - Fracture, To deg, Tough, undulating	√x ×	=	1 -
-				98.2' - Fracture, horizontal, rough, undulating	× × × × × ×	-	At 99.4': R-Scale = R3-R4
_			0		X X	 <del> </del>	
					× × × ×	_	First water level = 26.6' bgs taken 8/3/06 at 18:19 -
100			0		$\begin{bmatrix} \hat{\times} & \hat{\times} \\ \hat{\times} & \hat{\times} \end{bmatrix}$		
156.2	100.3			_	Î × ×		R-Scale performed during — rock core logging.
-			~ ~ ~ `		1	- Bottom of Boring at 100.3 ft bgs on	Took oore logging.
-					-	8/3/06 09:14	-
-					1	<del>-</del>	-
l _						_	
							1
-				,	1	-	1
-					1	-	-
-					4	_	-
-					1	_	
105					1		1
151.2				_	1	<del></del>	-
				•	_		-

2BB-463 Rev. 1



PROJECT NUMBER:	BORING NUMBER:	
338884	BCA-2	SHEET 1 OF 3

 PROJECT : PEC COLA, New Hill, NC
 LOCATION : (NAD 27) (688236.2 N, 2013338.7 E)

 ELEVATION : 244.4 ft MSL (NGVD 29)
 DRILLING CONTRACTOR : R. Norwood, S&ME

DRILLING EQUIPMENT AND METHOD: CME-550, 2-15/16 Tricone Bit, 24" Split Spoon, 140 lb. Automatic Hammer ORIENTATION: Vertical WATER LEVELS: 2.7 ft bgs START: 8/10/06 14:48 END: 8/10/06 17:10 LOGGER: AT SOIL DESCRIPTION COMMENTS DEPTH BELOW EXISTING GRADE (ft) STANDARD Pog PENETRATION INTERVAL (ft) TEST RESULTS SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY SYMBOLIC DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION RECOVERY (in) 6"-6"-6" #TYPE (N) Sandy Silt (ML) 0.0-0.5' - brownish yellow, moist to dry, medium stiff, 244.4 0.0 40% very fine to fine grained sand SS1SS 6-10-6-5 6.0 (16)2.0 Clay (CL) 2.5 2.5-3.1' - yellowish brown to brown, moist to dry, soft, low to medium plasticity, slow to rapid dilatancy 7.2 SS2SS 5-6-8-8 (14)4.5 5 239.4 5.0 5.0-5.4' - brown, moist to dry, soft, low to medium plasticity, slow to rapid dilatancy SS3SS 50/4 4.8 (50/4")7.0 Soil sampling completed at 15:42 on 8/10/06 3.0 SS4SS Clay (CL) 7.8 50/3 7.5-7.8' - brown, moist to dry, soft, low to medium (50/3")plasticity, slow to rapid dilatancy Begin Rock Coring at 7.8 ft bgs See the next sheet for the rock core log 10 234.4 15 229.4 20



PROJECT NUMBER: BORING NUMBER: BCA-2 338884 SHEET 2 OF 3

## **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (688236.2 N, 2013338.7 E)

ELEVATION: 244.4 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING	EQUIPMEN	T AN	D ME	THOD : CME-550, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS : 2.	7 ft bo	ļs	START : 8/10/06 14	48	END: 8/10/06 17:10	LOGGER : AT
	<u> </u>			DISCONTINUITIES	LOG	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LO	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.
-	7.8		0	-	× ×	- Siltstone	Rock coring began at 15:52 – on 8/10/06
-	R1NQ 1.7 ft	68		-	× × × ×	At 7.8' - reddish brown, soft, 30% very fine to fine sand, soil like appearance	R1: No time recorded
-	97%   9.5		3	8.9' - Fracture, 60 deg, black stains 9.1' - Fracture, 60 deg, rough, planar, black	$\times$ $\times$	-	At 8.0': R-Scale = R1-R2
10			2	stains 9.5' - Fracture, vertical, smooth, undulating	× × × ×	7.8-10.5' - moderately weathered	R2: No time recorded
234.4			_	10.4' - Fracture, smooth, undulating	×	- 40 5 40 01 highly was though	_
-			1	-		10.5-10.8' - highly weathered 10.5-10.7' - clay seam, 0.15' thick,	At 10.7-10.8': PP: 1.0 tsf
-	R2NQ			-	× × × ×	hrown   10.7-10.8' - white, highly plastic fat	-
-	5 ft 100%	20	0	-	× ×	-   clay seam Sandstone	-
-			3	12.7' - Fracture, 10 deg, rough, undulating 13.0-13.3' - Fracture, very soft sandstone		10.8-11.5' - pale olive, very soft, very fine sand to fine sand, highly weathered	
-				crushed into soil 13.5' - Fracture, horizontal, smooth,		11.1-11.2' - clay seam, yellowish	-
	14.5		2	undulating, 0.2' relief 14.0' - Fracture, 30 deg, rough, stepped, 0.3'	:::	brown Siltstone	
15_ 229.4			0	relief 14.3' - Fracture, 30 deg, rough, undulating,	× × × ×	11.5-12.5' - reddish brown, soft, highly weathered, 30% very fine sand,	R3: No time recorded —
				0.05' relief	× × × ×	soil-like appearance	-
-			4	- 16.1' - Fracture, 40 deg, rough, undulating,	× ×	Sandstone	-
-	R3NQ		_	0.3' relief	××	12.5-14.5' - light olive gray, soft to hard, highly weathered, 70% very fine	At 16.5': R-Scale = R1
	5 ft 98%	32	5	16.8' - Fracture, 15 deg, rough, undulating, brown stains	× × × ×	sand to coarse sand Siltstone	
			3	17.3' - Fracture, 5 deg, rough, undulating, olive stains, 0.2' relief		At 14.5' - dark reddish brown, very	At 17.9': R-Scale = R5
-				17.4' - Fracture, 45 deg, smooth, undulating 17.5' - Fracture, 5 deg, rough, undulating	. : : :	soft, intermittent clay seams, 30% very fine to fine sand, soil-like appearance	
-	40.5		1	17.8' - Fracture, 10 deg, smooth, undulating, strong brown stains, water stain	1:::	14.5-17.1' - highly weathered 14.8-15.1' - clay seam, brown stains	-
20	19.5		$\sim$	18.2' - Fracture, 10 deg. rough, undulating	×. ×	15.3-15.4' - clay seam, brown stains	R4: No time recorded
224.4			2	18.4' - Fracture, 10 deg, rough, undulating, — strong brown stains		15.6-15.7' - clay seam, brown stains 16.0' - clay seam, brown stains, 0.05'	_
			2	18.7' - Fracture, 20 deg, smooth, undulating 19.7' - Fracture, horizontal, smooth, undulating	]:::	thick	
_				20.4' - Fracture, horizontal, rough, undulating 20.6' - Fracture, 20 deg, rough, undulating	::: × ×	16.3-16.4' - clay seam, olive, 0.15' thick	
-	R4NQ 5 ft	81	1	21.3' - Fracture, 40 deg, rough, undulating,	× × × ×	16.8-17.1' - clay seam, olive 17.1-17.5' - slightly weathered	At 22.0': R-Scale = R3-R4
-	100%			24 Fl. Frankling 20 day recent conductions	×х	Sandstone	71. 22.0 . N-30alt - N3-N4 -
-			0	21.8' - Fracture, 85 deg, smooth, planar	× × × ×	At 17.5' - light olive gray, soft to hard, slightly weathered, 70% very fine sand	First water level = 2.7' bgs
-				-	× × × ×	to coarse sand 17.9-19.5' - light gray, soft to hard,	taken 8/10/06 at 18:22;
	24.5		0	_	× ×	poorly sorted, 70-80% very fine to medium sand, well bedded	bgs taken 8/11/06 at 14:08
25_	R5NQ 1 ft	60	2		× × × ×	Siltstone	R5: No time recorded At 24.9': R-Scale = R3-R4
219.4	25.5 85%		XXX	25.1' - Fracture, 10 deg, 0.2' relief 25.3' - Fracture, 30 deg, 0.2' relief	× × × ×	19.5-19.7' - reddish brown, soft, slightly weathered, 30% very fine to	R-Scale performed during
-				-		fine sand, soil-like appearance Sandstone	\rock core logging.
-				-	1	At 19.7' - light olive gray, soft to hard, very fine sand to coarse sand, trace	-
-				·	1	gravel	-
				<u> </u>	$\vdash$	-   19.7-20.5' - slightly weathered	-

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PROJECT NUMBER:	BORING NUMBER:					
338884	BCA-2	QUEET	3	ΩE	2	

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688236.2 N, 2013338.7 E)

ELEVATION: 244.4 ft MSL (NGVD 29) DRILLING CONTRACTOR: R. Norwood, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS: 2.	7 ft bo	ıs	START : 8/10/06 14:	48	END: 8/10/06 17:10	LOGGER : AT
	- %			DISCONTINUITIES	90	LITHOLOGY	COMMENTS
ON (#)	Ä, AND ≪ (3	_	ZES T	DESCRIPTION	CLC	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
30 214.4 - - 35 209.4 - - 40 204.4 - - - - - - - - - - - - - - - - - -						20.5-21.5' - fresh   20.9-21.5' - very fine sand to fine sand, downward fining sequence   Siltstone   21.5-25.5' - reddish brown, soft, fresh, 30% very fine to fine sand, soil-like appearance   Bottom of Boring at 25.5 ft bgs on 8/10/06 17:10	



PROJECT NUMBER:	BORING NUMBER:				
338884	BCA-3	SHEET	1	OF	3

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687233.2 N, 2012525.3 E)

ELEVATION: 262.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: J. Little, S&ME

DRILLING EQUIPMENT AND METHOD: BK-51, 4-1/2 Tricone Bit, 24 Split Spoon, 140 lb. Hammer and Cathead ORIENTATION: Vertical

DRILLIN	RILLING EQUIPMENT AND METHOD: BK-51, 4-1/2 Tricone Bit, 24 Split Spoon, 140 lb. Hammer and Cathead ORIENTATION: Vertical										
WATER	LEVELS	6.6 ft b	ogs		START : 7/26/06 14:36 END :	7/27/	06 0	09:00 LOGGER : LH/JS/AT			
DEPTH B	ELOW EX	KISTING C	SRADE (ft)	STANDARD	SOIL DESCRIPTION	T	g	COMMENTS			
	INTERVA	AL (ft)		STANDARD PENETRATION TEST RESULTS			SYMBOLIC LOG				
		RECOV	ERY (in)	TEGT REGOLIG	SOIL NAME, USCS GROUP SYMBOL, COLOR,	ı	일	DEPTH OF CASING, DRILLING RATE,			
			#TYPE	6"-6"-6"	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	ı	MBC	DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION			
			"	(N)		ı	λS				
262.6	0.0	15.6	SS1SS	9-16-9-20 (25)	Clayey Gravel With Little Sand (GC) 0.0-0.9' - dry, clay, gravel, and sand. dry, medium stiff, fill Clay (CL) 0.9-1.3' - reddish brown, dry, stiff, fine grained, trace	- - - - -		-			
_	2.0				coarse sand and fine gravel	╛		_			
								Soil sampling completed at 14:46 on 7/26/06			
_	2.5 2.8	3.0	SS2SS	50/3 (50/3")	Clay (CL) 2.5-2.8' - reddish brown, dry, hard, trace coarse sand and fine gravel						
-					Begin Rock Coring at 2.9 ft bgs See the next sheet for the rock core log	_		-			
5						1					
257.6						$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $		]			
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-						- 1		1			
10						- 1		1			
252.6								-			
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247.6						4		_			
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2BB-467 Rev. 1



PROJECT NUMBER:

338884

BCA-3 SHEET 2 OF 3

## **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687233.2 N, 2012525.3 E)

ELEVATION: 262.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: J. Little, S&ME

CORING EQUIPMENT AND METHOD: BK-51, NQ Double Barrel ORIENTATION: Vertical

CORING	LQUIFIVILI	II AIN	D IVIE	THOD : BK-51, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS: 6.	6 ft bo	ļS	START : 7/26/06 14	:36	END : 7/27/06 09:00	LOGGER: LH/JS/AT
	(%			DISCONTINUITIES	၂ ဗ္ဂ	LITHOLOGY	COMMENTS
QN €	CORE RUN, LENGTH, AND RECOVERY (%)	_	FRACTURES PER FOOT	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	E.R.L.	R Q D (%)	TOO!	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	30LI	MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD
	CECC	Ö	RAC	PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	ΥME	AND ROCK MASS CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
	2.9	IL.	шп	2.9-3.3' - Fracture zone, smooth, undulating		- Siltstone	Rock coring began at 14:59
l _	2.0		10+	3.3-3.8' - Fracture, rough, undulating, tightly	$\times \times $	_ At 2.9' - dark reddish brown, mottled	on 7/26/06
_	R1NQ			healed 3.8' - Fracture, horizontal, rough, undulating	× ×	greenish gray, very soft to soft, coarse sand to gravel sized white clasts	R1: 14:59-15:04
l _	2.4 ft 100%	75	1	4.0' - Fracture, nonzonial, rough, undulating	× ×   × ×	2.9-15.3' - moderately weathered	
5				, , , , , , , , , , , , , , , , , , ,	× ×	3.3-4.5' - <0.01-0.02 [°] thick vugs	At 4.4': R-Scale = R3
257.6	5.3		0	_	$\stackrel{\times}{\times}$		D0: 45:44 45:05
-			0		$\times \times$	-	R2: 15:11-15:25 -
-					$\times \times$	=	1
_			0	6.4' - Fracture, 45 deg, rough, undulating	× ×	-	1
-			Ľ	6.8' - Fracture, horizontal, rough, undulating	× ×	7.0-9.6' - <0.01-0.05' thick vugs	1
-	R2NQ 5 ft	82	0	7.3' - Fracture, 45 deg, rough, undulating	× ×	<del>-</del>	
-	95%	UΖ		7.8-7.9' - Fracture zone, rough, undulating, black stains	× ×   × ×	-	
-				8.2' - Fracture, 45 deg, rough, undulating	√x x	-	-
_			0	8.7-8.8' - Fractures, horizontal, rough,	-       	_	-
-				undulating, black stains, clay seam (0.07' thick)	- ŶŶ	_	At 9.5': R-Scale = R3-R4
10 <u> </u>	10.3		0 >>>>	——————————————————————————————————————			
252.0	10.5		$\sim$	40 St. Franking Sides among the conduction		4004071 8	R3: 15:30-15:40 -
_			1	10.5' - Fracture, 5 deg, smooth, undulating	Îx x	10.3-10.7' - soft - 10.7-11.3' - gravel sized white clasts	_
_					Îx x	_	At 11.2': R-Scale = R1-R2
_			2	11.5' - Fracture, 5 deg, smooth, undulating			
	Dano			10.41.5	$\times$ $\times$		
-	R3NQ 5 ft	81	6	12.4' - Fracture, 10 deg, smooth, undulating, 0.02' relief	× ×   × ×	12.5-12.8' - clay seam, 20 deg orientation	1
_	100%			12.9' - Fracture, 20 deg, smooth, undulating,	- × × × ×		1
-			4	0.01' relief, very tight 13.5' - Fracture, 20 deg, smooth, undulating,	××	-	1
-			_	0.02' relief	× × × ×	<u> </u>	1
15			3	13.9' - Fracture, 10 deg, smooth, undulating, 0.03' thick clay infilling	$\times$ $\times$	_	-
247.6	15.3		J	14.4' - Fracture, 10 deg, smooth, undulating,	× ×	<del></del>	
-			1	0.02' relief	$\begin{array}{c} \times \times \\ \times \end{array}$	- 15.3-16.5' - fresh	R4: 16:18-16:28 -
-			'	14.6' - Fracture, 20 deg, smooth, undulating, 0.03' relief	× ×	-	-
-				15.6' - Fracture, 5 deg, smooth, undulating	× ×	Sandstone	
-			0		<b>-</b>  :::	<ul> <li>At 16.5' - multi-colored, soft to hard,</li> </ul>	
-	R4NQ				<b>-</b> [∷::	fresh, 80% fine to medium sand, medium bedding	-
_	5 ft 100%	95	0		<b>.</b> ∷:	- 16.7-17.2' - clay rich layer	
_	100 /0				4:::	· · · · · · · · · · · · · · · · · · ·	At 18.1': R-Scale = R2
_			0		<b> </b>  :::	<u>-</u>	] _
_					<u> </u>	_	]
20			0	_	<b>.</b>  ∷∷		
242.6	20.3				]:::	<ul><li>20.3-20.9' - white, dark gray, and dark</li></ul>	R5: No time recorded -
			0	20 Ol. Comtest batters as allest as a seed		greenish gray, soft, very fine sand to	- No. INO UITIE IEOOTUEU
				20.9' - Contact between siltstone and sandstone, tightly healed	× ×	medium sand, angular to subrounded,	]
-			2	21.7' - Contact between siltstone and	-   × ×   <del>× · ·</del>	- ∖fresh, siltstone pockets - ∖20.7-20.9' - dark reddish brown	1
_				sandstone, horizontal, rough, undulating,	<b> </b>  :::	Siltstone	
-	R5NQ			tightly healed	<b>†</b> ∷∷	At 20.9' - dark reddish brown, mottled greenish gray, very soft to soft, fresh	- At 22.6': R-Scale = R1-R2
							·

2BB-468 Rev. 1



PROJECT NUMBER:

338884

BORING NUMBER:

BCA-3 SHEET 3 OF 3

## **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687233.2 N, 2012525.3 E)

ELEVATION: 262.6 ft MSL (NGVD 29)

DRILLING CONTRACTOR: J. Little, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel
ORIENTATION : Vertical

WATER	LEVELS : 6.	6 ft bo	ıs	START : 7/26/06 14	:36	END: 7/27/06 09:00	LOGGER : LH/JS/AT
	(%)			DISCONTINUITIES	g	LITHOLOGY	COMMENTS
QZ €	N, AND 3Y (%	_	ξES Τ	DESCRIPTION	CLO	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
-	0 ⊒ £ 5 ft	98	0	21.8' - Fracture, 20 deg, rough, undulating	S	21.6-21.7' - laminated bedding	
_	101%		-	21.0 - Fracture, 20 deg, rough, undulating	<b>.</b> ∷	Sandstone	_
_			1	24.41. Franking 20 day mayork yandyilaking		At 21.7' - white, dark gray, and dark greenish gray, soft, massive bedding,	-
				24.1' - Fracture, 30 deg, rough, undulating	<del> </del> ∷∷	<ul> <li>very fine sand to medium sand,</li> </ul>	-
25 <u> </u>	25.3		1	24.9' - Fracture, rough, undulating	<b>-</b>  ∷:	angular to subrounded, fresh 21.7-22.4' - 20% coarse grained	_
-			0		╂∷:∤	23.2-23.4' - 20% coarse grained 24.2-25.0' - greenish gray mottles	R6: No time recorded -
-					†:::	24.4-24.9' - 20% coarse grained	-
-			1		1:::1	<ul> <li>25.3-26.5' - mottled dark gray to dark brown, soft to hard, well sorted</li> </ul>	-
_	Deno			27.2' - Fracture, 50 deg		26.5-27.1' - soft to hard, fine sand to coarse sand, rust colored mottling	At 26.8': R-Scale = R3-R4 -
	R6NQ 5 ft	74	2		]:::[	27.4-28.2' - soft to hard, fine sand to	]
	99%			27.9' - Fracture, 60 deg, rough, undulating 28.2' - Fracture, horizontal, rough, undulating	]:::[	medium sand, poorly graded 27.9-28.1' - rust colored mottling	
_			6	28.4-28.6' - Fracture zone (3), smooth, undulating	<u> </u> :::	28.2-28.2' - clay and sandstone pieces 28.3-28.6' - 5% irregular white clasts	
_				28.7' - Fracture, 5 deg, rough, undulating, gray	<b>.</b> ∷	harder than matrix	_
30 <u> </u>	30.3		0	stains 28.8' - Fracture, horizontal, smooth, undulating —	<b>.</b> ∷	_	At 29.6': R-Scale = R2
232.0	30.3			29.2' - Fracture, 5 deg, smooth, undulating	<b> </b> :::	- 30.3-35.5' - green and purple mottling,	R7: No time recorded on -
-			1	31.0' - Fracture, smooth to rough, stepped	<b>-</b>  :::	very fine to fine grained, 10-15% mottles in scattered threads	07/27/06
-			0		<b>∤∷:</b>	-	-
-			U		┨∷∷	-	-
-	R7NQ 5 ft	100	1	32.4' - Fracture, 10 deg, some white infilling	<b>†∷:</b>	-	-
_	100%				1:::	-	1
_			1	33.5' - Fracture, horizontal, some white infilling	1:::	-	1
					]:::[	-	At 34.0': R-Scale = R2
35			0	_	]:::[		
227.6	35.3				<u> </u> :::		R8: No time recorded -
_			0		<b>.</b> ∷.	35.5-40.3' - mottled green, 25-30% fine sand, harder in sandy areas	_
_					<b>.</b>	-	_
-			0		<b> </b> :::	-	First water level = 6.6' bgs
-	R8NQ	100			<b> </b> :::	-	taken 7/27/06 at 09:30; -
-	5 ft 100%	100	0		<del>[</del>	-	second water level = 8.3' bgs taken 7/28/06 at 13:05
-			0		<u> </u>	-	At 38.6': R-Scale = R3-R4
-			Ľ		[∷:	-	
40			0		1:::	-	R-Scale performed after
222.6	40.3				1:::	Bottom of Boring at 40.3 ft bgs on	drilling on stored samples —
					] [	7/27/06 09:00	]
					] [	_	]
_					<b>↓                                    </b>	-	]
_					↓	-	-
					$oldsymbol{arphi}$		

2BB-469 Rev. 1



PROJECT NUMBER: BORING NUMBER: 338884 BCA-4 SHEET 1 OF 3

## **SOIL BORING LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION: (NAD 27) (687298.2 N, 2013040.6 E)

DRILLING CONTRACTOR : J. Little, S&ME ELEVATION: 262.9 ft MSL (NGVD 29)

DRILLING EQUIPMENT AND METHOD: BK-51. 4-1/2 Tricone Bit. 24 Split Spoon. 140 lb. Hammer and Cathead ORIENTATION · Vertical

DRILLIN	G EQUIF	PMENT /	AND MET	THOD : BK-51, 4-	1/2 Tricone Bit, 24 Split Spoon, 140 lb. Hammer and Cathead			ORIENTATION : Vertical
WATER	LEVELS	: 6.8 ft k	ogs		START : 7/28/06 11:00 END : 8/1	1/06	3 14	:33 LOGGER : JS/AT/LH
DEPTH B	ELOW EX	(ISTING C	RADE (ft)	STANDARD	SOIL DESCRIPTION		٦	COMMENTS
	INTERV	AL (ft)		PENETRATION TEST RESULTS		1	2	
		RECOV	ERY (in)		SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR		5	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND
			#TYPE	6"-6"-6"-6"	CONSISTENCY, SOIL STRUCTURE, MINERALOGY		SYMBOLIC LOG	INSTRUMENTATION
000.0				(N)	¬ •	١	Ś	D.11
262.9 - - -	0.0	13.2	SS1SS	20-23-15-6 (38)	Topsoil 0.0-0.1' - Grass Silty Gravel (GM) 0.1-1.1' - pinkish gray, dry to moist, dense, fine to			Driller reports gravel fill for ~1.5' @surface
	2.0				coarse grained, angular, well sorted, with dark gray gravel, 30% fine to coarse sand, 15% silt, fill	$\frac{1}{1}$		-
	2.5				─ Clay (CL)	7		-
-		2.4	SS2SS	5-5-8-9 (13)	2.5-2.7' - reddish brown, moist, soft, low to medium plasticity, slow to rapid dilatancy			- - -
-	4.5					+		-
5 257.9	5.0				Sandy Silt (ML)	╁	$_{\rm H}$	
-		7.2	SS3SS	9-10-19-26 (29)	5.0-5.6' - reddish brown, moist, very stiff, low plasticity, orange mottling, 25-30% very fine to medium sand	4		- - -
	7.0					1		_
								_
-	7.5	12.0	SS4SS	8-10-10-12 (20)	Clay (CL) 7.5-8.5' - dark reddish brown, white, yellow mottling in laminations, moist, stiff, low to medium plasticity, 1-2 mm with interbedded rounded bedrock clasts to 1/2 same color as matrix and very soft			- -
	9.5			, ,	Same color as matrix and very soit	]		
10								
252.9 - - -	10.0	19.8	SS5SS	3-4-4-4 (8)	Clay (CL) 10.0-11.7' - reddish brown, reddish black mottling, dry, stiff, medium plasticity, slow dilatancy, trace gravel and fine to coarse sand			Drillers Remark: there must be a zone of gravelly material; casing was set to 3 due to poor sample recovery set additional NW casing to depth of sample, use 2 15/16 roller bit to clean slough out of hole before sampling
	12.0					Ŧ		at 12.5'
-	12.5				Clayey Sand (SC)	- V,	77,7	-
-	12.0	16.2	SS6SS	10-12-9-50/4	12.5-13.5' - light gray and brownish yellow, moist, very stiff			-
-				(21)	Clay (CL)  13.5-13.9' - reddish brown, reddish black mottling, dry,	¥		-
1 45	14.5				very stiff, medium plasticity, trace gravel and fine to coarse sand. laminated	1		Soil sampling completed at 13:12 on 8/1/06
15 <u></u> 247.9	15.0	2.0	SS7SS		→ Clay (CL)  F		<del>zz</del>	
-	15.1			50/2 (50/2")	15.0-15.1' - reddish brown, moist, stiff, 0-5% fine to coarse sand	1		-
_				(30/2)	Begin Rock Coring at 15.2 ft bgs	1		-
					See the next sheet for the rock core log	1		-
						1		-
						1		-
						1		-
						1	J	-
1						1		-
20						1		-
						T	$\neg$	
						$\perp$		



PROJECT NUMBER:

338884

BCA-4

SHEET 2 OF 3

# **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687298.2 N, 2013040.6 E)

ELEVATION: 262.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: J. Little, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

WATER	LEVELS : 6.8	8 ft bg	ļs	START : 7/28/06 11	:00	END: 8/1/06 14:33	LOGGER : JS/AT/LH
	(%)			DISCONTINUITIES	Ō	LITHOLOGY	COMMENTS
QZ €	N, AND ?Y (%		SL	DESCRIPTION	CLO	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
-	15.2		3	15.3' - Fracture, horizontal, rough, undulating 15.6' - Fracture, horizontal, rough, undulating 15.6-16.1' - Fracture, horizontal and vertical,	× × × × × ×	Siltstone At 15.2' - dark reddish brown, mottled greenish gray and reddish black, soft 15.2-16.6' - very soft, moderately	Rock coring began at 13:35 on 8/1/06 R1: 13:35-13:46 on 8/1/06
-	R1NQ		1	rough, undulating 16.4' - Fracture, 20 deg, rough, undulating	× × × × × ×	weathered 16.6-20.2' - soft, gravel sized and medium to coarse sized white clasts	At 15.2-16.4' R-Scale = R1- R2 -
-	5 ft 97%	78	0	17.8' - Fracture, 50 deg, rough, undulating	× × × × × ×	16.6-40.2' - fresh - -	- At 18.4': R-Scale = R3
20			0		- × × × × × ×	-	-
242. <del>9</del> - -	20.2		0	_	× × × × × ×	20.2-25.2' - trace medium to coarse sand throughout	R2: 13:50-13:59
-	R2NQ		1	21.5' - Fracture, horizontal, rough, planar	× × × × × × × ×	-	
-	5 ft 103%	95	1	22.5-22.8' - Fracture (1), 60 deg, rough, undulating		- - 23.4-25.2' - gravel sized white clasts	At 22.3': R-Scale = R3-R4 -
_			0		××	-	-
25_ 237.9	25.2		2	_	× × × × × ×	- ── 24.9-25.0' - clay seam, very soft,	At 24.5': R-Scale = R3
-			0		× × × × × ×	_ friable, alternates siltstone, <0.02' thick each -	R3: 14:04-14:10
-	R3NQ	98	0		× × × × × ×	-	
_	5 ft 98%	90	0		× × × × × ×	28.0-30.2' - gravel and medium to coarse sand sized white clasts	At 27.7': R-Scale = R3
30_ 232.9	30.2		0	_	× × × × × ×	- -	
			0		× × × × × ×	_ 30.2-33.4' - white clasts -	R4: 14:14-14:21
	R4NQ		0		× ×   × ×   × ×	-	At 31.6': R-Scale = R3-R4
_	5 ft 101%	94	10+	33.4-33.7' - Fracture zone, rough, undulating	× × × × × × × ×	-	_
- 35	35.2		3	34.4' - Fracture, horizontal, rough, undulating	× × × × × ×	<u>-</u>	- - At 34.8': R-Scale = R3-R4 —
	JJ.2				××		ASTOTIC GOOD TO NO

2BB-471 Rev. 1



PROJECT NUMBER:	BORING NUMBER:				
338884	BCA-4	SHEET	3	OF	3

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687298.2 N, 2013040.6 E)

ELEVATION: 262.9 ft MSL (NGVD 29)

DRILLING CONTRACTOR: J. Little, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

COMING	3 EQUIFIVIEN	II AIN	D IVIL	IHOD : BK-51, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS: 6.	8 ft bo	s	START : 7/28/06 11:	00	END: 8/1/06 14:33	LOGGER : JS/AT/LH
	(%)			DISCONTINUITIES	ŏ	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)		FRACTURES PER FOOT	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
A N N N N N N N N N N N N N N N N N N N	TH, WE,	(%)	F.00	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	Ğ	MINERALOGY, TEXTURE, WEATHERING, HARDNESS,	FLUID LOSS, CORING RATE AND
FE SE	ORE	R Q D (%)	ZAC ER F	PLANARITY, INFILLING MATERIAL AND	ΥMB	AND ROCK MASS	SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
	225	ď	正品	THICKNESS, SURFACE STAINING, AND TIGHTNESS	1	CHARACTERISTICS	
-			2	34.4-34.6' - Fracture, 60 deg, rough, undulating	×	35.6-35.9' - white clasts	R5: 14:25-14:33
-				34.5' - Fracture, horizontal, rough, undulating	× : × : × :	35.9-36.2' - very soft, laminated	-
-			4	36.0' - Fracture, 30 deg, rough, undulating 36.2' - Fracture, horizontal, rough, undulating	- × :	L bedding	-
_			1	36.7' - Fracture, Nonzonial, rough, undulating	× : × : × :	36.2-37.7' - soft	A4 27 0 20 20 D Cools - DO
_	R5NQ			-	×	37.5-40.2' - trace medium to coarse	At 37.8-38.2': R-Scale = R0- R1
_	5 ft 101%	90	2	_	x i	sand	First water level = 6.8' bgs
l _				38.3' - Fracture, horizontal, rough, undulating	×	37.7-38.3' - very soft, laminated	taken 8/1/06 at 16:14; second water level = 8.1'
_			2		×	bedding 37.9-38.1' - clay seam, very soft,	bgs taken 8/2/06 at 08:55
					×	friable, 0.08' thick	
40			0		$\stackrel{\sim}{\underset{\times}{ }}$	38.1-38.2' - clay seam, very soft, friable, 0.08' thick	R-Scale performed after
222.9	40.2				1×	Bottom of Boring at 40.2 ft bgs on	drilling on stored samples
-				-		8/1/06 14:33	
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2BB-472 Rev. 1



PROJECT NUMBER:	BORING NUMBER:				
338884	BCA-5	SHEET	1	OF	3

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687400.5 N, 2012819.7 E)

ELEVATION: 260.3 ft MSL (NGVD 29)

DRILLING CONTRACTOR: J. Little, S&ME

DRILLING EQUIPMENT AND METHOD: BK-51, 4-1/2 Tricone Bit, 24 Split Spoon, 140 lb. Hammer and Cathead ORIENTATION: Vertical

DRILLIN	G EQUI	PMENT	AND MET	THOD : BK-51, 4-	1/2 Tricone Bit, 24 Split Spoon, 140 lb. Hammer and Cathead		ORIENTATION : Vertical			
WATER	LEVELS	S: 5.8 ft l	ogs		START : 7/27/06 11:40 END : 7/28	8/200	6 LOGGER : JS/AT			
DEPTH B	ELOW EX	KISTING C	SRADE (ft)	STANDARD	SOIL DESCRIPTION	ტ	COMMENTS			
	INTERV	AL (ft)		PENETRATION TEST RESULTS		SYMBOLIC LOG				
		RECOV	ERY (in)		SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR	O Lic	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND			
			#TYPE	6"-6"-6"-6"	CONSISTENCY, SOIL STRUCTURE, MINERALOGY	×ΜΒ	INSTRUMENTATION			
260.3	0.0			(N)	Fill	ίν <del>ΜΑ</del>				
-		12.0	SS1SS	7-10-10-7 (20)	\( \)\( \)\( \)\( \)\( \)\( \)\( \)\( \		- - -			
-	2.0				Sandy Silt (ML) 0.6-1.0' - reddish brown, white mottling, moist, very stiff,	ł	-			
-	2.5				low plasticity, very rapid dilatancy, 25% very fine to fine	Ш	-			
-					sand Sandy Silt (ML)	╢	-			
-		17.0	SS2SS		2.5-2.8' - reddish brown, white mottling, moist to wet,	$\  \ $	-			
-				(76)	stiff, low plasticity, rapid dilatancy, up to 25% very fine sand, friable, reworked native material	╫	-			
	4.5				Sandy Silt (ML)	┨	-			
5 <u> </u>	5.0				$-$ \ 2.8-3.9' - reddish brown, white mottling, dry to moist,	$\mathbf{H}$	_			
255.5	0.0				\textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre \textstyre	₩	-			
-		5.0	SS3SS		Sandy Silt (ML)	-	Too friable for PP			
_				(50/4")	5.0-5.4' - reddish brown, white mottling, dry to moist, very stiff, low plasticity, rapid dilatancy, up to 25% very	┨				
-	7.0				fine sand, varies in sample, friable	ł	Soil sampling completed at 13:10 on 7/27/06			
-	7.5	2.0	SS4SS		¬ Sandy Silt (ML)		- Soil Sampling Completed at 13.10 on 7/27/00			
-	7.6	2.0	<u>/(00+00</u> /	50/2	7.5-7.6' - reddish brown, black and yellow mottling, dry	-	-			
-				(50/2")	to moist, very stiff, low plasticity, rapid dilatancy, up to 25% very fine sand, varies in sample, friable	ł	-			
-					Begin Rock Coring at 7.6 ft bgs	-	=			
_					See the next sheet for the rock core log	-	_			
10 <u> </u>										
250.3					_	1	_			
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2BB-473 Rev. 1



PROJECT NUMBER:

338884

BCA-5

SHEET 2 OF 3

## **ROCK CORE LOG**

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687400.5 N, 2012819.7 E)

ELEVATION: 260.3 ft MSL (NGVD 29)

DRILLING CONTRACTOR: J. Little, S&ME

CORING EQUIPMENT AND METHOD: BK-51, NQ Double Barrel ORIENTATION: Vertical

CORING	EQUIPMEN	II AN	D ME	THOD : BK-51, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS: 5.	8 ft bo	ıs	START : 7/27/06 1	:40	END: 7/28/2006	LOGGER : JS/AT
				DISCONTINUITIES	O	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DESCRIPTION  DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	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.
10 250.3	7.6 R1NQ 2.4 ft 102%	100	0	8.7' - Fracture, 5 deg, rough, undulating, black streaks	- X X X X X X X X X X X X X X X X X X X	Siltstone At 7.6' - dark reddish brown, mottled green, purple, yellow, and black, very soft to soft, very fine to fine grained, up to 25% very fine to fine sand 7.6-19.0' - slightly weathered  10.0-12.6' - trace very fine to fine sand, very fine grained	Rock coring began at 13:20 on 7/27/06 R1: No time recorded on 7/27/06 At 9.0': R-Scale = R3
- - -	R2NQ 5 ft 98%	94	0	<ul> <li>10.7' - Fracture, 5 deg, smooth, stepped</li> <li>11.3' - Fracture, 5 deg, smooth, undulating</li> <li>12.2' - Fracture, 60 deg, smooth to rough and undulating, ~10% of surface covered in white</li> </ul>	- × × × × × × × × × × × × × × × × × × ×	- - - 12.6-13.2' - 15% very fine sand/silt	- - - -
- - - 15	15.0		0	coating 13.0' - Fracture, horizontal, smooth to rough, white coating on surface (~40%)	- × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × > - × >	13.2-15.0' - purple mottling, soft, 15% very fine sand/coarse silt 14.0-14.7' - trace to 10% irregular shaped white clasts, harder than matrix	At 13.6': R-Scale = R3-R4
245.3	R3NQ 5 ft 102%	94	3 1	14.8' - Fracture, 70 deg, rough, undulating, dark gray coating 15.3' - Fracture, horizontal, rough, undulating 15.5' - Fracture, 60 deg, undulating, smooth to rough, black and orange staining (40% of surface) 16.9-17.5' - Fracture, 85 deg, rough, undulating, orange stains, partial fracture	- x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x > - x >	15.0-16.8' - reddish brown, trace black, green mottling, fine grained with 20% very fine sand  16.8-17.5' - 35-40% very fine to fine black and white sand grains 17.5-18.3' - fine grained with 20% very fine sand	R3: 13:53-14:05  At 16.0': R-Scale = R4  -  At 17.6': R-Scale = R3
- - 20_ 240.3	20.0		0	18.2' - Fracture, horizontal, rough, undulating, 0.05' relief	- x > x > x > x > x > x > x > x > x > x	- 18.3-19.8' - fine grained with 5-10% very fine sand 19.0-22.0' - highly weathered - 20.0-20.8' - clay seams, 20.0-20.4'	
- - - - - -	R4NQ 5 ft 92%	60	1 1 0 0	22.7' - Fracture, horizontal, smooth, undulating	- x x x x x x x x x x x x x x x x x x x	washed out, clay-like bedrock 20.4-20.9' - very soft, very fine to fine grained, trace very fine sand, too friable for PP 20.9-21.3' - clay seam, same color as bedrock 22.0-25.0' - slightly weathered 22.7-25.0' - dusky red, trace green, purple mottles, soft, fine grained 22.7-23.1' - 15-20% very fine to fine grained sand 23.1-24.7' - soft to hard, 40-50% very fine to fine sand	R4: 14:32-14:36 -
25	25.0 R5NQ		0	27.1' - Fracture, horizontal, rough, stepped	- X X X X X X X X X X X X X X X X X X X	24.7-25.0' - soft, 10% very fine to fine sand 24.9-25.0' - clay seam, very soft, friable, alternates siltstone, <0.02' thick each	At 24.5': R-Scale = R3-R4 R5: 14:45-14:52

2BB-474 Rev. 1



PROJECT NUMBER:	BORING NUMBER:	
338884	BCA-5	SHEET 3 OF 3

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687400.5 N, 2012819.7 E)

ELEVATION: 260.3 ft MSL (NGVD 29)

DRILLING CONTRACTOR: J. Little, S&ME

CORING EQUIPMENT AND METHOD : BK-51, NQ Double Barrel ORIENTATION : Vertical

				THOD . BK-31, NQ Double Barrel			ORIENTATION : Vertical
WATER	LEVELS : 5.	8 ft bo	ļS	START : 7/27/06 11	40	END : 7/28/2006	LOGGER : JS/AT
	_ ©			DISCONTINUITIES	ပ္ခ	LITHOLOGY	COMMENTS
DEPTH AND ELEVATION BELOW SURFACE (#)	CORE RUN, LENGTH, AND RECOVERY (%)		FRACTURES PER FOOT	DESCRIPTION	SYMBOLIC LOG	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
₹E^A	15 F. F.	(%) Q	돌 ₀	DEPTH, TYPE, ORIENTATION, ROUGHNESS,	<b>1</b> ਤੋ	MINERALOGY, TEXTURE,	FLUID LOSS, CORING RATE AND
FYOR	#Z-00	αD	ACT F	PLANARITY, INFILLING MATERIAL AND	MB(	WEATHERING, HARDNESS, AND ROCK MASS	SMOOTHNESS, CAVING ROD
SEE	8 🖺 🖁	R	동판	THICKNESS, SURFACE STAINING, AND TIGHTNESS	S	CHARACTERISTICS	DROPS, TEST RESULTS, ETC.
	5 ft	100	1		××	25.0-26.1' - dark reddish brown,	At 27.5': R-Scale = R3-R4
-	100%			-	1××	green, purple mottling, very fine to fine	
-			0	-	$\times \times \times$	grained with trace very fine sand, trace	-
_				-	××	medium grained white sand  25.0-39.0' - fresh	_
l _			0	_	××	_ 26.1-28.6' - medium grained sand,	_
30	30.0		ľ		××	increases with depth, multicolored up	
230.3					× ×	to 20%, subangular 28.6-30.0' - very fine to fine grained,	R6: 08:22-08:35
-			0	-	× ×	trace very fine sand / coarse silt	_
-				-	$\times \times \times$	F	-
-			0	-	××	-	At 31.5': R-Scale = R3-R4
_				_	× ×	_	At 31.5 : R-3cale - R3-R4
	R6NQ 5 ft	93	0		lê ê		
	100%	93	0		× ×		
-				-	× ×	-	_
-			0	33.5' - Fracture, 50 deg, smooth, undulating	$\times \times $	-	-
-				-	××	-	_
_			3	-	××	-	_
35	35.0			34.7' - Fracture, 20 deg, smooth, undulating	××		
225.3					× ×	35.0-39.0' - 20% gravel sized white	R7: 09:02-09:15
-			0	-	× ×	<ul> <li>clasts harder than matrix</li> </ul>	At 35.7': R-Scale = R3
-				36.1-36.2' - Fracture, 10 deg, smooth,	× ×	-	At 55.7 : R-Scale – R5
-			3	undulating, partially crushed	××	-	-
_	D7110			36.9' - Fracture, horizontal, smooth, undulating	Îx x	-	
_	R7NQ 5 ft	87	1	-	lŝ ŝ	_	At 38.8': R-Scale = R3-R4
	99%	0,	'		××		First water level = 5.8' bgs
_					$\times$ $\times$	_	taken 7/28/06 at 12:45; - second water level = 6.8'
-			0	-	$\begin{array}{c} \times \times \\ \times \end{array}$	<del> </del>	bgs taken 7/31/06 at 09:05
-				-	×. ×	Sandstone	-
-			2	20.7! Fracture 15 day amouth undulating	:::	- 39.0-40.0' - multi-colored, medium	R-Scale performed after
40	40.0			39.7' - Fracture, 15 deg, smooth, undulating 39.7' - Fracture, 35 deg, smooth, undulating,	:::	sand to coarse sand, subangular,	drilling on stored samples
220.3				\tight \/		poorly sorted, fresh, poorly laminated	
						Bottom of Boring at 40.0 ft bgs on 7/28/2006	
_				-	1	_ 1720/2000	_
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2BB-475 Rev. 1



PROJECT NUMBER:	BORING NUMBER:	
338884	BCA-6	SHEET 1 OF 3

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688172.3 N, 2012652.4 E)

ELEVATION: 245.4 ft MSL (NGVD 29)

DRILLING CONTRACTOR: M. Mosely, S&ME

DRILLING EQUIPMENT AND METHOD : CME-550, Tricone Bit, 24" Split Spoon, 140 lb. Hammer ORIENTATION : Vertical

					, Tricone Bit, 24 Split Spooti, 140 lb. Hamiliei	END 0/4/0		ORIENTATION : Vertical
	LEVELS				START : 8/3/06 12:45 SOIL DESCRIPTION	END : 8/4/2	006	LOGGER : AT
DEPIHE			SRADE (ft)	STANDARD PENETRATION	SOIL DESCRIPTION		9	COMMENTS
	INTERV	AL (ft)		TEST RESULTS	SOIL NAME LISCS CROUD SYMPOL CO	N OB	SYMBOLIC LOG	DEPTH OF CASING, DRILLING RATE,
		RECOV	ERY (in)		SOIL NAME, USCS GROUP SYMBOL, CO MOISTURE CONTENT, RELATIVE DENSI	TY OR	질	DRILLING FLUID LOSS, TESTS, AND
			#TYPE	6"-6"-6"-6"	CONSISTENCY, SOIL STRUCTURE, MINEF	RALOGY	¥MB	INSTRUMENTATION
045.4				(N)			ίΩ	
245.4	0.0				Sandy Silt (ML) 0.0-0.2' - yellowish brown, dry to moist, hard, 3	/	"	_
1 _		3.6	SS1SS	13-16-10-12	fine to fine sand, fine to coarse gravel	/ ]		_
		3.0	00100	(26)				
	2.0			` ,		1		_
-						1		-
-	2.5				Sandy Silt (ML)		Ш	-
-	1				2.5-3.2' - yellowish brown, dry to moist, soft, 3	0% very	Ш	-
-	-	8.4	SS2SS		fine to fine sand, fine to coarse gravel	/ -		-
-	-			(11)		-		-
-	4.5					4		-
5	5.0							
240.4	5.0				Clay (CL) 5.0-6.1' - grayish brown, moist, low to medium	n plasticity		PT-1 collected 5.0-7.0'
1 _		13.2	SS3SS	2-2-4-6	slow to rapid dilatancy, black organic layer, roo	ot casts		-
		13.2	33333	(6)			~~	
	7.0			, ,		1		_
-						1		-
-	7.5				Clay (CL)			-
-	-				7.5-7.9' - grayish brown, moist, low to medium	plasticity,		-
-	-	12.0	SS4SS		\slow to rapid dilatancy, black organic layer, roo \text{Clay (CL)}	ot casts	24	-
-	-			(31)	\7.9-8.5' - reddish brown, dry to moist, hard, lov	w to / -		-
-	9.5				medium plasticity, slow to rapid dilatancy			-
10	10.0				Class (CL)		77	
235.4		10.8	SS5SS	15-22-50/2	Clay (CL) 10.0-10.9' - reddish brown, moist, hard, low to	medium -		
l -	10.9			(72/8")	plasticity, slow to rapid dilatancy		<i>4</i> 4	Soil sampling completed at 14:35 on 8/3/06
l _	11.5							
l _					Begin Rock Coring at 11.5 ft bgs See the next sheet for the rock core log			_
					See the next sheet for the rock core log	1		
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2BB-476 Rev. 1



PROJECT NUMBER:

338884

BCA-6

SHEET 2 OF 3

## **ROCK CORE LOG**

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688172.3 N, 2012652.4 E)

ELEVATION: 245.4 ft MSL (NGVD 29)

DRILLING CONTRACTOR: M. Mosely, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

CORING	EQUIFIVIEN	II AIN	D IVIE	THOD : CIVIE-550, NQ Double Barrel			ORIENTATION: Vertical
WATER	LEVELS: 4.	8 ft bo	ıs	START : 8/3/06 12:4	5	END: 8/4/2006	LOGGER : AT
	(0			DISCONTINUITIES	O	LITHOLOGY	COMMENTS
AND ION IE (ft)	UN, I, AND ERY (%	(9)	IRES OT	DESCRIPTION	IC LO	ROCK TYPE, COLOR, MINERALOGY, TEXTURE,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
-	11.5		1	12.1' - Fracture, 25 deg, smooth, undulating, dark grayish black stains	× > × > × > × >	Siltstone  - At 11.5' - dark reddish brown, 15% green mottling, 10% very fine to fine sand	Rock coring began at 14:50 on 8/3/06 - R1: No time recorded on 8/4/06
-	R1NQ 4 ft	38	2	13.0' - Fracture, 20 deg, smooth, undulating	× × × × × × ×	- 11.5-15.7' - moderately weathered 13.0-13.1' - clay seam	At 11.5-19.4': R-Scale = R0-
-	79%		3	dark grayish black stains 13.6' - Fracture, 5 deg and 60 deg, smooth, undulating	× × × × × × × × × × × × × × × × × × ×	13.5-15.0' - hard, much harder (less weathered)	-
15_ 230.4	15.5			13.8' - Fracture, 30 deg, smooth, undulating 14.2' - Fracture, 10 deg, smooth, undulating	× × × × × × ×	 15.0-15.5' - soft -	_
_			1		× > × > × >	15.7-19.4' - highly weathered 15.7-15.8' - clay seam	R2: No time recorded
-			10+	- 17.3-17.6' - Fracture zone, very soft -	× × × × × ×	- 16.4-16.7' - clay seam - 16.8-17.3' - clay seam	}
_	R2NQ 5 ft 102%	20	0	-	× × × × × ×		-
_			1		× × × × × ×	19.2-19.7' - fining upward sequence	-
20_ 225.4	20.5		3	19.4' - Fracture, 25 deg, smooth, undulating 19.5' - Fracture, 5 deg, smooth, undulating 19.7' - Fracture, 15 deg, rough, undulating	×.;	25-60% sand 19.4-19.7' - slightly weathered Sandstone	  At 20.1': R-Scale = R2
-			10+	20.4-20.5' - Fracture zone, rough, planar, sample crushed - brittle 20.5' - Fracture, horizontal, rough, planar	×.;	19.7-20.7' - multicolored, soft to hard, very fine sand to coarse sand, poorly sorted, slightly weathered, some light	R3: No time recorded –
-	R3NQ		0			\brown mottling	-
-	5 ft 102%	100	0	-		green mottling, slightly weathered, 10% very fine to fine sand Sandstone	- At 23.5': R-Scale = R2-R3
-			0	-		20.9-26.3' - multicolored, soft to hard, very fine sand to coarse sand, poorly sorted, slightly weathered, some light	At 23.3 : K-Stale - K2-K3 -
25 220.4	25.5		0			brown mottling	At 24.7': R-Scale = R2
-			0		: : : : : : : : :	- - Siltstone	R4: No time recorded
-			0	-	× × × × ×	26.3-30.5' - dark reddish brown, 15% green mottling, fresh, 10% very fine to fine sand	-
-	R4NQ 5 ft 99%	97	0	-	× × × × × ×	26.3-26.4' - clayey sand layer 28.2-30.0' - hard to soft	At 28.0': R-Scale = R3-R4
-			0	<u>.</u>	× × × × × ×	-	-
30 215.4	30.5		0		× × × × × ×		
_			1	30.7' - Fracture, horizontal, smooth	× × × × × ×	30.5-32.3' - hard to soft, 10-15% purple mottling	R5: No time recorded

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PROJECT NUMBER:	BORING NUMBER:					
338884	BCA-6	SHEET	3	OF	3	

ORIENTATION: Vertical

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (688172.3 N, 2012652.4 E)

ELEVATION: 245.4 ft MSL (NGVD 29)

DRILLING CONTRACTOR: M. Mosely, S&ME

CORING EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

WATER	LEVELS: 4.	8 ft bc	ļS	START : 8/3/06 12:4	START : 8/3/06 12:45		LOGGER : AT
				DISCONTINUITIES		LITHOLOGY	COMMENTS
QZ €	AND ≪AND		ËS T	DESCRIPTION	C LO	ROCK TYPE, COLOR,	SIZE AND DEPTH OF CASING,
DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD(%)	FRACTURES PER FOOT	DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
-	R5NQ 5 ft 100%	97	1 0	32.3' - Fracture, 5 deg, rough, undulating 33.4' - Fracture, horizontal, smooth, planar	× × × × × × × × × × × × × × × × × × ×	- 32.3-35.5' - hard to soft, 15% very fine to fine sand -	At 31.7': R-Scale = R3-R4
35210.4 	35.5		1	36.4' - Fracture, horizontal, smooth, undulating	× × × × × × × × × × × × × × × × × × ×	35.5-37.3' - small to large <0.003-0.2' rounded to irregular shaped white to brown clasts	R6: No time recorded At 36.0': R-Scale = R3-R4
-	R6NQ 5 ft 95%	70	1	37.0' - Fracture, 10 deg, rough, undulating, 0.02' relief 37.3' - Fracture, 20 deg, rough, undulating, 0.005' relief 37.7' - Fracture, 30 deg, rough, undulating, 0.03' relief 38.7' - Fracture, 5 deg, rough, undulating, 0.02' relief	× × × × × × × × × × × × × × × × × × ×	- - - 38.6-40.5' - hard to soft, 15-20% very fine to fine sand	First water level = 4.8' bgs taken 8/4/06 at 14:30
40 205.4 -	40.5		2	39.8' - Fracture, 70 deg, rough, planar 40.0' - Fracture, 70 deg, rough, planar	× × × × × × × × ×	Bottom of Boring at 40.5 ft bgs on - 8/4/2006	At 39.3': R-Scale = R3-R4  R-Scale performed after drilling on stored samples
- - - -					-	-	- - - -
45 200.4 - -					-	- - - -	- - - - - -
50 195.4					-	- - - -	- - - - -
-						_	-

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PROJECT NUMBER:	BORING NUMBER:				
338884	BCA-7	SHEET	1	OF	2

PROJECT : PEC COLA, New Hill, NC LOCATION : (NAD 27) (687127.9 N, 2013818.7 E)

ELEVATION: 263.2 ft MSL (NGVD 29)

DRILLING CONTRACTOR: K. Canuel, S&ME

DRILLING EQUIPMENT AND METHOD : CME-750, Tricone Bit, 24 Split Spoon, 140 lb. Automatic Hammer ORIENTATION :

					, Theorie Bit, 24 Split Spooti, 140 ib. Automatic maintier ONICIVIATION.
WATER			RADE (ft)		START : 8/9/06 11:17         END : 8/9/06 16:07         LOGGER : LH           SOIL DESCRIPTION          COMMENTS
DEPIRE			RADE (II)	STANDARD PENETRATION	O COMMENTS
	INTERV			TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,
		RECOVI	ERY (in)		MOISTURE CONTENT, RELATIVE DENSITY OR DRILLING FLUID LOSS, TESTS, AND
			#TYPE	6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY  BOOMMETTE  DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
263.2	0.0			(14)	Clay (CL)
-	0.0				0.0-1.2' - reddish brown, light greenish gray mottling,
-		14.0	SS1SS	5-8-9-11	dry, very stiff, trace roots
_				(17)	<b>-</b>
_	2.0				
_					
l _	2.5				Clay (CL) 2.5-3.8' - reddish brown, trace brown mottling, dry, very
		15.0	SS2SS	6-5-11-14	stiff, gray sand pockets very fine to medium grained
		15.0	33233	(16)	3.5-3.8' - trace gravel laminated beds
-	4.5			` ′	11
5					<b>1</b>
258.2	5.0				Clay (CL)
-					5.0-6.0' - reddish brown, trace brown mottling, dry, very stiff, gray and yellowish brown sand pockets very fine to
-		12.0	SS3SS	8-9-11-13	medium grained
-				(20)	-
-	7.0				
_	7.5				Clau (CL)
_	7.5				Clay (CL) 7.5-8.8' - reddish brown, trace brown mottling, dry, very
_		15.0	SS4SS	7-8-10-16	stiff, brown clay pockets mottled light gray
_		10.0		(18)	
	9.5				
10					
253.2	10.0				Clay (CL) Install NW surface casing to 10' bgs.
-					10.0-10.6' - reddish brown, moist, hard, low plasticity,
-		7.0	SS5SS	34-50/6 (50/6")	
-	12.0			(30/0 )	<b>-</b>
-	12.0				<b>-</b>
-	12.5				Clay (CL)
-					─\ 12.5-13.0' - reddish brown, moist, hard, low plasticity, /=
-		5.0	SS6SS	50/5	\reddish black linear mottles
-				(50/5")	
-	14.5				
15	15.0				Clau (CL)
248.2	15.0				Clay (CL) 15.0-16.0' - reddish brown, mottled reddish black and
_		11.0	SS7SS	39-50/6	light greenish gray, moist, hard, low plasticity
		'''		(50/6")	
]	17.0				]
1 7					1
]	17.5				Clay (CL)
-					17.5-18.4' - reddish brown, mottled reddish black and light greenish gray, moist, hard, low plasticity
-		10.0	SS8SS	15-17-50/5 (67/11")	- Ingrit grooms gray, moot, mad, for placeforty
-	40.5			(07/11)	
	19.5				
20					
					1 1



PROJECT NUMBER:	BORING NUMBER:	
338884	BCA-7	SHEET 2 OF 2

 PROJECT : PEC COLA, New Hill, NC
 LOCATION : (NAD 27) (687127.9 N, 2013818.7 E)

 ELEVATION : 263.2 ft MSL (NGVD 29)
 DRILLING CONTRACTOR : K. Canuel, S&ME

DRILLING EQUIPMENT AND METHOD: CME-750, Tricone Bit, 24 Split Spoon, 140 lb. Automatic Hammer ORIENTATION: WATER LEVELS: ---START: 8/9/06 11:17 END: 8/9/06 16:07 LOGGER: LH SOIL DESCRIPTION DEPTH BELOW EXISTING GRADE (ft) COMMENTS STANDARD PENETRATION LOG INTERVAL (ft) TEST RESULTS SYMBOLIC DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION SOIL NAME, USCS GROUP SYMBOL, COLOR, RECOVERY (in) MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY 6"-6"-6" #TYPE (N) 243.2 20.0 Clay (CL) 20.0-20.5' - reddish brown, mottled reddish black and light greenish gray, moist, hard, low plasticity SS9SS 50/5 5.0 (50/5")22.0 25 238.2 25.0 Silt (ML) 25.0-25.3' - light gray and pale red, moist, very dense Clay (CL) SS10SS 50/6 6.0 25.3-25.5' - reddish brown, mottled reddish black and (50/6") light greenish gray, moist, hard, low plasticity 27.0 First water level = 7.4' bgs taken 8/10/06 at 2.0 SS11SS Sand With Silt (SP-SM) 233.2 30.0 30.2 50/2 30.0-30.2' - light gray and pale red, moist, very dense, (50/2" very fine to fine grained, subangular to subrounded, poorly sorted, 20% silt Bottom of Boring at 30.2 ft bgs on 8/9/06 16:07 35 228.2 40