CH2MHILL

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

WATER LEVELS : 3.3 ft bgs

START : 4/20/06 13:29

END : 4/21/06 11:55

LOGGER : DT/JS

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND 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, low plasticity, slow dilatancy, v		
	2.0						
	2.5						
		11.0	SS2SS	19-50/5 (50/5")	**Clay (CL)** 2.5-3.5' - brown, mottled, moist, hard, fine grained, low plasticity, slow dilatancy, trace coarse gravel		PT-1 collected 3.0-5.0'
	4.5						
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 medium grained, weakly cemented, 40-45% fines		Drillers Remark: soft from 5.0-7.0'
	7.0						
	7.5						PT-2 collected 7.0-9.0' Offset: 4.2' S59W of BPA-1 Lab Results USCS: SC
		4.0	SS4SS	50/4 (50/4")	**Clayey Sand (SC)** 7.5-7.8' - gray, moist, very dense, very fine to medium grained, subangular to rounded, weakly cemented, 25% fines		
	9.5						
10							
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' Soil sampling completed at 15:15 on 4/20/06
	12.5	3.0	SS6SS				
	12.8			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							
246.3							
20							

PROJECT NUMBER:	BORING 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 LEVELS : 3.3 ft bgs

START : 4/20/06 13:29

END : 4/21/06 11:55

LOGGER : DT/JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, 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
			0				R1: 15:48-16:00 and 16:05-16:15 on 04/20/06
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	
	R1NQ 7.7 ft 95%	92	0			**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	17.5' - Fracture, rough, undulating			
			1	18.25' - Fracture, 25 deg, smooth, undulating			
			0			18.7-36.2' - fresh	
20 241.3			0				
	20.5			20.5-25.8' - Microfractures in capillary zones			R2: 16:25-16:50
			0				
			0				
			0				
			0			23.8-24.1' - slightly weathered	
25 236.3			2	24.8' - Fracture, 40 deg, smooth, undulating, tight fit			
	R2NQ 10 ft 95%	92.6	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				
			0			27.7-29.0' - <10% gravel sized white clasts, subrounded	
			2				
			1	29.3' - Fracture, 70 deg and 70 deg, rough, undulating, loose fit			
30 231.3	30.5			29.6' - Fracture, horizontal, smooth, stepped, loose fit			
			0			30.5' - grayish red to reddish brown, fresh, up to 10% fine to very fine sand, subangular, occasional round, gravel sized white clasts--becoming infrequent with depth	R3: 17:15-17:50
			0				

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-1	SHEET 3 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 LEVELS : 3.3 ft bgs

START : 4/20/06 13:29

END : 4/21/06 11:55

LOGGER : DT/JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			1	32.7' - Fracture, horizontal, smooth, stepped, tight fit			
			0				
35 226.3	R3NQ 10 ft 100%	94	1				
			10+	35.3' - Fracture, 60 deg, smooth, undulating, tight, fit laminae			
			0	36.2-36.8' - Fracture zone, slickensided, shear zone		36.2-36.8' - highly weathered 36.8-37.4' - green mottling 36.8-43.7' - fresh	
			0				
			0				
40 221.3	40.5		0				
			1	40.5' - Fracture, 60 deg, rough, undulating, tight fit		40.5-43.7' - mottling along former fractures	R4: 08:45-08:55 and 08:47-09:02 on 04/21/06
			0				
			0				
			2	43.6' - Fracture, rough, undulating		**Sandstone** 43.7-46.9' - gray to brown, soft to hard, fine sand to coarse sand, fresh, fining upward sequence	
				44.3' - Fracture, horizontal, tight fit			
45 216.3	R4NQ 10 ft 100%	95	0				
			1				
				46.3' - Fracture, 55 deg, rough, undulating			
			0			**Siltstone** 46.9-61.0' - dark reddish brown, greenish gray mottling near former fractures, soft, fresh, fine grained	
			2	47.8' - Fractures (2), 20 deg, smooth, undulating, tight fit			
			2	48.8' - Fractures (2), 70 deg, rough, undulating, tight fit			
50 211.3	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			
			0				

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-1	SHEET 4 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 LEVELS : 3.3 ft bgs

START : 4/20/06 13:29

END : 4/21/06 11:55

LOGGER : DT/JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				
			0				
55 206.3	R5NQ 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			
			1	57.4' - Fracture, horizontal, smooth, undulating, loose fit			
			0				
			0				
60 201.3	60.5		1	60.2' - Fracture, horizontal, rough, undulating, loose fit 60.5-61.5' - Microfracturing			R6: No time recorded
			0			**Sandstone** 61.0-63.5' - pale red to grayish red, mottled light gray along fractures and dark reddish brown, medium bedding, very fine sand, fresh, 50% silt	SC-1 collected 60.5-61.4'
			0				
			0				
			1	63.9' - Fracture, horizontal, smooth, undulating, tight fit		**Siltstone** 63.5-66.9' - dark reddish brown, greenish gray mottling near former fractures, soft, fresh, fine grained 63.8-66.9' - reddish brown to blue gray, laminated bedding 65.0-66.0' - laminated bedding, laminae are disturbed	
65 196.3	R6NQ 10 ft 100%	75	1	65.2' - Fracture, horizontal, smooth, undulating, tight fit			
			2	65.7' - Fracture, smooth, undulating 66.3' - Fracture, 15 deg, loose fit			
			4	66.6' - Fracture, horizontal and 70 deg, rough, undulating, loose fit		**Siltstone** 66.9-70.5' - blue-gray, soft, laminated bedding, fine grained, bedding surfaces are irregularly oriented, shiny with slickensides 66.9-67.5' - fresh 67.5-70.0' - highly weathered 68.4-70.5' - mottled brown and red along fractures	
			10+	66.9' - Fracture, horizontal and 70 deg, rough, undulating, loose fit 67.2' - Fracture, horizontal and 70 deg, rough, undulating, loose fit			
			1	67.3' - Fracture, horizontal and 70 deg, rough, undulating, loose fit			
70 191.3	70.5		10+	67.5-68.5' - Fracture zone, slickensided, mass slippage or shear zone, slickensides on fragments (all sides) and bedding pieces, shear zone affected a significant thickness of material		70.0-70.5' - fresh	
			10+	69.0' - Fracture, 25 deg, rough, undulating, tight fit		**Siltstone** 70.5-76.3' - reddish brown, mottled green around former fractures, soft, fresh, fine grained 70.5-72.0' - 0-30% fine grained sand, decreases with depth	R7: No time recorded
			0	70.0' - Fracture, horizontal and 45 deg, rough, undulating, loose to tight fit 70.5-80.5' - Microfracturing, capillary pattern			

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-1 SHEET 5 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 LEVELS : 3.3 ft bgs

START : 4/20/06 13:29

END : 4/21/06 11:55

LOGGER : DT/JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
75 186.3	R7NQ 10 ft 88%	88	0 0 0 0 0 0 0			**Sandstone** 76.3-78.0' - gray, soft, medium bedding, fine sand to medium sand, fresh	
80 181.3	80.5					**Siltstone** 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 taken 4/25/06 at 07:35 R-Scale not performed on rock core samples
	R8NQ 2.2 ft 100%	100	0 0				
	82.7					Bottom of Boring at 82.7 ft bgs on 4/21/06 11:55	
85 176.3							
90 171.3							

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
WATER LEVELS : 8.6 ft bgs
START : 6/30/06 13:25
END : 7/6/06 11:00
LOGGER : JF/LH

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	PP (TSF)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
259.7	0.0				**Silt (ML)** 0.0-0.7' - dark reddish brown, moist, medium dense, possibly reworked native material			
		14.0	SS1SS	2-4-5-9 (9)	**Silty Sand (SM)** 0.7-1.2' - light brownish gray, dry to moist, very loose, possible fill material		2.0	
	2.0							
	2.5	15.0	SS2SS	6-32-50/3 (82/9")	**Silty Sand (SM)** 2.5-3.8' - light brownish gray, dry to moist, very loose, very fine to fine grained, possible fill material			
	4.5							
5								
254.7	5.0	4.0	SS3SS	50/4 (50/4")	**Silty Sand (SM)** 5.0-5.3' - light brownish gray, dry to moist, very dense, fine grained, friable			
	7.0							
	7.5	10.0	SS4SS	32-29-21-21 (50)	**Clay (CL)** 7.5-8.4' - dark reddish brown, moist, dense, fine grained, becoming lithified			
	9.5							
10								
249.7	10.0	5.0	SS5SS	50/5 (50/5")	**Silt (ML)** 10.0-10.5' - dark reddish brown, dry to moist, dense, fine grained, some black mottling			PT-1 collected 11.0-13.0' Offset: 6.3' S35E of BPA-2 Lab Results USCS: SC
	12.0							
	12.5	6.0	SS6SS	12-50/5 (50/5")	**Silt (ML)** 12.5-13.0' - dark reddish brown, dry to moist, dense, fine grained, some black mottling			
	14.5							
15								
244.7	15.0	11.0	SS7SS	13-50/5 (50/5")	**Silt (ML)** 15.0-16.0' - dark reddish brown, dry to moist, dense, fine grained, some black mottling			
	17.0							
	17.5	2.0	SS8SS	50/2 (50/2")	**Silt (ML)** 17.5-17.7' - dark reddish brown, dry to moist, dense, fine grained, nonplastic to low plasticity, some black mottling			Soil sampling completed at 15:35 on 6/30/06
	17.7				Begin Rock Coring at 17.7 ft bgs See the next sheet for the rock core log			
20								

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-2 SHEET 2 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 bgs

START : 6/30/06 13:25

END : 7/6/06 11:00

LOGGER : JF/LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	17.7		0			**Siltstone** 17.7-22.0' - dark reddish brown, fine grained, very soft, highly weathered	Rock coring began at 10:45 on 7/5/06 R1: 10:45-10:53 on 07/05/06 At 17.7-20.0': R-Scale = R0
	R1NQ 2.3 ft 100%	0	0				
20 239.7	20.0		1				R2: 11:00-11:12 At 20.0-25.0': R-Scale = R0-R1 SC-1 collected 21.3-22.4'
			0				
			0				
	R2NQ 5 ft 100%	0	0			**Sandstone** 22.0-26.2' - light reddish gray, very soft, fine sand to medium sand, highly weathered, numerous black linear mottles At 22.0' - grades from overlying siltstone to sandstone	
			1	23.5' - Fracture, 60 deg, rough, undulating, black staining			
25 234.7	25.0		1	24.2-24.4' - Fracture, 60 deg, rough, undulating, black staining			R3: 11:15-11:28
			10+	25.6-25.9' - Fracture zone, friable material			
			10+	26.2-26.4' - Fracture zone, dark purple, baked zone		26.2-26.4' - dark purple, soil-like	At 25.0-31.0': R-Scale = R0-R1
	R3NQ 5 ft 100%	0	10+	26.4' - Fracture, 50 deg, slickensided, planar 26.7' - Fracture, rough, undulating, slickensided		**Siltstone** At 26.4' - dark reddish brown, fine grained, very soft 26.4-31.0' - highly weathered, fractured rock, soil-like areas, more competent at bottom	
			1	27.1' - Fracture, rough, undulating, slickensided			
			10+	27.3' - Fracture, rough, undulating, slickensided 28.4' - Fracture, 50 deg, rough, undulating, yellow staining, slickensided		29.0' - blue-green mottling	
30 229.7	30.0		10+	28.8-29.5' - Fracture, vertical and 50 deg, slickensided 29.8' - Fracture, 30 deg and 50 deg, slickensided, planar		31.0-45.6' - fresh	R4: 11:39-12:05
			2	30.0-31.0' - Fracture, 60 deg, rough, undulating, heavily fractured at bottom		31.0-33.2' - numerous clay clasts, 5% white speckles	
	R4NQ 5 ft 100%	70	0	31.4' - Fracture, rough, undulating, slickensided, rough v notch 31.8' - Fracture, 20 deg, rough, undulating, dark staining			At 32.3': R-Scale = R3
			0	33.1-35.0' - Fracture zone, 65 deg, numerous existing cracks at 65 deg			
			1			34.0' - blue-green mottling	
35 224.7	35.0		2	35.3' - Fracture, 30 deg, slickensided, undulating			R5: 12:35-13:00
			2	35.8' - Fracture, horizontal and 50 deg, slickensided, undulating			
	R5NQ 5 ft	70	0	36.3' - Fracture, 50 deg, slickensided, undulating		36.6-37.0' - blue-green mottling, clay clasts	

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-2	SHEET 3 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 bgs

START : 6/30/06 13:25

END : 7/6/06 11:00

LOGGER : JF/LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R.Q.D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	92%			36.5' - Fracture, 40 deg, slickensided, undulating, opposite direction of above fractures			
			2	38.0-38.3' - Fracture, 60 deg, slickensided, undulating, same direction as first few		38.5-38.9' - blue-green mottling, clay clasts	At 38.7': R-Scale = R1
			0	38.3-38.5' - Fracture, 60 deg, slickensided, undulating, opposite direction as above (same as 36.5') so wedge of 120 deg		39.0-40.0' - trace very fine to fine sand	
40	40.0						
219.7			2	40.5-42.0' - Fracture, vertical, rough, undulating		40.0-45.0' - very fine to fine sand	R6: 13:08-13:40
			2				
	R6NQ 5 ft 108%	74	0				
			0			43.5-44.3' - heavily mottled	At 43.1': R-Scale = R3 SC-2 collected 43.5-44.6'
			0				
45	45.0						
214.7			0			45.0-45.6' - very soft to soft, grades to sandstone	R7: 13:45-14:25
			3	46.0-46.4' - Fractures, 60 deg and horizontal, rough, undulating, to smooth and undulating		**Sandstone** 45.6-45.8' - white and very dark gray, soft to hard, very fine sand, fresh	
	R7NQ 5 ft 100%	100	1	47.0' - Fracture, horizontal, rough, undulating		**Siltstone** 45.8-47.2' - dark reddish brown, very soft to soft, fresh, fine grained	
			0	48.0' - Fracture, 10 deg, rough, undulating		**Sandstone** 47.2-48.0' - white and very dark gray, soft to hard, very fine sand, fresh	At 48.5': R-Scale = R3
			0			**Siltstone** 48.0-49.3' - dark reddish brown, very soft to soft, fresh	
50	50.0						
209.7			1			**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	R8: 14:37-15:03
			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'		**Siltstone** At 49.9' - dark reddish brown, soft 49.9-71.0' - fresh	
	R8NQ 5 ft 100%	88	2	52.4' - Fracture, 15 deg, rough, slickensided 52.7' - Fracture, 15 deg, rough, slickensided		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	
			1				
55	55.0						
204.7			1	54.9' - Fracture, horizontal, rough, undulating			R9: 15:10-15:30
			3	55.8' - Fracture, horizontal and 20 deg, rough, undulating 56.0-56.2' - Fracture (2), horizontal and 45 deg, slickensided, undulating		55.7-56.2' - trace medium to coarse sand	
	R9NQ 5 ft	72	0	56.8' - Fracture, horizontal, slickensided, undulating, smooth		56.8' - large greenish gray mottle, 0.1' thick, throughout width of core	At 57.3': R-Scale = R3

CH2MHILL

PROJECT NUMBER:	BORING 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

WATER LEVELS : 8.6 ft bgs

START : 6/30/06 13:25

END : 7/6/06 11:00

LOGGER : JF/LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	100%						
			4	58.7' - Fracture, horizontal, rough, undulating			
			10+	59.3' - Fracture zone, 60 deg, rough, undulating			
60	60.0						
199.7			0				R10: 15:38-15:55
			0				
	R10NQ 5 ft 100%	100	0				At 61.6': R-Scale = R3
			0				
			0				
65	65.0						
194.7			0				R11: 16:01-16:17
			0				
	R11NQ 5 ft 102%	100	0				
			0			68.0-69.7' - laminated beds on 45 degree angle	At 68.4': R-Scale = R3
			0				
70	70.0						
189.7			3	70.1' - Fracture, 30 deg, smooth, undulating			R12: 16:34-16:48
			10+	70.6' - Fracture, slickensided, undulating, parabolic shaped 70.8' - Fracture, 35 deg, rough, slickensided 71.0-71.8' - Fracture zone, rough, slickensided		71.0-72.4' - moderately weathered	
	R12NQ 5 ft 96%	43*	10+	72.0-72.1' - Fracture zone, rough, undulating 72.2-72.4' - clay and siltstone alternating, friable material		71.8-72.0' - clay seam, very soft, friable material 72.4-73.7' - fresh	At 72.7': R-Scale = R1
			1	72.4' - Fracture (2), horizontal and 45 deg, slickensided, undulating 73.7' - Fracture, 35 deg, slickensided, smooth		**Siltstone** At 73.7' - greenish gray, mottled olive, very soft, fresh, bedding on 30 degree angle to 74.2'	
			2	74.2' - Fracture, 30 deg, slickensided, smooth 74.5' - Fracture, horizontal, rough, undulating			
75	75.0						
184.7			0			75.0' - heavily mottled, becomes multicolored--reddish brown, blue gray, olive yellow--fine grained	R13: 08:10-08:45 on 07/06/06
			0				SC-3 collected 76.3-77.5'
	R13NQ 5 ft	94	0				

PROJECT NUMBER:	BORING 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 bgs

START : 6/30/06 13:25

END : 7/6/06 11:00

LOGGER : JF/LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (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	At 78.2': R-Scale = R1
			0				
80	80.0						
179.7			0				R14: 08:50-09:12
			0				
	R14NQ 5 ft 106%	86	0				At 82.3': R-Scale = R3-R4
			1				
			3	83.9' - Fracture, 10 deg, rough, undulating 84.4-85.0' - Fracture, 70 deg and 80 deg, healed fracture, quartz infilling		84.0' - clay seam at bottom of R14	
85	85.0						
174.7			2	85.0-85.6' - Fracture, vertical, rough, undulating, trace white 1-2 mm speckles, clay seam		85.0-96.8'	R15: 09:17-09:45
			1	85.4' - Fracture, vertical, rough, undulating, trace white 1-2 mm speckles			
	R15NQ 5 ft 100%	80	1	87.5-87.7' - Fracture, 60 deg, rough, undulating			At 87.2': R-Scale = R3
			0				
			0				
90	90.0						
169.7			0				R16: 09:50-10:16
			0				
	R16NQ 5 ft 100%	100	0				
			1	93.6' - Fracture, 30 deg, slickensided, undulating			At 93.1': R-Scale = R3
			0				
95	95.0						
164.7			0				R17: 10:20-10:50
						95.6-96.1' - trace very fine to fine sand	
			0			96.3-96.4' - trace very fine to fine sand	At 98.7': R-Scale = R5
	R17NQ 5 ft	100	0			96.8-97.5' - blue green, dark purple, and reddish black mottling	

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

START : 6/30/06 13:25

END : 7/6/06 11:00

LOGGER : JF/LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	104%		0				First water level = 8.6' bgs taken 7/6/06 at 13:50; second water level = 3.2' bgs taken 7/7/06 at 15:50 R-Scale performed after drilling on stored samples
100 159.7	100.0		0			99.0-100.0' - trace very fine to fine sand	
						Bottom of Boring at 100.0 ft bgs on 7/6/06 11:00	
105 154.7							
110 149.7							
115 144.7							

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)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
260.6	0.0	23.0	SS1SS	12-9-7-7 (16)	**Silty Gravel (GM)** 0.0-0.8' - pale red, white, and reddish gray, dry, medium dense, very fine to medium grained		
	2.0				**Clay (CL)** 0.8-1.9' - reddish brown, mottled light greenish gray, dry, very stiff, laminated bedding, trace gravel		Soil sampling completed at 08:42 on 6/18/06
	2.5	1.0	SS2SS	50/1 (50/1")	**Clay (CL)** 2.5-2.6' - reddish brown, mottled light greenish gray, dry, very stiff, laminated bedding, trace gravel		
	2.6				Begin Rock Coring at 2.9 ft bgs		
	2.9				See the next sheet for the rock core log		
5 255.6							
10 250.6							
15 245.6							
20							

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-3	SHEET 2 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 : 29.2 ft bgs

START : 6/18/06 08:30

END : 6/20/06 09:12

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	2.9					**Siltstone** 2.9-4.2' - reddish brown, mottled light greenish gray, very soft, laminated bedding, slightly weathered	Rock coring began at 09:21 on 6/18/06 R1: 09:21-09:27 on 06/18/06.
	R1NQ 1.3 ft 77%	38	2	3.1' - Fracture, horizontal, rough, planar 3.4' - Fracture, horizontal, rough, undulating			
	4.2					**Sandstone** 4.2-8.4' - dark reddish brown and light reddish brown, mottled greenish gray and reddish black, soft, very thin to medium bedding, very fine sand to coarse sand, angular to subrounded, poorly sorted, slightly weathered, finer and coarser grained beds	At 2.9-4.2' rock is so soft that it was washed away partially during coring. At 2.9-4.2': R-Scale = R0-R1 R2: 12:20-12:34 At 4.2-6.0': R-Scale = R3-R5 At 6.0-10.0': R-Scale = R3
5 255.6			0				
	R2NQ 5 ft 102%	80	1	5.6' - Fracture, 30 deg, smooth, undulating			
			0				
			2	7.5' - Fracture, horizontal, rough, undulating 7.7' - Fracture, horizontal, rough, undulating			
			1	8.5' - Fracture, horizontal, rough, undulating, connected to 45 deg fracture		**Siltstone** At 8.4' - dark reddish brown and light reddish brown, mottled greenish gray and reddish black, soft, slightly weathered 8.8' - large reddish black mottle, 0.05' thick, 0.1' long	SC-1 collected 8.4-9.2' R3: 13:20-13:27
	9.2						
10 250.6			2				At 10.1-12.5': R-Scale = R2
			0				
	R3NQ 5 ft 99%	66	0			**Sandstone** 9.0-10.1' - dark reddish brown and light reddish brown, mottled greenish gray and reddish black, soft, very thin to medium bedding, very fine sand to coarse sand, angular to subrounded, poorly sorted, slightly weathered, finer and coarser grained beds	
			4	12.5-13.7' - Fracture zone, horizontal, rough, undulating, clay seams throughout, very soft to hard			At 12.5-14.0': R-Scale = R0
			3			**Siltstone** At 10.1' - dark reddish brown, mottled greenish gray and reddish black, very soft, laminated bedding 10.1-10.2' - clay seam, very soft, friable material 10.1-12.5' - slightly weathered 12.5-15.4' - highly weathered 14.2-17.7' - very soft to soft, some laminated beds 15.4-17.7' - fresh	
	14.2						At 14.0-14.6': R-Scale = R1 R4: 13:33-13:43
			10+	14.2-15.4' - Fracture zone, 0.8' thick clay, very soft, friable material			
15 245.6			3				
	R4NQ 5 ft 104%	76	0				At 16.1': R-Scale = R3
			0				
			0			**Sandstone** 17.7-17.9' - fresh	
	19.2					**Siltstone** 17.9-19.3' - dark reddish brown, mottled greenish gray and reddish black, very soft to soft, fresh, some laminated beds	R5: 13:47-13:58
20 240.6			0				
			0	20.3' - Contact between sandstones, 10 deg, tightly healed		**Sandstone** 19.3-20.3' - white and dark gray, mottled dark reddish brown, thin bedding, very fine sand to fine sand, subangular to subrounded, well sorted, fresh	At 20.3': R-Scale = R3
	R5NQ 5 ft 100%	100	0				
			0				At 22.3': R-Scale = R3

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-3	SHEET 3 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 : 29.2 ft bgs

START : 6/18/06 08:30

END : 6/20/06 09:12

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			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 medium gravel	
24.2							
			0				R6: 14:02-14:10
25 235.6							At 24.9': R-Scale = R3
			0				
	R6NQ 5 ft 104%	96	0				At 26.8': R-Scale = R3
			0				
			2	28.5' - Contact between siltstone and sandstone, 45 deg, tightly healed		**Siltstone** 28.5-29.2' - dark reddish brown, mottled greenish gray, very soft to soft, fresh	
29.2							
			0	28.7-29.1' - Fractures (2), 45 deg, slickensided, undulating			R7: 14:16-14:25 At 29.5': R-Scale = R4
30 230.6				29.8' - Contact between siltstone and sandstone, 45 deg, tightly healed		**Conglomeratic Sandstone** 29.2-29.8' - white and dark gray, soft, fine sand to medium gravel, subangular to rounded, poorly sorted, fresh, coarsens with depth	At 29.8-31.7': R-Scale = R2
			4	30.4-30.5' - Fractures (2), horizontal, rough, undulating, sandstone lense runs 45 deg of fractures			
	R7NQ 5 ft 98%	86	10+	30.9' - Fracture, horizontal, rough, undulating 31.1' - Fracture, 30 deg, rough, undulating		**Siltstone** 29.8-30.4' - dark reddish brown, mottled greenish gray and reddish black, very soft to soft, fresh, some laminated beds	At 31.7-31.9': R-Scale = R1
			1	31.2' - Fracture, horizontal, rough, undulating 31.3-31.4' - Fracture zone, rough, undulating, siltstone, very soft			At 32.4': R-Scale = R3-R4
			1	32.6' - Fracture, horizontal, smooth, planar, greenish gray in fracture		**Sandstone** 30.4-30.7' - fresh, on 45 degree angle, <0.07' thick	At 33.5-34.2': R-Scale = R0
34.2				33.5' - Fracture, horizontal, smooth, planar			At 34.2-34.8': R-Scale = R1
			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 black, very soft to soft, fresh, some laminated beds	R8: 14:30-14:40
35 225.6			0	34.8' - Fracture, horizontal, rough, planar			At 35.1': R-Scale = R3-R4
	R8NQ 5 ft 98%	98	0			**Sandstone** 31.1-31.2' - fresh, on 45 degree angle, <0.07' thick	
			0			**Siltstone** At 31.2' - dark reddish brown, heavily mottled greenish gray and reddish black, very soft to soft, some laminated beds 31.2-31.3' - fresh 31.3-34.8' - slightly weathered 31.7-31.8' - clay seam, very soft, friable material 33.6-33.7' - clay seam, very soft, friable material 34.2-34.8' - almost all of core is mottled reddish black with small greenish gray mottles encircled by reddish black 34.8-48.1' - fresh	At 37.2': R-Scale = R3-R4
			0				
39.2							
			0				R9: 14:48-15:00
40 220.6							At 40.1': R-Scale = R3.5
			0				
	R9NQ 5 ft 97%	97	0				
			0				

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-3 SHEET 4 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 : 29.2 ft bgs

START : 6/18/06 08:30

END : 6/20/06 09:12

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			34.8-35.8' - greenish gray mottles with reddish black encircling 39.2-49.2' - trace greenish gray mottles, soft	
44.2							
45 215.6			0				R10: 15:07-15:17
			0				
	R10NQ 5 ft 102%	96*	0				At 46.0': R-Scale = R3
			2				
			10+	48.1' - Fracture, horizontal, smooth, planar 48.6' - Fracture, horizontal, smooth, planar		48.1-51.9' - moderately weathered	
49.2							
			10+	49.2' - Fracture zone, horizontal, rough, planar, undulating		48.9' - large greenish gray mottle, clay seams	At 48.8': R-Scale = R3 R11: 08:24-08:38 on 06/19/06
50 210.6			10+	49.6-49.8' - Fracture (5), horizontal, smooth, planar		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	SC-2 collected 49.9-50.8'
	R11NQ 5 ft 95%	60*	10+	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		51.9-53.6' - fresh	
			0				At 52.6': R-Scale = R3-R4
			0			53.0-54.2' - soft	
54.2						**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
55 205.6			0				At 55.1': R-Scale = R3-R4
			0			**Siltstone** 54.2-58.1' - dark reddish brown, mottled greenish gray and trace reddish black, very soft, fresh	
	R12NQ 5 ft 100%	100	1	56.2' - Fracture, horizontal, rough, planar			At 57.0': R-Scale = R3-R4
			0				
			0			**Sandstone** At 58.1' - light reddish gray and dark 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 gray, laminated to thin bedding	At 58.7': R-Scale = R4
59.2							
60 200.6			0				R13: 09:03-09:16
			0				All beds in R13 except last 0.2' are on 30 degree angle.
	R13NQ 5 ft 100%	98	1	61.0' - Fracture, 30 deg, rough, planar			At 61.5': R-Scale = R3-R4
			2				

PROJECT NUMBER:	BORING 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 : 29.2 ft bgs

START : 6/18/06 08:30

END : 6/20/06 09:12

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
				62.7' - Contact between siltstone and sandstone, 30 deg, tightly healed		**Siltstone**	At 63.0': R-Scale = R3-R4
			0	62.8' - Fracture, 30 deg, rough, planar		At 62.7' - dark reddish brown, trace mottled greenish gray and reddish black, soft, fresh	
	64.2			62.9' - Fracture, 30 deg, smooth, planar, greenish gray mottle on upper side of fracture		62.7-64.2' - 30% very fine sand	
			0				R14: 09:20-09:35
65							
195.6			1	65.7' - Fracture, horizontal, rough, undulating			At 65.3': R-Scale = R3-R4
	R14NQ						
	5 ft	100	1	66.3' - Fracture, horizontal, rough, undulating			
	100%						
			0				At 67.5': R-Scale = R3-R4
			0				
	69.2						
			0				R15: 09:40-09:52
70							
190.6			0				At 70.4': R-Scale = R3-R4
						Sandstone	
	R15NQ					70.75-71.0' - dark reddish brown, soft, very fine sand to fine sand, subangular, well sorted, fresh	
	5 ft	96	0			**Siltstone**	
	96%					At 71.0' - dark reddish brown, trace mottled greenish gray and reddish black, soft, fresh, 0-30% sand, grades to sandstone at bottom	At 72.3': R-Scale = R3-R4
			0			73.4-73.7' - mottled greenish gray (0.05-0.1' thick)	At 73.4': R-Scale = R3-R4
			0				
	74.2						R16: 09:57-10:13
75							
185.6			0				
			0			**Sandstone**	
						75.2-77.2' - dark reddish brown and reddish gray, trace reddish black mottling, soft, laminated to medium bedding, very fine sand to fine sand, subangular, poorly sorted, fresh	
	R16NQ						At 76.5': R-Scale = R3-R4
	5 ft	94*	0			**Siltstone**	
	101%					At 77.2' - dark reddish brown, mottled greenish gray and reddish black, soft, laminated bedding, fresh, convoluted bedding	
			1	77.7' - Fracture, horizontal, smooth, planar, mottled reddish black in areas			
			10+	78.4-78.7' - Fracture zone, horizontal and vertical, rough, undulating		77.2-78.4' - highly mottled reddish black (30-40%) and white (10-20%)	At 78.3': R-Scale = R3
	79.2						R17: 10:25-10:41
			10+	79.2-80.6' - Fracture zone, horizontal and 45 deg, rough, planar, slickensided at 79.4' (45 deg) and 79.8' (horizontal)		**Siltstone**	
80						At 78.4' - dark gray, mottled dark reddish brown and greenish gray, soft to very soft, laminated bedding, beds mostly horizontal	
180.6			10+	80.6-82.1' - Clay seam, fracture zone through clay seams (mostly clay with some silt beds), very soft, mostly friable material		78.4-84.2' - moderately weathered	
	R17NQ						At 81.1': PP: 1.0 tsf
	5 ft	39*	10+				
	100%						
			2	82.4' - Fracture, horizontal, rough, undulating			

PROJECT NUMBER:	BORING 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

WATER LEVELS : 29.2 ft bgs

START : 6/18/06 08:30

END : 6/20/06 09:12

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
				83.2' - Fracture, horizontal, rough, undulating		At 82.1' - olive and greenish gray, mottled dark reddish brown, becoming more dark reddish brown with depth	SC-3 collected 82.4-83.2'
			10+	83.5-83.6' - Fracture zone, horizontal and vertical, rough, undulating			
	84.2			84.0' - Fracture, 45 deg, rough, undulating		84.2-86.6' - fresh	R18: 10:52-11:07
85 175.6			2	84.4' - Fracture, horizontal, rough, planar			At 84.7': R-Scale = R4
				85.0' - Fracture, horizontal, rough, undulating			
			10+				
	R18NQ 5 ft 94%	86		85.9-86.1' - Fracture zone, horizontal, rough, undulating			
			0			**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	At 87.2': R-Scale = R3-R4
			0				
			0				
	89.2					**Siltstone** At 87.6' - dark reddish brown, trace mottled greenish gray and reddish black, soft, fresh, some laminated beds	R19: 11:13-11:24
90 170.6			0				At 90.1': R-Scale = R3
			0				
	R19NQ 5 ft 96%	96	0				
			0				At 91.8': R-Scale = R3
			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, well sorted, fresh	
	94.2					**Siltstone** At 93.4' - dark reddish brown, some reddish black and greenish gray, soft, fresh, some laminated beds 93.4-94.2' - very soft 94.2-94.8' - mottled reddish black (discolors almost all of core)	R20: 11:29-11:45
95 165.6			0				At 94.9': R-Scale = R3-R4
			0				
	R20NQ 5 ft 94%	94	0				
			0			97.3' - mottled greenish gray	At 97.2': R-Scale = R4
			0			98.5' - mottled greenish gray	
	99.2						R21: 11:53-12:09
100 160.6			0				At 99.5': R-Scale = R3-R4
			0				
	R21NQ 5 ft 103%	89	3	101.6' - Fracture, horizontal, rough, planar 101.8' - Fracture, horizontal, rough, planar			At 101.2': R-Scale = R3-R4
			0	102.2' - Fracture, horizontal, rough, planar 102.5' - Fracture, horizontal, rough, planar			

PROJECT NUMBER:	BORING 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

WATER LEVELS : 29.2 ft bgs

START : 6/18/06 08:30

END : 6/20/06 09:12

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				At 103.3': R-Scale = R3-R4
104.2						104.0-104.2' - mottled reddish black	
			0			104.2-106.8' - becomes coarser with depth, 30% very fine to medium sand	R22: 13:25-13:40
105 155.6			0				At 104.8': R-Scale = R3-R4
			0				
	R22NQ 5 ft 94%	94	0	106.8' - Contact between siltstone and sandstone, 45-40 deg, slightly convoluted		**Sandstone** At 106.8' - reddish gray to weak red, mottled dark reddish brown, soft, very thin to medium bedding, very fine sand to fine sand, subangular to subrounded, well sorted, fresh	At 107.2': R-Scale = R3-R4
			0				
109.2			0			107.5-107.6' - very thin bed of silt with medium grained sand	
			1	109.3' - Fracture, 10 deg, rough, undulating		109.2' - laminated bedding, becomes poorly sorted, 30% silt	R23: 13:55-14:12
110 150.6				109.9' - Contact between sandstones, between sandstone beds		109.6' - contact between sandstones, horizontal, very evident, gradual but abrupt grades from very fine to fine to medium to coarse within 0.05'	At 110.0': R-Scale = R3-R4
			2	110.4' - Contact between siltstone and sandstone, gradual but abrupt as above		**Sandstone** 109.6-110.4' - white and very dark greenish gray, soft, thin bedding, medium sand to coarse sand, subrounded, poorly sorted, fresh, 20-30% silt and cementation, bands of lighter and darker material	
	R23NQ 4.8 ft 100%	77	10+	110.8' - Fracture, horizontal, smooth, planar			
			10+				SC-4 collected 113.0-114.0'
114.0			1			**Siltstone** 110.4-111.0' - very dark gray and very dark greenish gray, very soft to soft, laminated bedding, fresh	R24: 14:18-14:35
			0			**Siltstone** At 111.0' - dark reddish brown, mottled reddish black and trace greenish gray, very soft to soft, some laminated beds, 0-30% very fine sand	
115 145.6			0			111.0-112.0' - 0.05-0.15' thick clay seams, very soft, friable material	
	R24NQ 5.2 ft 100%	100	0			111.0-112.0' - highly weathered	
			0			111.5-111.7' - heavily mottled reddish black and some olive	
			0			112.0-126.8' - fresh	
119.2			0	118.8-119.1' - Fracture, 45 deg, tightly healed		119.2-124.2' - little to no sand	R25: 14:42-14:54
			1				
120 140.6				120.0' - Fracture, horizontal, rough, undulating			
			2	120.5' - Fracture, horizontal, rough, planar			
				120.8' - Fracture, horizontal, rough, undulating			At 120.9': R-Scale = R4
	R25NQ 5 ft 100%	92	0	121.8-122.0' - Fracture zone, 45 deg, rough, undulating			
			1				At 122.6': R-Scale = R3-R4

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-3	SHEET 8 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 : 29.2 ft bgs

START : 6/18/06 08:30

END : 6/20/06 09:12

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
				123.1-123.4' - Fracture zone, 45 deg, rough, undulating			
			0				
124.2							
			0				R26: 15:02-15:25
125 135.6							At 124.8': R-Scale = R3-R4
			0				
	R26NQ 5 ft 100%	100	0				At 126.3': R-Scale = R3-R4
			0			**Sandstone** At 126.8' - reddish brown and dark reddish brown, soft, laminated to medium bedding, very fine sand to fine sand, subangular, well sorted, fresh	
			0			128.2-128.2' - silty seam 128.5-128.6' - silty seam 128.7' - silty seam 129.0' - silty seam	
129.2						129.2-130.5' - subangular to rounded, poorly sorted, very fine, coarsens with depth	
			0				R27: 15:30-15:41 At 129.4': R-Scale = R5
130 130.6							SC-5 collected 129.2-130.5'
			0			130.5-132.6' - poorly sorted, medium to coarse grained	
	R27NQ 5 ft 100%	100	0				At 131.5': R-Scale = R3-R4
			0				
			0			133.2-133.3' - fine to medium grained lenses with some silt	At 133.3': R-Scale = R3-R4
134.2						133.6-133.7' - fine to medium grained lenses with some silt	
			2	134.7' - Fracture, horizontal, rough, undulating		133.7-134.1' - siltstone lens as	R28: 15:48-16:01
135 125.6				135.0' - Fracture, horizontal, rough, undulating		110.95-126.8' with trace medium grained sand	
			1			134.1-134.2' - fine to medium grained lenses with some silt	At 135.7': R-Scale = R4
	R28NQ 5 ft 102%	68	9	135.9' - Fracture, horizontal, rough, undulating		**Siltstone** At 134.6' - dark reddish brown, mottled reddish black and trace greenish gray, very soft to soft, 0-30% very fine sand	At 136.7-138.1': R-Scale = R2 & R0
			10+			134.6-136.7' - fresh 136.7-138.1' - highly weathered 136.7-138.1' - 0.02-0.1' thick clay seams, very soft, friable material	
			0			138.1-140.8' - fresh	
139.2							R29: 16:18-16:33
140 120.6			0				
			0				At 140.4': R-Scale = R3-R4
	R29NQ 5 ft 96%	96	0			**Sandstone** 140.8-144.2' - dark reddish brown, mottled reddish black and trace greenish gray, soft, laminated to thin bedding, very fine sand, poorly sorted, fresh, 40% silt, 60% sand	
			0				

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-3 SHEET 9 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 : 29.2 ft bgs

START : 6/18/06 08:30

END : 6/20/06 09:12

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				At 143.4': R-Scale = R4
	144.2					**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	R30: 07:54-08:11 on 06/20/06
145 115.6			0				
			0				At 145.4': R-Scale = R3-R4
	R30NQ 5 ft 100%	90	3	146.3' - Contact between siltstone and sandstone 146.6-146.7' - Fractures (3), horizontal and vertical, rough, undulating		**Sandstone** 145.6-146.3' - dark reddish brown and gray, mottled reddish black, soft to hard, laminated bedding, very fine sand, fresh, 0-40% silt, bedding is partially horizontal and partially convoluted	
			4	147.3-147.6' - Fractures (4), horizontal and vertical, rough, undulating			
			0				At 148.3': R-Scale = R3-R4
	149.2					**Siltstone** At 146.3' - dark reddish brown, mottled 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 150.5-151.5' - 0.02-0.08' thick clay 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	R31: 08:19-08:39
150 110.6			1				At 150.0': R-Scale = R3-R4 At 150.1-150.9': R-Scale = R0 - R1
			10+				
	R31NQ 5 ft 100%	69	10+				At 152.0': R-Scale = R3-R4
			10+				
			10+				At 153.1-153.6': R-Scale = R0 - R1 At 153.8': R-Scale = R4
	154.2						R32: 08:51-09:12
155 105.6			0				
			0				
	R32NQ 5 ft 104%	100	0				At 157.2': R-Scale = R3-R4
			0			157.6-159.2' - 20-40% sand	At 158.8': R-Scale = R3-R4
			0				First water level = 29.2' bgs taken 6/20/06 at 09:50 R-Scale performed after drilling on stored samples
	159.2						
160 100.6						Bottom of Boring at 159.2 ft bgs on 6/20/06 09:12	

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

SOIL BORING 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

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

ORIENTATION : Vertical

WATER LEVELS : 5.2 ft bgs

START : 7/6/06 14:07

END : 7/7/06 15:37

LOGGER : JF/EM

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	PP (TSF)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
259.6	0.0				**Silt And Gravel (ML)** 0.0-0.3' - dark reddish brown, moist, soft, moist from recent rainfall, fine grained with gravel fill			
		10.0	SS1SS	2-3-4-50/5 (7)	**Clay (CL)** 0.3-0.5' - dark reddish brown and light reddish brown, moist, soft		1.0	
	2.0				**Silt (ML)** 0.5-0.8' - dark reddish brown, dry, soft			
	2.5	1.0	SS2SS					ST-2 collected 2.4-4.1'
	2.6			50/1 (50/1")	**Silt (ML)** 2.5-2.6' - dark reddish brown, dry, very hard, fine grained			
								Soil sampling completed at 14:30 on 7/6/06
5	5.0							
254.6					Begin Rock Coring at 5.0 ft bgs See the next sheet for the rock core log			
10								
249.6								
15								
244.6								
20								

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-4	SHEET 2 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

WATER LEVELS : 5.2 ft bgs

START : 7/6/06 14:07

END : 7/7/06 15:37

LOGGER : JF/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
254.6	5.0		4	5.1' - Fracture, <5 deg, rough, undulating		**Siltstone** At 5.0' - dark reddish brown, very soft to soft, fine grained 5.0-10.8' - fresh 6.0-10.0' - more competent	Rock coring began at 14:45 on 7/6/06 R1: 14:45-15:05 on 07/06/06 At 6.5': R-Scale = R2
				5.6' - Fracture, <5 deg, rough, undulating 5.7-5.8' - Fracture, 30 deg, rough, undulating			
			0	5.9' - Fracture, <5 deg, rough, undulating			
	R1NQ 5 ft 96%	87	0			7.5-10.0' - trace blue-green mottling	
			0				
			1	9.1-9.3' - Fracture, 50 deg, rough, undulating			
10	10.0						
249.6			0			10.0-11.0' - dark purple mottling	R2: 15:13-15:30
			1	11.45' - Fracture, <5 deg, rough, undulating		10.8-15.0' - moderately weathered	At 10.9': R-Scale = R3 SC-1 collected 11.45-12.45'
	R2NQ 5 ft 97%	86*	0			12.5-14.1' - edge/surface of core is rough	
			2	13.2-13.6' - Fractures (2), <5 deg, rough, undulating, boundary with soil-like zone (upper)		12.5-13.2' - trace clay clasts <= 0.8	At 13.6': R-Scale = R2
			1	13.2-13.7' - Clay seam, heavily fractured rock/weathered			
15	15.0						
244.6			0	14.1' - Fracture, <5 deg, rough, undulating		15.0-19.5' - heavy blue-green and yellow mottling, fresh	R3: 15:35-15:55
			1				
	R3NQ 5 ft 100%	96	1	16.9' - Fracture, <5 deg, rough, undulating 17.0' - Fracture, <5 deg, rough, undulating			
			0				At 18.6': R-Scale = R1
			0				
20	20.0			19.5' - Contact between siltstone and sandstone, sharp		**Sandstone** At 19.5' - reddish gray, trace blue-green mottling, soft, thin to medium bedding, very fine sand to fine sand, fresh 20.5' - gray, soft to hard, fine sand to medium sand 20.5-21.0' - black, soft to hard, fine sand 21.1-25.0' - gray, medium sand to coarse sand, black oxidized laminae parallel to ground surface at 21.3' and 23.5'	R4: 16:00-16:06
239.6			0				
			1	21.1' - Fracture, <5 deg, rough, undulating			
	R4NQ 5 ft 100%	100	0				
			0				
			0				
25	25.0						

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

WATER LEVELS : 5.2 ft bgs

START : 7/6/06 14:07

END : 7/7/06 15:37

LOGGER : JF/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
234.6			0			25.0-27.2' - gray, medium sand to coarse sand	R5: 16:10-16:21
			0				At 26.0': R-Scale = R1
	R5NQ 5 ft 100%	100	0	27.6' - Contact between siltstone and sandstone, sharp		27.2-27.6' - grades to siltstone	
			1			**Siltstone** At 27.9' - very dusky red, blue-green mottling, soft, fine grained, trace very fine to fine sand 27.9-31.6' - fresh 28.9-30.0' - clay clasts (0.8 to 1.2)	At 27.8': R-Scale = R3
30	30.0		1				At 28.9': R-Scale = R3
229.6			0				R6: 16:25-16:42
			3	31.6' - Fracture, <5 deg, rough, undulating		31.6-32.6' - highly weathered, dark purple to reddish black 32.2-32.8' - white-pink clay clasts, 0.4 32.6-78.4' - fresh 32.8-35.0' - trace mottling	
	R6NQ 5 ft 100%	78	4	31.7' - Fracture, <5 deg, rough, undulating 31.9' - Fracture, <5 deg, rough, undulating 32.0' - Fracture, <5 deg, rough, undulating			
			1	32.1' - Fracture, <5 deg, rough, undulating 32.2' - Fracture, <5 deg, rough, undulating			
			1	32.5' - Fracture, 10 deg, slickensided, undulating 33.7' - Fracture, 60 deg, slickensided, undulating			
35	35.0						
224.6			1	34.7-35.0' - Fracture, 80 deg, rough, undulating		35.0-55.0' - dark reddish brown, no mottling, fine grained	R7: 16:50-17:15
			1	35.0-35.2' - Fracture, 80 deg, rough, undulating 36.2-36.4' - Fracture, 30 deg, rough, undulating			
	R7NQ 5 ft 100%	84	1				At 36.8': R-Scale = R2
			1	37.8' - Fracture, <5 deg, rough, undulating			
			1	38.3' - Fracture, <5 deg, rough, undulating			
40	40.0		1	39.2' - Fracture, <5 deg, rough, undulating			
219.6			0			40.0-46.8' - trace very fine to fine sand	R8: 08:10-08:45 on 07/07/06 SC-2 collected 40.0-41.25'
			1	41.2' - Fracture, <5 deg, rough, undulating			
	R8NQ 5 ft 100%	94	0				
			3	43.2-43.4' - Fracture, 60 deg, rough, undulating			At 43.7': R-Scale = R5
			2	43.4' - Fracture, <5 deg, rough, undulating, bottom truncation of above 43.9' - Fracture, <5 deg, rough, undulating			
45	45.0						

PROJECT NUMBER:	BORING 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

WATER LEVELS : 5.2 ft bgs

START : 7/6/06 14:07

END : 7/7/06 15:37

LOGGER : JF/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R.Q.D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
214.6			0	44.1' - Fracture, 60 deg, rough, undulating		44.8-45.0' - clay clasts, 80%	R9: 08:50-09:05
			1				
	R9NQ 5 ft 100%	96	1	46.8-47.1' - Fracture, 70 deg, rough, undulating		46.8-47.3' - sand lense/ clay clasts; 30 degree bedding, mottling at bottom 47.3-48.7' - dark purple mottling	
			1				At 47.9': R-Scale = R4
			1	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	
50	50.0						
209.6			0				R10: 09:10-09:30
			0			50.9-51.5' - 40-50% very fine to fine sand	
	R10NQ 5 ft 104%	100	0			52.4-52.9' - 40-50% very fine to fine sand	At 52.5': R-Scale = R4
			1	53.2' - Fracture, <5 deg, rough, undulating			
			0				
55	55.0						
204.6			0			55.0-60.0' - very dusky red, trace mottling	R11: 09:35-09:55
			0			56.5-56.8' - trace very fine to fine sand	
	R11NQ 5 ft 100%	100	0			57.6-57.7' - trace very fine to fine sand 57.8-58.0' - very fine to fine sand with clay clasts 58.4-59.2' - 80% fine sand with .04 to .4 clay clasts	At 57.6': R-Scale = R2-R3
			0				
			0				
60	60.0						
199.6			0				R12: 10:01-10:20
			0				
	R12NQ 5 ft 90%	70	0				
			3	63.4-63.7' - Fracture, 70 deg, rough, undulating			
			2	63.4' - Fracture, <5 deg, smooth, undulating, top truncation from above		64.0-64.1' - very soft, clay seam 64.1-64.2' - competent but rough outer surface	At 63.8': R-Scale = R2
65	65.0			63.5' - Fracture			

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

WATER LEVELS : 5.2 ft bgs

START : 7/6/06 14:07

END : 7/7/06 15:37

LOGGER : JF/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, 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 R13: 10:30-11:05 At 66.2': R-Scale = R3
			1	66.6-67.3' - Fracture, 80 deg, rough, undulating			
	R13NQ 5 ft 104%	76	3	67.8' - Fracture, <10 deg, slickensided, undulating			
			1	67.8-68' - Fracture, 50 deg, slickensided, undulating			
			0			69.4-69.7' - 60% clay clasts	
70	70.0						
189.6			0				R14: 11:14-11:30
			0				At 70.7': R-Scale = R3
	R14NQ 5 ft 100%	100	0			72.2-73.0' - trace very fine to fine sand	
			0				
			0				
75	75.0						
184.6			0				R15: 11:38-11:45
			0	76.5' - Fracture, 10 deg, rough, undulating			At 76.0': R-Scale = R1
				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	
	R15NQ 5 ft 102%	74*	2	77.3' - Fracture, <5 deg, rough, undulating		77.4-78.4' - very soft to soft, reddish black and yellow mottling	SC-3 collected 77.3-77.95'
				78.0' - Fracture, <5 deg, smooth, undulating			
			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, multicolored--olive, dark reddish brown, blue gray mottling, very soft	
			10+	79.0-79.8' - Fracture zone, crumbled, some slickensides		78.4-80.6' - moderately weathered	
80	80.0						
179.6			10+	79.8-80.0' - Fracture, <5 deg, smooth, undulating		79.8-85.2' - soft, beds at 0-30 degrees	R16: 13:30-13:54
				80.5-80.6' - Fracture, 20 deg, smooth and slickensided, undulating		80.6-85.2' - fresh	
			10+	80.9-81.1' - Fracture, 10 deg and 30 deg, rough and slickensided, undulating			
	R16NQ 5 ft 100%	86*	0	81.8' - Fracture, <5 deg, smooth, undulating			At 82.1': R-Scale = R1
				82.0' - Fracture, 10 deg, rough, undulating			
			0			83.2' - dark reddish brown, gradually becomes dark reddish brown	
			0				
85	85.0						

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

WATER LEVELS : 5.2 ft bgs

START : 7/6/06 14:07

END : 7/7/06 15:37

LOGGER : JF/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
174.6			0			**Sandstone** 85.2-87.2' - dark reddish gray, mottled blue-green and yellow-tan, soft to hard, medium bedding, fine sand, fresh	R17: 14:00-14:21
			0				At 86.3': R-Scale = R2
	R17NQ 5 ft 104%	100	2			**Siltstone** 87.2-87.7' - dark bluish gray, heavily mottled olive, yellow, dark reddish brown, blue green, soft, fresh, beds at 0-30 degrees	
			0				
			0			**Siltstone** At 87.7' - dark reddish brown, mottled, very soft to soft, fresh, fine grained	
90	90.0						
169.6			0				R18: 14:46-15:06
			0			91.1-91.4' - trace dark purple mottling	
	R18NQ 5 ft 100%	100	0				
			0				At 93.0': R-Scale = R3
			0				
95	95.0						
164.6			0				R19: 15:17-15:37
			0				
	R19NQ 5 ft 100%	100	0				At 97.2': R-Scale = R1-R2 First water level = 5.2' bgs taken 7/7/06 at 17:15; second water level = 3.3' bgs taken 7/8/06 at 14:45
			0				
			0				R-Scale performed after drilling on stored samples
100	100.0						
159.6						Bottom of Boring at 100.0 ft bgs on 7/7/06 15:37	
105							

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

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
265.7	0.0	15.0	SS1SS	12-4-10 (14)	**Lean Clay (CL)** 0.0-0.8' - reddish brown, yellow and white mottling, moist, stiff, low to medium plasticity, 20% fine sand, fill		
	1.5				**Silty Sand (SM)** 0.8-1.3' - pale brown, moist, medium dense, fine to medium grained, 15-20% non plastic fines, fill		
	2.5	8.0	SS2SS	13-50/5.5 (50/5.5")	**Clay (CL)** 2.5-3.2' - reddish brown, moist, hard, low plasticity, slow dilatancy, scattered white-gray pockets		
	4.5						
5							
260.7	5.0	4.0	SS3SS	50/4 (50/4")	**Clay (CL)** 5.0-5.3' - reddish brown, moist, hard, low plasticity, slow dilatancy, scattered white-gray pockets, weathered bedrock pieces		
	7.0						Soil sampling completed at 09:30 on 4/19/06
	7.5	0.0	SS4SS	50/0 (50/0")	Begin Rock Coring at 7.6 ft bgs See the next sheet for the rock core log		
10							
255.7							
15							
250.7							
20							

PROJECT NUMBER:	BORING 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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, 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			0			**Siltstone** 8.7-9.0' - weak red to very dusky red, soft, fresh, fine grained	
	11.0		0			**Sandstone** 9.0-9.3' - weak red to very dusky red, fresh	R2: 13:50-14:10
			0	11.2' - Contact between sandstone and conglomerate, sharp 11.6' - Contact between sandstone and conglomerate, sharp		**Siltstone** 9.3-9.6' - weak red to very dusky red, soft, fresh, fine grained	
	R2HQ 5 ft 100%	100	1	12.1' - Contact between sandstone and conglomerate, sharp 12.7' - Contact between sandstone and conglomerate, sharp 13.2-13.8' - Fracture, vertical		**Sandstone** 9.6-11.2' - weak red to very dusky red, blue-green mottling, fresh	
			1	14.2' - Contact between sandstone and conglomerate, sharp		**Conglomerate** 11.2-11.6' - weak red, fresh, pebbles at top, fining downward	
15 250.7			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	
	16.0		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 12.9' - conglomerate lens <0.1' 13.0' - conglomerate lens <0.1' 13.7' - conglomerate lens <0.1'	
	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			
			0			**Conglomerate** 14.2-14.6' - weak red, fresh, coarse grained, pebbles at top, fining downward	
20 245.7			0			**Siltstone** 14.6-15.5' - reddish brown, soft, fresh, fine grained	
	21.0		1			**Sandstone** At 15.5' - weak red 15.5-16.0' - fresh 16.0-16.8' - dark reddish brown, hard, coarse sand 16.0-16.6' - highly weathered 16.6-16.8' - fresh	R4: 15:05-15:30
			1	21.6-22.2' - Fracture, 65 deg, rough, undulating			
	R4HQ 5 ft 100%	100	0			**Siltstone** At 16.8' - dark reddish brown, soft, fresh, fine grained 16.8-17.1' - white gray inclusions 21.0-39.8' - trace blue green mottling at relic fractures	
			0				
25 240.7			0				
	26.0		0			26.0-31.0' - very dusky red	R5: 08:00-08:20 on 4/26/06

PROJECT NUMBER:	BORING 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 bgs

START : 4/19/06 08:40

END : 5/2/06 10:55

LOGGER : JS/JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				
	R5HQ 5 ft 100%	100	0				
			0				
30 235.7			0				SC-1 collected 29.94 - 31.10'
	31.0						
			0			31.0-36.0' - dusky red	R6: 08:30-08:55
			0			32.0' - small white inclusions	
	R6HQ 5 ft 99%	90	1	33.0' - Fracture, small hairline crack vertical			
			1				
35 230.7			2	34.9-35.0' - Fracture, <5 deg, rough, undulating 35.1' - Fracture, 15 deg, rough, undulating 35.3' - Fracture, <5 deg, rough, undulating			
	36.0					36.0-39.8' - very dusky red	R7: 09:00-09:25
			0				
			0				
	R7HQ 5 ft 103%	100	0				
			0				
40 225.7			0			**Sandstone** At 39.8' - very dusky red, hard, very thin to thin bedding, fresh, grades into sandstone 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	
	41.0						R8: 09:35-09:55
			0			**Conglomerate** 41.5-42.1' - gray, pink, white and clear, hard, thin bedding, fresh, coarse grained	
			0			**Sandstone** 42.1-42.8' - reddish brown to blue-gray, hard, thin bedding, fresh	
	R8HQ 5 ft 98%	98	0				
			0				
45 220.7			0			**Conglomerate** 42.8-48.0' - massive bedding, fresh, coarse grained	
	46.0						R9: 10:05-10:35
			0				

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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				
	R9HQ 5 ft 102%	100	0			**Sandstone** At 48.0' - reddish brown to blue-gray, hard, fresh	
			0			48.4' - conglomerate lense 0.05' thick	
50 215.7			0			48.8-51.0' - very dusky red, trace blue green mottling, soft, fine sand	
51.0							
			0	51.0-66.0' - Numerous small/micro fractures, becoming mostly horizontal (80%)		**Siltstone** At 51.0' - very dusky red, soft, fresh, fine grained, blue-green mottling in relic fractures	R10: 10:45-11:05
			1	52.7' - Fracture, 20 deg, rough, undulating		52.9-54.0' - small (0.4 to 2) white-gray inclusions	
	R10HQ 5 ft 100%	100	2	53.4' - Fracture, 20 deg, rough, undulating 53.6' - Fracture, 10 deg, rough, undulating			
			0				
55 210.7			0				
56.0							
			0			56.0-57.0' - heavy blue-green mottling	R11: 11:15-11:55
			0			57.0-61.0' - trace blue-green mottling	
	R11HQ 5 ft 98%	98	0				
			0				SC-2 collected 59.3 - 60.4'
60 205.7			0				
61.0							
			0				R12: 12:30-13:15
			0				
	R12HQ 5 ft 100%	100	0				
			0				
65 200.7			0			**Sandstone** 65.0-66.4' - very dusky red, hard, coarse sand, fresh, clastic infilling	
66.0							R13: 13:25-14:10
			0			**Siltstone** At 66.4' - very dusky red, soft, fresh, fine grained	

PROJECT NUMBER:	BORING 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 bgs

START : 4/19/06 08:40

END : 5/2/06 10:55

LOGGER : JS/JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION — DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	LITHOLOGY — ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	COMMENTS — SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
			0				
	R13HQ 5 ft 102%	100	0				
			0				
70 195.7			0			69.5' - large, gray-white inclusion 69.8-70.3' - small (0.4) sized gray-white inclusions	
	71.0						
			1	71.1-72.1' - Fracture, 85 deg		71.0-91.0' - blue-green mottling in relic fractures	R14: 14:30-15:05
			0				
	R14HQ 5 ft 100%	100	0				
			0				
75 190.7			0				
	76.0						
			0				R15: 16:05-16:30
			0			76.7-77.1' - hard, sandstone lense, coarse	
	R15HQ 5 ft 100%	100	0			78.2' - hard, sandstone lense, coarse	
			0				
80 185.7			0				
	81.0						
			0				R16: 16:45-17:20
			0				
	R16HQ 5 ft 100%	100	1	83.0-83.6' - Fracture, vertical			
			1				
85 180.7			0	85.0' - Fracture, <5 deg, rough, undulating			
	86.0						
			1			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

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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				
	R17HQ 5 ft 100%	100	0				
			0				
90 175.7			0				
	91.0						
			0				R18: 08:20-08:45 on 4/28/06
			0				
	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	
95 170.7			0				
	96.0						
			0			**Siltstone** 95.7-96.0' - dark reddish brown, trace blue-green mottling, soft, fresh	R19: 09:00-09:30
			2			**Sandstone** 96.0-96.8' - very dusky red, soft to hard, fine sand, fresh	SC-3 collected 96.0-97.1'
	R19HQ 5 ft 98%	75	-	97.7-98.0' - Fracture, 60 deg, rough, undulating 98.3' - Fracture, 0.01' wide, does not extend throughout core		**Shale** 96.8-102.5' - multi-colored, fresh, blue-green/red-brown/tan-yellow, trace to little sand sized micas	
			-	98.5' - Fracture, <5 deg, rough to smooth, undulating			
100 165.7			-	98.8' - Fracture, <5 deg, rough to smooth, undulating 98.9' - Fracture, <5 deg, rough, undulating			
	101.0			99.0' - Fracture, <5 deg, smooth and undulating to rough and planar			R20: 10:05-11:00
			2	99.2' - Fracture, <5 deg, rough, undulating, ~0.05' wide, fractured pieces with clay			
			2	99.4' - Fracture, <5 deg, rough, undulating 99.7' - Fracture, <5 deg, smooth and undulating to rough and planar		**Siltstone** 102.5-105.5' - dark reddish brown, soft, fresh, fine grained	
	R20HQ 5 ft 99%	89	1	101.0-101.2' - Fractures (2), rough, undulating, 0.1' fractures		102.5-105.5' - blue-green mottling in relic fractures	
			0	102.3-102.5' - Fracture, 30 deg, rough, undulating 102.6' - Fracture, 30 deg, rough, undulating			
105 160.7			0	103.1' - Fracture, <5 deg, rough to smooth, undulating			
	106.0					**Sandstone** 105.5-107.1' - very dusky red, hard, fresh	R21: 11:10-11:45
			0				

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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			1	107.1-111.0' - Numerous horizontal (80%) vertical (20%) capillary fractures		**Siltstone** 107.1-114.6' - dark reddish brown, soft, fresh, fine grained	
	R21HQ 5 ft 100%	100	0	108.0' - Fracture, <5 deg, rough to smooth, undulating			
			0				
110 155.7			0				
	111.0						R22: 12:10-12:35
			0				
			0				
	R22HQ 5 ft 100%	100	0				
			0				
115 150.7			0			**Sandstone** 114.6-115.0' - dark reddish brown, fresh	
	116.0					**Conglomerate** 115.0-115.7' - hard, fresh, multicolored	R23: 12:45-13:05
			0			**Siltstone** At 115.7' - dark reddish brown, trace blue-green mottling, soft, fresh, fine grained	
			0	117.5' - Fracture			
	R23HQ 5 ft 98%	98	0				
			0				
120 145.7			0				
	121.0						
			1	121.1' - Fracture, <5 deg, rough to smooth, undulating		121.0-124.5' - small (<0.4) white inclusions	R24: 13:30-14:05
			0				
	R24HQ 5 ft 100%	100	0				
			0				
125 140.7			0			**Sandstone** At 124.5' - very dusky red, white mottling, soft to hard, fresh	
	126.0						
			1	126.1' - Fracture, <5 deg, rough, undulating			R25: 14:15-14:45 SC-4 collected 126.1-127.0'

PROJECT NUMBER:	BORING 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

WATER LEVELS : 1.5 ft bgs

START : 4/19/06 08:40

END : 5/2/06 10:55

LOGGER : JS/JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			126.9-127.4' - conglomerate lense, multi-colored blue-green, reddish-brown, and gray-black, hard, coarse grained	
	R25HQ 5 ft 100%	98	1	128.5' - Fracture, 25 deg, rough, undulating		128.0-128.2' - conglomerate lense, multi-colored blue-green, reddish-brown, and gray-black, hard, coarse grained	
130			0			**Siltstone** 129.0-151.0' - dark reddish brown, trace blue-green mottling at relic fractures, soft, fresh, fine grained	
135.7			0				
	131.0						R26: 14:55-15:15
			0				
			0				
	R26HQ 4.3 ft 100%	100	0	133.5-135.3' - Microfractures, capillary pattern			
			0				
135							
130.7	135.3						R27: 15:30-16:15
			0				
			0				
	R27HQ 5 ft 100%	100	0				
			0				
140			0				
125.7	140.3						R28: 16:20-16:55
			0				
			0				
	R28HQ 5 ft 100%	100	0				
			0				
145			0				
120.7	145.3						
	R29HQ 0.7 ft 100%	100	0				R29: 08:00-08:15 on 4/29/06
	146.0		0				R30: 08:20-08:40

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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				
	R30HQ 5 ft 99%	99	0				
			0				
150 115.7			0				
	151.0					**Sandstone** 151.0-151.4' - dark reddish brown, soft to hard, fresh, very fine grained	R31: 09:10-09:55
			0			**Siltstone** 151.4-157.9' - dark reddish brown, trace blue-green mottling, soft, fresh, fine grained	
			0				
	R31HQ 5 ft 98%	98	0				
			0	154.0-156.0' - Numerous hairline fractures			
155 110.7			0				
	156.0						R32: 10:35-11:05
			0				SC-5 collected 156.0-157.5'
			0				
	R32HQ 5 ft 98%	98	0			**Sandstone** 157.9-160.5' - dark reddish brown, trace blue-green mottling, soft to hard, fresh	
			0				
160 105.7			0				
	161.0					**Siltstone** 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				
			0			162.6-162.9' - large mottles	
	R33HQ 5 ft 100%	100	0				
			0				
165 100.7			0				
	166.0						
			1	166.2' - Fracture, horizontal and 30 deg			R34: 12:15-12:45

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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			4	167.4' - Fractures, <5 deg, rough, undulating		167.7-167.9' - large mottles	
	R34HQ 5 ft 96%	71	3	167.6' - Fractures, 40 deg and 60 deg, slickensided, undulating 167.8' - Fractures, 40 deg and 60 deg, slickensided, undulating			
			2	168.0' - Fracture, 40 deg and 60 deg, slickensided, undulating			
170 95.7			0	168.6-168.9' - Fractures, 40 deg and 60 deg, slickensided, undulating 169.7' - Fractures, 40 deg and 60 deg, slickensided, undulating			
	171.0						
			0	170.1' - Fractures, 40 deg, slickensided, undulating			R35: 12:00-12:50 on 5/1/06
			0				
	R35HQ 5 ft 104%	100	0				
			0	174.0-176.0' - Trace capillary fractures			
175 90.7			0				
	176.0						
			0				R36: 13:30-14:00
			0			**Sandstone** 176.4-176.6' - very dusky red, trace blue-green mottling, fresh	
	R36HQ 5 ft 100%	100	0			**Siltstone** 176.6-178.6' - dark reddish brown, trace blue-green mottling, soft, fresh, fine grained	
			0			**Sandstone** 178.6-178.7' - very dusky red, trace blue-green mottling, fresh	
180 85.7			0			**Siltstone** At 178.7' - very dusky red to blue-gray (banded), trace blue-green mottling, soft, fresh, fine grained	
	181.0						
			0				R37: 14:30-15:05
			0				
	R37HQ 5 ft 100%	90	2				
			0	184.5' - Fractures, 45 deg, slickensided, undulating			
185 80.7			0	185.0' - Fractures, rough fractured pieces, undulating			
	186.0						
			0			186.0-191.0' - dark reddish brown	R38: 15:15-15:45

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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			1	187.8' - Fractures, <5 deg, rough, undulating			
	R38HQ 5 ft 100%	92	2	188.2' - Fractures, 30 deg and 40 deg, rough to slickensided, undulating			
			0	188.8' - Fractures, <5 deg			SC-6 collected 189.1-190.2'
190 75.7			0				
	191.0						
			0			191.0-193.6' - multicolored reddish-brown, tan-yellow, bluish-gray, and black	R39: 07:45-08:15 on 5/2/06
			0				
	R39HQ 5 ft 94%	94	0				
			0			**Sandstone** 193.6-196.0' - black, white, and pink, medium sand to coarse sand, fresh, siltstone laminae throughout	SC-7 collected 193.6-194.5'
195 70.7			0				
	196.0		0	195.5' - Fractures, <5 deg			
			0			**Siltstone** 196.0-197.7' - very dusky red to blue-gray, trace blue-green mottling, soft, fresh, fine grained	R40: 09:30-09:50
			0				
	R40HQ 5 ft 104%	100	0			**Sandstone** 197.7-201.6' - dark bluish gray, fine sand, fresh, fine to medium grained	
			0				
200 65.7			0			199.9-201.6' - black, white, pink, and green, medium sand to coarse sand	
	201.0						
			0	201.0-207.0' - Microfractures, capillary pattern			R41: 10:05-10:55
			0			**Siltstone** 201.6-207.0' - dark reddish brown to very dusky red, trace blue-green mottling, soft, fresh, fine grained	
			0				SC-8 collected 202.8-204.15'
	R41HQ 6 ft 100%	100	0				
			0				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
205 60.7			0				
			0				R-Scale not performed on rock core samples
	207.0						
						Bottom of Boring at 207.0 ft bgs on 5/2/06 10:55	

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)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
264.3	0.0				**Clay (CL)** 0.0-0.3' - reddish brown, moist, soft, low to medium plasticity		
		13.0	SS1SS	3-4-20-50/3 (24)	**Silt (ML)** 0.3-1.1' - red, mottled bluish gray, dry to moist, soft, very loose, nonplastic, powdery		
	2.0						
	2.5	3.0	SS2SS		**Silt (ML)**		
	2.8			50/3 (50/3")	2.5-2.8' - red, mottled bluish gray, dry to moist, hard, nonplastic, powdery		Soil sampling completed at 16:15 on 6/28/06
	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:	BORING 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

WATER LEVELS : 12.5 ft bgs

START : 6/28/06 16:02

END : 6/30/06 10:00

LOGGER : JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	4.0 R1NQ 1 ft 100% 5.0	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
5 259.3			1				R2: 08:14-08:21
			0	5.9-6.0' - Fracture, 60 deg, rough, undulating, black staining on edge, tight fit			At 5.0-12.4': R-Scale = R2
	R2NQ 5 ft 100%	0	0			6.4-6.8' - evidence of 60 degree crack with black material on core edge/potentially throughout core	
			0				SC-1 collected 5.0-5.9'
	10.0		0			9.5-10.0' - trace of blue-green mottling, fragile 10.0-15.0' - no mottling, very fragile	
10 254.3			0				R3: 08:28-08:35
			0				
	R3NQ 5 ft 97%	0	0				At 12.35-15.0': R-Scale = R1
			0				
	15.0		0				
15 249.3			1	15.2' - Fracture, <5 deg, rough, undulating		15.0-18.0' - clay coating on outside of core from drilling	R4: 08:40-08:49
			2	16.1-16.3' - Fractures (2), 60 deg and <5 deg, rough, undulating, former is stained black			At 16.3-17.6': R-Scale = R0-R1
	R4NQ 5 ft 100%	20*	4	17.0' - Fracture, <5 deg, rough, undulating 17.4' - Fracture, <5 deg, rough, undulating 17.6' - Fracture, <5 deg, rough, undulating 17.8-18.0' - Fracture, 60 deg and <5 deg, rough, undulating, former is stained black		18.0-19.0' - becoming more coarse, addition of sandstone pieces	
			0				At 18.5': R-Scale = R3
			0			**Sandstone** At 19.0' - reddish brown, soft to hard, medium bedding, fine sand to medium sand, moderately weathered 20.0-20.5' - blocky angular grains, pebble sized (30%) 20.5-20.7' - no blocky grains 20.7-20.9' - blocky angular grains, pebble sized (30%)	SC-2 collected 19.0-20.0'
20 244.3	20.0		2	20.1-20.3' - Fracture, 60 deg, rough, undulating 20.8' - Fracture, <5 deg, rough, undulating			R5: 09:10-09:17
			3	21.3' - Fracture, <5 deg, rough, undulating 21.6' - Fracture, <5 deg, rough, undulating 21.9' - Fracture, <5 deg, rough, undulating			At 20.8-22.2': R-Scale = R0-R1
	R5NQ 5 ft 100%	87*	0			**Siltstone** At 20.9' - reddish brown, very soft, moderately weathered 21.7-22.8' - becoming more coarse, addition of sandstone pieces	
			0				At 23.4': R-Scale = R3

PROJECT NUMBER:	BORING 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

WATER LEVELS : 12.5 ft bgs

START : 6/28/06 16:02

END : 6/30/06 10:00

LOGGER : JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				
25	25.0						
239.3			0			24.9' - 0.1' thick 20 degree banding on relic bedding	R6: 09:23-09:31
			0			**Sandstone** 25.0-29.3' - reddish gray, medium bedding, slightly weathered to moderately weathered, very soft 25.0-27.0' - fine to medium grained 27.0-29.3' - medium to coarse grained	At 25.7': R-Scale = R3 At 26.5-29.0': R-Scale = R2
	R6NQ 5 ft 100%	82*	0				
			1	28.5-28.7' - Fracture, 60 deg, rough, undulating			At 28.2': R-Scale = R3
			2	29.0' - Fracture, <5 deg, rough, undulating 29.3-29.4' - Fracture, <5 deg, rough, undulating, shattered rock, stained		**Siltstone** At 29.3' - dark purple and glue-green, very soft, slightly weathered	
30	30.0						
234.3			1	29.4-29.6' - Fracture, crack in core with discoloration along surface of break		29.6-31.8' - dark reddish brown 30.0-31.3' - blue green mottling, very soft, fine grained, fine sand at bottom	R7: 09:35-09:53 At 30.4': R-Scale = R3
			1	30.5-31.8' - Fracture, 85 deg, slickensided, undulating		31.3-31.8' - 25-30% very fine sand to fine sand	
	R7NQ 5 ft 100%	72	0			**Sandstone** At 31.8' - dark reddish brown, very hard, laminated to massive bedding, fine sand to medium sand, coarse at bottom	At 32.5': R-Scale = R3
			1	33.5-33.9' - Fracture, 60 deg, rough, undulating		31.8-35.0' - slightly weathered 32.2-32.3' - clay seam	
			0			32.3-35.0' - very dusky red, blue-green mottling	At 34.2': R-Scale = R4
35	35.0						
229.3			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
			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				
			0				At 39.3': R-Scale = R3-R4
40	40.0						
224.3			0			40.0-45.0' - soft to hard, fine sand to coarse sand, angular to subangular, quartz and mica, red-brown staining at surface top (0.2') relic 20 degrees bedding	R9: 10:12-10:18
			0	41.1' - Fracture, 60 deg, rough, undulating, light yellow staining			
	R9NQ 5 ft 100%	96	0				At 42.1': R-Scale = R3
			1				

PROJECT NUMBER:	BORING 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

WATER LEVELS : 12.5 ft bgs

START : 6/28/06 16:02

END : 6/30/06 10:00

LOGGER : JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			2	43.5' - Fracture, 60 deg, rough, undulating, light yellow staining			SC-3 collected 40.0-41.1'
45	45.0			44.1' - Fracture, 60 deg, rough, undulating, light yellow staining			
219.3			0	44.2' - Fracture, 60 deg, rough, undulating, light yellow staining		45.0-47.0' - soft to hard, very thin to medium bedding, medium sand to coarse sand, angular to subangular, quartz and mica, red-brown staining at surface top (0.2') 20 degree relic bedding, alternating dark and light bands	R10: 10:30-10:40
			0				At 46.1': R-Scale = R3
	R10NQ 5 ft 100%	100	1	47.0' - Fracture, 40 deg, rough, undulating, sharp contact		**Siltstone** 47.0-48.9' - dark reddish brown, mottled blue-green, very soft, fresh, fine grained, very soft, fine to medium sand (15%) more coarse at bottom	
			0				At 48.4': R-Scale = R3-R4
			0			**Sandstone** At 48.9' - reddish brown, soft, medium to thick bedding, fine sand to medium sand, fresh, coarse grained (10%)	
50	50.0						
214.3			2	50.2' - Fracture, <5 deg, smooth, planar		50.0-53.0' - dusky red, mottled blue-green and gray, progressively more fine sand more coarse grains at bottom (medium - 20%), blue-green coloring at contact with siltstone	R11: 13:00-13:20
			1	50.4' - Fracture, 30 deg, smooth, planar, along bedding planes			At 51.2': R-Scale = R3-R4
	R11NQ 5 ft 100%	80	3	51.6-52.1' - Fracture, 70 deg, rough, undulating, very thin 52.0' - Fracture, 45 deg, rough, undulating, tight fit			At 52.7': R-Scale = R3
			0	52.9' - Fracture, 30 deg, smooth, planar, along bedding planes		**Siltstone** At 53.0' - dark reddish brown, 15% blue-green mottling, very soft, fine grained	
			0			53.0-55.5' - fresh	
55	55.0						
209.3			2			55.0-60.0' - more fragile	R12: 13:34-13:50
			2			55.5-57.0' - slightly weathered, large amount (35-40%) clay clasts up to 2, relic bedding at 20 degrees	
	R12NQ 5 ft 100%	80	0			57.0-64.7' - fresh	At 57.5': R-Scale = R3
			1	58.0' - Fracture, 20 deg, rough, undulating, along possible bedding plane			
			1	59.0' - Fracture, 20 deg, rough, undulating, along possible bedding plane			At 59.5': R-Scale = R3
60	60.0						
204.3			2	60.4' - Fracture, <5 deg, rough, undulating		60.0-65.0' - trace blue-green mottling	R13: 13:50-14:25
			0	60.9' - Fracture, <5 deg, break, at clay seam			
	R13NQ 4.4 ft 100%	89	1	62.0-62.4' - Fracture, 65 deg, rough, undulating, trace dark purple staining			At 62.0': R-Scale = R3
			0				SC-4 collected 62.8-63.4

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-6	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 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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	64.4		0				
65 199.3			4	64.7' - Fracture, <5 deg, rough, undulating, boundaries of clay seams		64.7-68.0' - slightly weathered	R14: 14:28-14:55
			0	64.9' - Fracture, <5 deg, rough, undulating, boundaries of clay seams		65.0-68.0' - no mottling, grading to fine sand at bottom	
	R14NQ 5 ft 100%	60	10+	65.1-65.2' - Fracture, <5 deg, rough, undulating, boundaries of clay seams			At 66.75': R-Scale = R3-R4 Driller's Remark: Water ran out and rock was shattered
			1	67.4-68.5' - Fracture, 60 deg, smooth, planar, below is heavily fractured rock			
			0			**Sandstone** At 68.0' - reddish brown, soft, medium bedding, fine sand, angular, slightly weathered	
	69.4						At 68.9': R-Scale = R3-R4
	R15NQ 0.6 ft 100%	100	0			69.4-70.0' - dusky red, fine sand to medium sand, angular	R15: 15:01-15:10
70 194.3	70.0		0			70.0-72.0' - gray, fine sand to medium sand, possibly 20 degrees relic bedding	R16: 15:15-15:25
			1	70.6' - Fracture, 20 deg, rough, undulating, tight fit 70.9' - Fracture, 20 deg, rough, undulating, tight fit			At 71.3': R-Scale = R3
	R16NQ 5 ft 100%	70	4	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	
			2	72.2' - Fracture, 50 deg, rough, undulating 72.3' - Fracture, 50 deg, rough, undulating 72.4' - Fracture, 50 deg, rough, undulating			
			0	72.6' - Fracture, 40 deg, rough, undulating, perpendicular to previous four fractures 73.8' - Fracture, 50 deg, rough, undulating			
75 189.3	75.0		1	74.1' - Fracture, 50 deg, rough, undulating, undulating, rough, 50 deg		**Siltstone** 75.0-86.8' - dark reddish brown, trace blue-green mottling, very soft, fine grained, very fine to fine sand throughout 75.0-84.0' - fresh 76.6-77.0' - very soft, fine grained, pink clay clasts	R17: 15:35-15:45
			1	75' - Contact between siltstone and sandstone, sharp contact 75.8' - Fracture, <5 deg, rough, undulating			At 76.4': R-Scale = R3
	R17NQ 5 ft 100%	97	1	76.9' - Fracture, <5 deg, rough, undulating			
			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	
			1	78.9-79.1' - Fracture, 30 deg, smooth, undulating			At 79.4': R-Scale = R3-R4
80 184.3	80.0		0				R18: 15:47-15:56
			1	80.6-81.0' - Fracture, slightly healed fracture 81.3' - Fracture			At 80.0-84.3': R-Scale = R2
	R18NQ 5 ft 100%	80	0				
			2	83.0-83.4' - Fracture, 60 deg, smooth, undulating, crossed 5 deg plane			

PROJECT NUMBER:	BORING 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 bgs

START : 6/28/06 16:02

END : 6/30/06 10:00

LOGGER : JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
85 179.3	85.0		4	83.9' - Fracture, 10 deg, smooth, undulating, tight fit 84.4' - Fracture, <5 deg, smooth, planar, tight fit		84.0-86.8' - highly weathered 85.0-86.8' - dark reddish gray, fine sand	At 84.3-87.5': R-Scale = R0-R1 R19: 16:00-16:25
	R19NQ 5 ft 100%	0	4 1 1 7	85.1' - Fracture, 75 deg, smooth, undulating, crosscut along 75 deg 85.5' - Fracture, 75 deg, smooth, undulating, crosscut along 75 deg undulating, smooth 85.7' - Fracture, 75 deg, smooth, undulating, crosscut along 75 deg undulating, smooth 85.8' - Fracture, 75 deg, smooth, undulating, crosscut along 75 deg undulating, smooth 88.2-88.3' - Fracture, 45 deg, rough, undulating		**Sandy-Silt (ML)** 86.8-87.5' - highly weathered, trace clay **Siltstone** 87.5-90.5' - dark reddish brown, very soft, highly weathered, fine grained, trace sand	At 87.5-94.6': R-Scale = R2 SC-5 collected 85.8-86.8'
90 174.3	90.0		3 2	88.3-88.5' - Fracture, 60 deg, smooth, undulating, not same orientation 89.4-90.0' - Fracture, 75 deg, rough, undulating 90.0-90.5' - Fracture, 70 deg, smooth, planar, slight yellow staining on face			R20: 07:55-08:20 on 6/30/06 At 90.5': PP: 0.5-1.5 tsf
	R20NQ 5 ft 64%	20	10+ 10+	90.1' - Fracture, vertical, smooth, planar, truncation of vertical 91.1-92.9' - heavily fractured section is watery. Most likely washed away.		**Silt (ML)** 90.5-93.9' - dark reddish brown, soft, fine grained, low plasticity, highly weathered, soil-like	91.1-92.9' Missing, driller showed that the borehole was open to 95' At 91.9': R-Scale = R2
95 169.3	95.0			93.9' - Fracture, <5 deg, rough, undulating, tight fit, break at clay seam		**Clay Seam** 93.9-94.0' - highly weathered **Siltstone** At 94.0' - dark reddish brown, trace blue-green mottling, fine grained, very soft, very fragile 94.0-97.4' - slightly weathered	R21: 08:24-08:40 At 96.0': R-Scale = R3
	R21NQ 5 ft 83%	48	0 1 1 10+	96.8' - Fracture, 40 deg and vertical, smooth, planar, planar, smooth, white infilling on due edge 97.4' - Contact between siltstones, <5 deg, rough, undulating, dark gray		**Siltstone** At 97.4' - greenish gray, soft, fine grained 97.4-100.0' - highly weathered 97.9-100.0' - very dark gray - reddish brown, heavily mottled	At 97.2-106.2': R-Scale = R0 At 97.4': PP: 0.5-3.0 tsf
100 164.3	100.0					**Silt (ML)** At 100.0' - greenish gray, very soft, soil-like 100.0-102.5' - highly weathered	R22: 08:48-09:25
	R22NQ 5 ft 75%	0	10+ 10+ 10+	102.5-106.3' - Fracture zone, 50 deg and 60 deg, slickensided, undulating, heavily fractured		**Silt (ML)** 102.5-106.3' - reddish brown/greenish gray, mottled, highly weathered	

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

START : 6/28/06 16:02

END : 6/30/06 10:00

LOGGER : JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
105 159.3	105.0						R23: 09:29-09:39
			10+				
			10+			**Siltstone** 106.3-107.5' - dark reddish brown, mottled with yellow and blue-green throughout, very soft, slightly weathered to moderately weathered, fine grained	At 106.2-108.2': R-Scale = R2
	R23NQ 5 ft 100%	72*	10+	107.3-107.5' - Fracture, 60 deg, slickensided, undulating 107.4-107.7' - Fracture, <5 deg, crosscuts above planar, rough			At 109.4': R-Scale = R4
			0			**Sandstone** 107.5-110.0' - gray, mottled with yellow and blue-green and reddish brown, fine grained, soft to hard 107.5-107.7' - slightly weathered to moderately weathered 107.7-110.0' - fresh	First water level = 12.46' bgs taken 6/30/06 at 12:30
110 154.3	110.0		0			Bottom of Boring at 110.0 ft bgs on 6/30/06 10:00	R-Scale performed after drilling on stored samples
115 149.3							
120 144.3							

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

SOIL BORING 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

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

ORIENTATION : Vertical

WATER LEVELS : 10.0 ft bgs

START : 6/26/06 08:30

END : 6/27/06 15:10

LOGGER : JF

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	PP (TSF)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
265.0	0.0				**Silty Sand (SM)** 0.0-0.4' - brown, wet, medium dense, 50% 0.5 gravel, fill			
		14.0	SS1SS	3-3-4-13 (7)			2	
	2.0				**Poorly Graded Sand (SP)** 0.4-0.8' - light brown, moist, loose, fine grained, some silt			
					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 grained			
		5.0	SS2SS	50/5 (50/5")				
	4.5							
5								
260.0	5.0				**Silt (ML)** 5.0-5.8' - reddish brown, dry to moist, dense, very fine grained, nonplastic		3	PT-1 collected 5-7' Offset: 6.9' S33W of BPA-7 Lab Results USCS: CL
	5.5							
		9.0	SS3SS	13-13-14-28 (27)				
	7.0							
	7.5				**Silt (ML)** 7.5-8.1' - reddish brown, dry to moist, dense, very fine grained, nonplastic		4.5+	
	8.0							
		7.0	SS4SS	29-50/5 (50/5")				
	9.5							
10								Soil sampling completed at 09:31 on 6/26/06
255.0	10.0	1.0	SS5SS		**Silt (ML)**		4.5+	
	10.1			50/1 (50/1")	10.0-10.1' - reddish brown, dry to moist, dense, very 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								
20								

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-7	SHEET 2 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

WATER LEVELS : 10.0 ft bgs

START : 6/26/06 08:30

END : 6/27/06 15:10

LOGGER : JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	10.4		0			**Sandstone** At 10.4' - dark reddish brown, soft, fresh, fine grained, coarsens with depth	Rock coring began at 10:00 on 6/26/06 R1: 10:00-10:10 on 06/26/06 At 10.7': R-Scale = R3
			0			11.8-14.5' - 40-50% medium to coarse sand in fine sand matrix, 0.8 clasts	
	R1NQ 4.7 ft 100%	93	0				
			0				
			0				At 14.1': R-Scale = R3
15	15.0					14.5-16.9' - fine grained	
250.0			0				R2: 10:15-10:25
			2	16.2' - Fracture, 60 deg, rough, undulating			At 16.1': R-Scale = R3-R4
	R2NQ 5 ft 94%	72*	10+	17.0' - Fracture, <5 deg, rough, undulating 17.2-17.5' - Fracture zone		**Siltstone** At 16.9' - dark reddish brown, very soft, fine grained, harder blue-green clay like clasts holding core together 16.9-17.0' - fresh 17.0-18.5' - moderately weathered 18.5-39.0' - fresh 18.5-30.0' - very fine grained 18.5-20.0' - heavy purple mottling	
			0	17.9-18.4' - Fractures (3), <5 deg, rough, undulating 18.5-20.0' - Fracture zone, rough, numerous small microfractures along rough bedding			At 18.7': R-Scale = R2 SC-1 collected 19.0-20.0'
			0				
20	20.0					20.0-22.5' - dark purple mottling	
245.0			0			20.0-22.0' - trace blue-green mottling	R3: 10:35-11:00
			2	21.0' - Fracture, <5 deg, smooth / rough, some dark purple staining on surface of break			At 20.9': R-Scale = R3-R4
	R3NQ 5 ft 104%	74	10+	21.8-22.5' - Fractures (2), 60 deg, smooth / rough, undulating, dark purple staining on surface		22.5-22.8' - soil-like characteristics	
			10+	22.5-22.8' - heavily fractured, clay seam 23.4-23.6' - heavily fractured, clay seam		23.0-23.3' - trace blue-green mottling 23.4-25.6' - soil-like characteristics 23.4-23.6' - trace blue-green mottling	
			0				At 26.5-27.2': PP: 0.5 tsf
25	25.0						
240.0			0			25.0-30.0' - < 0.4 pink clay rip up clasts 25.0-26.4' - blue-green mottling	R4: 11:10-11:25
			10+	26.4' - Fracture, 60 deg, smooth, undulating 26.5-27.2' - heavily fractured, clay seam			At 26.7-27.3': R-Scale = R0
	R4NQ 5 ft 100%	76	10+	27.6' - Fracture, 10 deg, smooth, undulating			
			0	27.8' - Fracture, 70 deg, rough, undulating, dark purple staining			At 28.2': R-Scale = R3
			1	29.0' - Fracture, <5 deg, rough, undulating		29.0-30.0' - trace hairlike blue-green mottling	At 29.3': R-Scale = R3
30	30.0			29.8' - Fracture, <5 deg, rough, undulating			
235.0							R5: 11:30-11:40

PROJECT NUMBER:	BORING 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

WATER LEVELS : 10.0 ft bgs

START : 6/26/06 08:30

END : 6/27/06 15:10

LOGGER : JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				
			0			31.4-31.8' - 30% very fine to fine grained sand 31.9-32.0' - bluish-white clast/sand lens 32.3-34.0' - blue-green mottling, clay rip up clasts	
	R5NQ 5 ft 100%	85	0				At 32.0': R-Scale = R3-R4
			5	33.3-34.0' - Fractures (5), <5 deg, rough, undulating			
			0			34.0-35.0' - dark purple and trace blue-green mottling	
35	35.0						At 34.3': R-Scale = R3
230.0							R6: 12:30-13:05
			1	35.5' - small microfractures, heavily fractured rock, 0.1' thick, clay seam		35.5-39.0' - heavily mottled bluish-gray, yellow-green	
			0				
	R6NQ 5 ft 96%	92	0				At 37.0': R-Scale = R3
			0				
			0			**Sandstone** 39.0-39.2' - bluish-gray, soft, fine sand to medium sand, angular, fresh	At 39.3': R-Scale = R3
40	40.0		XXX			**Siltstone** 39.2-40.6' - very dusky red, very soft to soft, fresh, fine grained	R7: 14:20-14:35
225.0			0	40.6' - Contact between siltstone and sandstone, sharp contact		**Sandstone** 40.6-52.3' - gray, soft to hard, medium sand to coarse sand, angular to subangular, fresh	
			0				
	R7NQ 5 ft 100%	100	0				At 41.9': R-Scale = R3-R4
			0			43.5-43.8' - fine to medium grained	At 43.4': R-Scale = R3-R4
			0				
45	45.0						
220.0			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%	100	0			47.5-47.9' - dark gray bands, <0.1' thick	
			0				At 47.9': R-Scale = R3-R4
			0				At 49.2': R-Scale = R2
50	50.0						
215.0							R9: 15:28-15:40

PROJECT NUMBER:	BORING 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
WATER LEVELS : 10.0 ft bgs
START : 6/26/06 08:30
END : 6/27/06 15:10
LOGGER : JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			1	50.4' - Fracture, 65 deg, rough, undulating			
			1				
	R9NQ 5 ft 100%	88	3	51.7' - Fracture, 65 deg, rough, undulating, tight, 0.01' thick white quartz infilling on surface 52.3' - Contact between siltstone and sandstone, sharp contact		**Siltstone** At 52.3' - dark reddish brown, very soft to soft, fresh	At 52.2': R-Scale = R3-R4
			1	52.4-53.3' - Fractures (4), <5 deg, rough, undulating, tight fit		53.8-53.9' - clay clasts	
			0				At 54.5': R-Scale = R3-R4
55	55.0						
210.0			2				R10: 15:42-16:00
			2	55.7 and 55.9' - Fractures, <5 deg, rough, undulating		55.0-55.7' - trace very fine to fine sand 55.7-56.1' - numerous pink-white clay clasts	
			0			56.3-60.0' - bluish gray and dark purple mottling	
	R10NQ 5 ft 98%	92	0				At 56.7': R-Scale = R3-R4
			0				
			1				
60	60.0						
205.0			1			60.0-70.0' - very soft 60.0-60.6' - trace blue-green mottling	At 59.8': R-Scale = R3 R11: 16:05-16:25 At 60.2': R-Scale = R3-R4
			1	60.7' - Fracture, <5 deg, rough, undulating, tight fit			
			0				
	R11NQ 5 ft 100%	100	0				At 62.0': R-Scale = R3
			0			62.8-63.1' - trace blue-green mottling	
			0				
			0				At 64.0': R-Scale = R3-R4
65	65.0						
200.0			1				R12: 16:30-16:50
			1	65.2' - Fracture, <5 deg, rough, undulating, tight fit			
			0				
	R12NQ 5 ft 100%	96	0				At 66.7': R-Scale = R3-R4
			0				SC-2 collected 65.2-66.4'
			0				At 69.1': R-Scale = R3-R4
70	70.0						
195.0						70.0-75.6' - very dusky red, very soft	R13: 16:55-17:20

PROJECT NUMBER:	BORING 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

WATER LEVELS : 10.0 ft bgs

START : 6/26/06 08:30

END : 6/27/06 15:10

LOGGER : JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			70.8-70.9' - clay clasts	At 70.7': R-Scale = R3-R4
			0			71.5-71.9' - clay clasts	
	R13NQ 5 ft 100%	100	1	72.3' - Fracture, 65 deg, rough, undulating, tight fit			
			0			73.1-73.4' - clay clasts and blue-green mottling	
			0			74.0-75.6' - clay clasts and blue-green mottling	
75	75.0						At 74.6': R-Scale = R3-R4
190.0			1	75.0-85.0' - Small microfractures/capillary-like		75.0-85.0' - 10-15% very fine to fine sand	R14: 07:50-08:20 on 06/27/06
			0	75.6' - Fracture, <5 deg, rough, undulating, tight fit		75.6-87.3' - trace blue-green mottling, very soft	
	R14NQ 5 ft 100%	100	0				At 77.0': R-Scale = R3
			0				
			0				At 78.7': R-Scale = R3
80	80.0						
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	
			0				At 84.1': R-Scale = R3-R4
85	85.0						
180.0			0			85.0-87.3' - trace very fine to fine sand	R16: 09:00-09:20
			0				At 85.8': R-Scale = R3-R4
	R16NQ 5 ft 100%	98	0			87.3-90.0' - very dusky red, heavily mottled blue-green and dark purple, very soft to soft, few clay clasts at surface	
			2				At 87.9': R-Scale = R3-R4
			0	88.8 and 88.9' - Fractures (2), <5 deg, rough, undulating, staining on edges, slickensided			
90	90.0						
175.0							R17: 09:25-09:45

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

WATER LEVELS : 10.0 ft bgs

START : 6/26/06 08:30

END : 6/27/06 15:10

LOGGER : JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, 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
			0				
	R17NQ 5 ft 100%	100	0				At 92.8': R-Scale = R3-R4 SC-3 collected 93.6-94.6'
			0				
95	95.0		0				
170.0			0				R18: 09:50-10:15
			0				At 95.7': R-Scale = R3-R4
	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
			4			**Siltstone** 101.2-105.0' - multicolored--gray-blue, brown, yellow-green, very soft, fresh, fine grained, bedding skewed, heavily mottled, thinly laminated	At 101.4': R-Scale = R3-R4
	R19NQ 5 ft 92%	60	NA	101.8-103.2' - Fractures (7), <5 deg, rough, undulating, slickensided 102.0-102.3' - Heavily fractured, soil-like			
			2				
			0				At 104.2': R-Scale = R3-R4
105	105.0						
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
			0				
	R20NQ 5 ft 100%	90	1				At 107.3': R-Scale = R3-R4
			1	108.2-108.9' - Fracture, 75 deg, rough, undulating, tight fit		107.9-110.0' - 30-35% very fine sand, more blue-green mottling	
			1				
110	110.0						At 109.6': R-Scale = R3-R4
155.0							R21: 11:12-11:28

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

WATER LEVELS : 10.0 ft bgs

START : 6/26/06 08:30

END : 6/27/06 15:10

LOGGER : JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R.Q.D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (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 110.9' - Fracture, 30 deg, rough, undulating		110.0-116.6' - very dusky red, trace blue-green mottling, very soft, < 10% very fine to fine sand	
			2				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			
			1				
			0				At 114.0': R-Scale = R3-R4
115	115.0						
150.0			0				R22: 11:32-12:01 At 115.5': R-Scale = R3
			0				
	R22NQ 5 ft 100%	100	1			**Siltstone** 116.6-120.0' - gray, very soft to soft, fresh, fine grained, 20 degree bedding plane, 25-30% very fine to fine sand	At 117.4': R-Scale = R3-R4
			1	117.9' - Fracture, 60 deg, rough, undulating, tight fit 118.4' - Fracture, 30 deg, rough, undulating			SC-4 collected 118.9-120.0'
			0				
120	120.0						
145.0			0			**Sandstone** 120.0-121.0' - very dark gray, soft to hard, fine sand to medium sand, angular to subangular, fresh, 20 degree bedding planes, quartzitic, fining upward sequence, gradational change from siltstone above	R23: 12:05-12:35 At 120.5': R-Scale = R3-R4
			0	121.0' - Contact between siltstone and sandstone, sharp contact			
	R23NQ 5 ft 100%	100	1			**Siltstone** 121.0-123.5' - very dark gray to dark reddish brown, very soft to soft, fresh, fine grained	At 122.1': R-Scale = R3-R4
			1	122.5' - Fracture, 30 deg, slickensided, undulating, tight fit 123.0' - Fracture, 60 deg, slickensided, undulating, tight fit			
			0			**Sandstone** 123.5-124.4' - dark gray to gray, soft to hard, subangular, fresh, very fine to fine gradational sand	At 124.3': R-Scale = R3-R4
125	125.0						
140.0			0			124.4-125.0' - multicolored (white-pink) with siltstone lenses, highly variable transition zone--fine to coarse sand pockets and siltstone	R24: 12:40-13:05
			0			**Siltstone** At 125.0' - very dusky red to dark reddish brown, very soft to soft, fresh, fine grained	
	R24NQ 5 ft 100%	100	0			125.0-128.0' - trace white, fine grained sand	At 127.9': R-Scale = R3-R4
			0			128.0-128.1' - sand lens, fine to medium grained	At 128.4': R-Scale = R3-R4
			0			128.1-130.0' - 25-30% white sand grains, decreasing with depth	
130	130.0						
135.0						130.0' - becomes very soft	R25: 13:10-13:45

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

WATER LEVELS : 10.0 ft bgs

START : 6/26/06 08:30

END : 6/27/06 15:10

LOGGER : JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			130.0-130.7' - mottled blue-green, trace very fine sand	SC-5 collected 130.7-131.7'
			1	131.7 and 132.7' - Fractures (2), <5 deg, slickensided, undulating, tight fit		130.7-131.7' - heavily mottled blue-green, 25% very fine sand	
	R25NQ 5 ft 100%	100	1			132.3-132.5' - white ripup clay clasts	At 132.0': R-Scale = R3
			0			132.5-135.0' - trace blue-green mottling	
			0				At 134.0': R-Scale = R3-R4
135	135.0					134.5-135.0' - trace very fine sand	
130.0			0				R26: 13:50-14:25
			0				At 135.7': R-Scale = R3-R4
	R26NQ 5 ft 100%	100	0				
			0				
			0				At 139.3': R-Scale = R3
140	140.0					139.5-140.0' - 0.8 to 1.2 white/pink, clay clasts	
125.0			0			140.0-145.0' - trace blue-green mottling along thin possible root structures	R27: 14:30-15:05
			0				At 143.2': R-Scale = R3
	R27NQ 5 ft 100%	100	0				First water level = 10.0' bgs taken 6/27/06 at 16:00; second water level = 9.0' bgs taken 6/28/06 at 15:10
			0				
			0				R-Scale performed after drilling on stored samples
145	145.0					144.6' - clay clasts	
120.0						Bottom of Boring at 145.0 ft bgs on 6/27/06 15:10	
150							
115.0							

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)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
267.4	0.0				**Topsoil** 0.0-0.2'		
		13.2	SS1SS	1-50/5 (50/5")	**Clay (CL)** 0.2-1.1' - reddish brown, mottled reddish black and light greenish gray, dry, hard, laminated beds		
	2.0						Soil sampling completed at 16:26 on 6/27/06
	2.5	3.0	SS2SS	50/3 (50/3")	**Clay (CL)** 2.5-2.8' - reddish brown, mottled reddish black and light greenish gray, dry, hard, laminated beds		
	2.8				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:	BORING 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 bgs

START : 6/27/06 16:13

END : 6/29/06 10:30

LOGGER : LH/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	2.8					**Siltstone**	Rock coring began at 07:59 on 6/28/06
	R1NQ 1.4 ft 131%	100	0			2.8-6.2' - dark reddish brown, mottled reddish black and greenish gray, very soft, slightly weathered, laminated beds, 10-30% very fine sand	R1: 07:59-08:02 on 06/28/06
	4.2		2	4.1' - Fractures (2), horizontal, rough, planar		3.3' - clay seam, very soft, friable material, 0.05' thick	At 3.9': R-Scale = R3-R4
5 262.4			0				R2: 08:10-08:18
			2	5.8' - Fracture, horizontal, smooth, planar			At 4.8': R-Scale = R3-R4
	R2NQ 5 ft 94%	94	1	6.2' - 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	At 7.1-8.3': R-Scale = R2
			1	7.7' - Fracture, horizontal, rough, planar			
			1	8.3' - Fracture, horizontal, smooth, planar		**Siltstone** At 7.2' - dark reddish brown, mottled reddish black and greenish gray, very soft, laminated beds, 10-30% very fine sand	
	9.2						R3: 08:27-08:35
10 257.4			1	9.5' - Fracture, horizontal, smooth, planar		7.2-14.2' - slightly weathered	At 9.9': R-Scale = R3-R4
			10+	10.2-10.6' - Fracture zone, rough, undulating			
	R3NQ 5 ft 106%	64	1				At 11.4': R-Scale = R3-R4
			1	12.0' - Fracture, horizontal, rough, undulating		12.1-12.8' - 30% very fine to medium sand	
			10+	12.8' - Fracture, horizontal, rough, undulating		13.2-13.8' - clay seam, very soft	At 13.2-13.8' PP: 1.5 tsf
	14.2			13.8' - Fracture, horizontal, rough, undulating			At 13.2-13.8': R-Scale = R0
				13.9' - Fracture, horizontal, rough, undulating		14.2-24.2' - fresh	R4: 08:42-08:49
15 252.4			1	14.0' - Fracture, horizontal, rough, undulating 14.3' - Fracture, horizontal, rough, planar			At 14.2-15.9': R-Scale = R2
			1	15.5' - Fracture, horizontal, rough, undulating		15.5-19.2' - 10-20% very fine sand, soft	At 15.5': R-Scale = R2
	R4NQ 5 ft 92%	90	0				
			0				
	19.2		0				At 18.9': R-Scale = R5
			0			19.2-24.2' - soft, laminated beds apparent in some areas, 20-40% very fine sand throughout core	R5: 08:54-09:05
20 247.4			1				
			1	21.0' - Fracture, horizontal, smooth, planar			At 20.5': R-Scale = R3-R4
	R5NQ 5 ft 104%	100	1	21.7' - Fracture, horizontal, smooth, planar			

PROJECT NUMBER:	BORING 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

WATER LEVELS : 12.0 ft bgs

START : 6/27/06 16:13

END : 6/29/06 10:30

LOGGER : LH/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				At 23.0': R-Scale = R3
			0				
24.2							
			XXX			**Sandstone**	R6: 09:11-09:19
25 242.4			0			At 24.2' - light gray and very dark gray, trace black mottling, very soft to soft, medium to thick bedding, very fine sand to coarse sand, angular to subrounded, poorly sorted, fresh, lighter and darker bands of sediment in a few areas	At 25.1': R-Scale = R3-R4
			0				
	R6NQ 5 ft 100%	100	0				
			0				
			0				At 28.4': R-Scale = R3-R4
29.2							
			1	29.5' - Fracture, horizontal, rough, undulating		29.2-29.6' - trace fine to medium gravel	R7: 09:25-09:33
30 237.4				29.6' - Contact between siltstone and sandstone, horizontal, smooth, planar, tightly healed		**Siltstone**	SC-1 collected 30.3-31.3'
			0			At 29.6' - dark reddish brown, mottled greenish gray, soft, thin to medium bedding, fresh	At 30.0': R-Scale = R3-R4
	R7NQ 5 ft 100%	88	1			30.5-31.5' - 30-40% very fine to coarse sand	
				32.1' - Fracture, horizontal, rough, undulating		31.9-32.2' - 30-40% very fine to coarse sand	
			0			32.3-32.7' - 0.03' thick white and greenish gray clasts	At 32.5': R-Scale = R3
			10+			32.7-33.4' - 30-40% very fine to coarse sand	
34.2				33.9-34.0' - Fracture zone, rough, planar / undulating		34.2-39.2' - very soft	R8: 09:40-09:49
			1				At 34.6': R-Scale = R3-R4
35 232.4				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			
	R8NQ 5 ft 100%	74	0				
			0				At 37.6': R-Scale = R3-R4
			10+	38.3-39.2' - Fracture zone, rough, undulating			
39.2						39.2-55.3' - becomes mottled reddish black	R9: 09:58-10:08
			0				
40 227.4							
			0				At 40.5': R-Scale = R3-R4
	R9NQ 5 ft 100%	100	1	41.1' - Fracture, horizontal and 45 deg, rough, undulating		40.9-41.1' - trace white clasts 41.1-41.3' - laminated bedding	
						42.4-42.6' - trace white clasts	

PROJECT NUMBER:	BORING 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

WATER LEVELS : 12.0 ft bgs

START : 6/27/06 16:13

END : 6/29/06 10:30

LOGGER : LH/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			43.1-43.2' - trace white clasts	At 43.1': R-Scale = R3-R4
			0				
44.2							
			0			44.1-44.2' - trace white clasts 44.2-44.7' - laminated bedding	R10: 10:14-10:23
45 222.4			0			44.2-44.7' - very soft 44.2-45.6' - white clasts	
			0				At 45.5': R-Scale = R3-R4
	R10NQ 5 ft 97%	97	0			46.4-46.5' - 20-30% very fine sand	
			0			46.9-47.0' - laminated bedding 47.1-47.2' - 20-30% very fine sand	
			1			47.4-47.6' - 20-30% very fine sand	At 47.4': R-Scale = R3-R4
			0	48.1' - Fracture, horizontal, rough, planar		47.7' - white clasts 48.0-50.4' - laminated bedding	At 48.0-49.2': R-Scale = R2
49.2						48.0-50.3' - very soft 48.6' - white clasts	
			1			49.2-49.6' - white clasts 49.2-50.4' - laminated bedding	R11: 10:30-10:40
50 217.4			0			49.9-50.1' - clay seam, very soft, friable material	
			4	50.3' - Fracture, 45 deg, rough, undulating 50.4' - Fracture, horizontal, rough, planar 50.7' - Fracture, horizontal, rough, planar		50.2-50.2' - 20-40% very fine to fine sand	
	R11NQ 5 ft 102%	92	0				At 51.0': R-Scale = R3-R4
			0			51.8-52.5' - 20-40% very fine sand	
			0				At 53.0': R-Scale = R3
54.2							
			0			54.2-54.2' - 20-40% very fine to fine sand	R12: 10:46-10:57
55 212.4			0	55.3' - Contact between siltstone and sandstone, horizontal, planar		**Sandstone** 55.3-56.5' - dark greenish gray and white, mottled dark red, soft, very fine sand to coarse sand, subangular to subrounded, poorly sorted, fresh	At 55.3': R-Scale = R3-R4
	R12NQ 5 ft 96%	96	0				At 56.2': R-Scale = R3-R4
			0			**Siltstone** 56.5-56.7' - fresh, grades to siltstone lense and back to sandstone	SC-2 collected 57.1-58.1'
			0			**Sandstone** 56.7-64.3' - dark greenish gray and white, mottled dark red, soft, very fine sand to coarse sand, subangular to subrounded, poorly sorted, fresh, coarse (lighter) and fine (darker) grained bands	At 58.9': R-Scale = R5 R13: 11:07-11:18
59.2							
60 207.4			0				At 59.7': R-Scale = R3-R4
			0				
	R13NQ 5 ft 103%	100	0				At 61.6': R-Scale = R3-R4

PROJECT NUMBER:	BORING 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

WATER LEVELS : 12.0 ft bgs

START : 6/27/06 16:13

END : 6/29/06 10:30

LOGGER : LH/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				
			0				At 63.6': R-Scale = R3-R4
64.2							
			3	64.3' - Contact between siltstone and sandstone, 45 deg, smooth, planar, tightly healed		64.2-64.3' - mottled dark reddish brown	R14: 11:24-11:37
65 202.4			1	64.6' - Fracture, horizontal, smooth, planar 65.0' - Fracture, horizontal, smooth, planar 65.1' - Fracture, horizontal, smooth, undulating		**Siltstone** At 64.3' - dark reddish brown, mottled greenish gray and reddish black, soft 64.3-83.8' - fresh	At 65.5': R-Scale = R3
	R14NQ 5 ft 100%	79	4	65.9' - Fracture, horizontal, smooth, undulating 66.2-66.4' - Fracture, 45 deg, slickensided, undulating		65.5-65.9' - 0.1' thick greenish gray mottles 66.7-67.2' - soft, laminated bedding	At 66.8-67.2': R-Scale = R0
			1	66.5' - Fracture, horizontal, smooth, planar 66.7' - Fracture, horizontal, smooth, undulating		66.9-67.2' - clay seam, very soft, friable material	
			0	67.6' - Fracture, horizontal, rough, undulating		67.2-68.1' - white clasts	At 67.9': R-Scale = R3-R4
69.2							
			0			68.9-69.3' - greenish gray mottles throughout width of core	R15: 11:46-11:55
70 197.4			0			69.8-69.9' - 0.05' thick greenish gray mottle	At 69.9': R-Scale = R3-R4
			4	70.3-70.6' - Fracture zone, horizontal, rough, planar, clay seams, 0.01' thick		70.2-70.3' - 0.03' thick greenish gray mottle 70.3-70.6' - soft, laminated bedding	
	R15NQ 5 ft 103%	97	0				
			0			72.2-72.5' - 0.02' thick greenish gray mottle, along fracture, tightly healed	At 72.1': R-Scale = R3-R4
			0				At 73.2' PP: 1.5 tsf
74.2							
			0			74.1-74.2' - 0.15' thick greenish gray mottle	R16: 13:18-13:30
75 192.4			0			74.2-83.1' - soft, 0-20% very fine sand	At 74.8': R-Scale = R3-R4
	R16NQ 5 ft 88%	88	0				
			0				At 76.9': R-Scale = R3-R4
			0				At 78.2': R-Scale = R3-R4
79.2							
			0				R17: 13:37-13:48
80 187.4			0				SC-3 collected 79.7-80.7'
	R17NQ 5 ft 102%	100*	0			81.5-83.1' - 0-30% fine to coarse sand, and gravel sized white clasts 81.5-87.4' - gravel sized white clasts	At 82.0': R-Scale = R3-R4

PROJECT NUMBER:	BORING 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

WATER LEVELS : 12.0 ft bgs

START : 6/27/06 16:13

END : 6/29/06 10:30

LOGGER : LH/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				
			3			83.1-84.2' - very soft to soft, laminated bedding, trace gravel sized white clasts	At 83.5': R-Scale = R3-R4
84.2				83.9-84.2' - Fracture zone, horizontal, rough, planar, clay seams, very soft, 0.01' thick		83.8-84.8' - moderately weathered	At 83.8-84.3': R-Scale = R0
			10+	84.2-84.8' - Fracture zone, rough, undulating		84.2-89.2' - very soft to soft	R18: 13:59-14:10
85 182.4						84.8-111.6' - fresh	
			0				At 85.4': R-Scale = R3
	R18NQ 5 ft 104%	94*	0				
			0				At 87.7': R-Scale = R3-R4
			0				
89.2							
			0			89.2-94.2' - mottled greenish gray and trace reddish black, soft	R19: 14:25-14:38
90 177.4							
			0				At 90.2': R-Scale = R3-R4
	R19NQ 5 ft 94%	94	0				
			0				At 92.0': R-Scale = R3-R4
			0				
94.2							
			1	94.6' - Fracture, horizontal, rough, planar		94.2-99.2' - up to 50% very fine sand	R20: 14:44-14:58
95 172.4							
			0				At 95.1': R-Scale = R3-R4
	R20NQ 5 ft 99%	79	0				
			4	97.3-97.7' - Fractures (3), horizontal and 30 deg, rough, undulating		97.0-97.2' - white clasts	At 97.0': R-Scale = R3-R4
				98.1' - Fracture, horizontal, rough, undulating			
			2	98.6' - Fracture, horizontal, rough, undulating			
99.2				99.0' - Fracture, horizontal, rough, undulating			
			10+	99.2-99.7' - Fracture zone, horizontal and vertical, rough, undulating			R21: 15:12-15:26
100 167.4						99.8-100.0' - 0.03' thick greenish gray mottle	
			0				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

PROJECT NUMBER:	BORING 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

WATER LEVELS : 12.0 ft bgs

START : 6/27/06 16:13

END : 6/29/06 10:30

LOGGER : LH/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			103.1-103.2' - 0.06' thick greenish gray mottle 103.6-104.0' - 0.01-0.03' thick greenish gray mottles 104.5-104.8' - 0.15' thick greenish gray mottle	At 103.4': R-Scale = R3
			0				R22: 15:35-15:47
104.2							
105 162.4			0				
			0				
	R22NQ 5 ft 103%	100	0				At 106.0': R-Scale = R3-R4
			0				
			0				At 108.6': R-Scale = R3-R4
109.2							R23: 15:58-16:11
			0				
110 157.4							At 109.8': R-Scale = R3-R4 SC-4 collected 110.4-111.6'
			1	110.4' - Fracture, horizontal, rough, planar		110.4-110.5' - 0.03' thick greenish gray mottle	
	R23NQ 5 ft 100%	68	3	111.6-111.7' - Fractures (2), horizontal, rough, planar 111.8' - Fracture, horizontal, rough, planar		**Siltstone** At 111.6' - very dark greenish gray, olive, mottled greenish gray and dark reddish brown, very soft to soft, slightly weathered	At 112.1': R-Scale = R3
			3	111.2' - Fracture, horizontal, smooth, planar 112.4' - Fracture, horizontal, smooth, planar			
			7	113.0' - Fracture, horizontal, smooth, planar 113.2-113.8' - Fracture zone, horizontal, smooth, slickensided, clay seams (50%), very soft clay			
114.2							R24: 16:20-16:47
115 152.4			10+	113.9' - Fracture, 30 deg, smooth, planar 114.1' - Fracture, 10 deg, smooth, planar			
			3	114.5-114.9' - Fracture zone, horizontal, rough, planar / undulating, clay seams (50%) 115.3' - Fracture, horizontal, rough, planar			At 115.4': R-Scale = R3
	R24NQ 5 ft 95%	67	4	116.1' - Fracture, horizontal, smooth, planar 116.2' - Fracture, horizontal, rough, undulating 116.5' - Fracture, horizontal, rough, undulating			
			0	116.6' - Fracture, horizontal, rough, undulating 116.6' - Fracture, horizontal, rough, undulating			At 117.2': R-Scale = R3-R4
			0	116.7' - Fracture, horizontal, rough, undulating			
119.2							
			0			**Siltstone** At 119.2' - dark reddish brown, mottled pale olive and olive yellow, soft, subangular, well sorted, slightly weathered, very fine to fine grained 119.3-119.4' - laminated bedding	R25: 07:59-08:15 on 06/29/06 At 119.6': R-Scale = R3-R4
120 147.4			2				
	R25NQ 5 ft 99%	91	2	121.9' - Fracture, horizontal, rough, undulating, 0.02' clay infilling			At 121.5': R-Scale = R4

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-8 SHEET 8 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 bgs

START : 6/27/06 16:13

END : 6/29/06 10:30

LOGGER : LH/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0	122.1' - Fracture, horizontal, rough, undulating, 0.02' clay infilling		**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	
			0	122.2' - Fractures (2), horizontal, rough, undulating, 0.02' clay infilling			At 123.6': R-Scale = R3-R4
	124.2						R26: 08:24-08:40
125 142.4			1	124.7' - Fracture, horizontal, rough, undulating		**Siltstone** 120.2-120.3' - dark reddish brown, mottled pale olive and olive yellow, soft, slightly weathered	
			0				At 125.8': R-Scale = R3-R4
	R26NQ 5 ft 90%	90	1	126.2' - Fracture, horizontal, rough, undulating		**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	
			0				
			0			**Siltstone** At 120.9' - dark reddish brown, mottled olive yellow, greenish gray, and reddish black, very soft to soft, fresh	At 128.1': R-Scale = R3-R4
	129.2					121.9-121.9' - laminated bedding	R27: 08:53-09:10
130 137.4			0			121.9-122.2' - very soft, laminated bedding	
			0			122.2-124.2' - soft	At 130.7': R-Scale = R3
	R27NQ 5 ft 103%	92	0			122.4-122.6' - 0.02-0.05' thick greenish gray mottle	
			3	132.6' - Fracture, horizontal, rough, undulating		126.2-126.4' - laminated bedding	At 132.4': R-Scale = R4
				132.9' - Fracture, horizontal, rough, planar		129.2-134.2' - reddish black and little greenish gray mottling, soft to hard	
			0	133.2' - Fracture, horizontal, rough, undulating, clay seam, 0.05' thick, hard, friable material			
	134.2						R28: 09:19-09:32
135 132.4			1	134.4' - Fracture, horizontal, rough, undulating			At 134.7': R-Scale = R3-R4
			0				
	R28NQ 5 ft 104%	100	0				
			0			136.8-139.1' - 0.01-0.04' thick greenish gray mottles, and begins to grade to sandstone, trace coarse sand grains	At 137.4': R-Scale = R3-R4
			0			**Sandstone** At 138.4' - dark reddish brown, very dark gray, light gray, soft to hard, very fine sand to fine sand, poorly sorted, fresh	
	139.2						R29: 09:54-10:07
140 127.4			0			138.4-139.2' - dark reddish brown, reddish black mottling, coarse sand, 40-50% coarse sand	At 139.6': R-Scale = R3-R4
			0				
	R29NQ 5 ft 100%	100	0	141.3' - Fracture, horizontal, rough, undulating		139.2-141.7' - very dark gray, coarse grains scattered until 139.7' ~10%	SC-5 collected 141.3-142.5'
						139.7' - 10% coarse sand	

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

START : 6/27/06 16:13

END : 6/29/06 10:30

LOGGER : LH/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			1	142.5-144.2' - Microfractures, partial clay infilling		141.7-142.3' - light gray, thin to medium bedding, medium sand to coarse sand	At 143.3': R-Scale = R3
			1	143.0' - Fracture, 20 deg, smooth, undulating		**Siltstone**	
144.2				144.0' - Fracture, 10 deg, smooth, undulating		142.3-144.2' - dark greenish gray, mottled dark reddish brown and reddish black, soft, fresh, very fine grained, 20% grading into dark reddish brown, 0.01-0.05' thick white clasts	R30: 10:15-10:30
145 122.4			2	144.5' - Fracture, horizontal, rough, undulating			At 145.2': R-Scale = R3-R4
	R30NQ 3.3 ft 100%	91	0	144.5' - Fracture, horizontal, rough, undulating		**Siltstone**	At 147.0': R-Scale = R3-R4
			0			144.2-147.5' - dark reddish brown, mottled greenish gray and reddish black, soft, fresh	First water level = 12.0' bgs taken 6/29/06 at 10:55; second water level = 5.62' bgs taken 6/30/06 at 12:30
147.5						Bottom of Boring at 147.5 ft bgs on 6/29/06 10:30	R-Scale performed after drilling on stored samples
150 117.4							
155 112.4							
160 107.4							

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

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 : 6/29/06 13:14

END : 6/30/06 10:51

LOGGER : EM/LH

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
266.8	0.0				**Topsoil** 0.0-0.1'		
		3.6	SS1SS	4-6-7-9 (13)	**Clay (CL)** 0.1-0.3' - reddish brown, dry to moist, medium stiff		
	2.0						
	2.5	9.0	SS2SS	14-50/3 (50/3")	**Clay (CL)** 2.5-3.0' - reddish brown, moist, hard, low plasticity, little to some coarse sand to coarse gravel		Soil sampling completed at 13:25 on 6/29/06
	3.3				**Clay (CL)** 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		
5 261.8							
10 256.8							
15 251.8							
20							

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-9	SHEET 2 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

WATER LEVELS : 5.3 ft bgs

START : 6/29/06 13:14

END : 6/30/06 10:51

LOGGER : EM/LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	3.3 R1NQ 1 ft 100% 4.3	0	4	3.6' - Fracture, horizontal, rough, planar 3.7' - Fracture, 45 deg, rough, undulating 4.1' - Fracture, horizontal, rough, planar		**Siltstone** At 3.3' - dark reddish brown, mottled reddish black and greenish gray, soft 3.3-12.2' - highly weathered 3.5-3.6' - laminated beds	Rock coring began at 13:50 on 6/29/06 R1: 13:50-13:54 on 06/29/06
5 261.8			0	4.3' - Fracture, horizontal, rough, planar			At 3.9': R-Scale = R3-R4 R2: 14:02-14:07
			2	5.4' - Fracture, horizontal, rough, undulating 5.7' - Fracture, horizontal, rough, undulating		5.7-9.3' - very soft, laminated beds	At 4.8': R-Scale = R3-R4
	R2NQ 5 ft 80%	0	10+	6.5-7.0' - Fracture zone, rough, undulating			Drillers Remark: Rod dropped at 6.45' about 0.5'
			10+	7.2' - Fracture, horizontal, smooth, undulating 7.4' - Fracture, horizontal, smooth, undulating 7.6' - Fracture, horizontal, smooth, planar 7.8' - Fracture, horizontal, smooth, undulating 8.1' - Fracture, horizontal, smooth, planar			At 5.4-7.6': R-Scale = R0
	9.3						
			10+			9.3-10.2' - 10-30% very fine sand	R3: 14:18-14:25
10 256.8			10+	10.2-10.6' - Fracture zone, at the top of 0.4' clay/silt seam, laminated beds alternating, very soft, friable material		10.2-12.2' - very soft 10.6-12.2' - laminated beds	At 9.8': R-scale = R3 At 10.15-12.2': R-Scale = R0
	R3NQ 5 ft 94%	42	10+	10.6-12.2' - Fracture zone, very soft, friable material			
			2			12.2-17.6' - fresh	
			10+	13.1' - Fracture, 45 deg, rough, planar 13.3' - Fracture, 30 deg, rough, planar		13.4-13.8' - gravel sized white clasts	At 13.5': R-Scale = R3-R4
	14.3			13.8-14.0' - Fracture zone, rough, undulating			R4: 14:54-15:02
15 251.8			2				
			1	15.1' - Fracture, horizontal, rough, undulating 15.3' - Fracture, 30 deg, rough, undulating 15.8' - Fracture, 30 deg, rough, undulating			At 15.5': R-Scale = R5
	R4NQ 5 ft 106%	65	1	16.5' - Fracture, 60 deg, rough, undulating			SC-1 collected 16.95-17.55'
			10+	17.6-19.3' - Fracture zone, horizontal, rough, undulating, with clay seams and very soft siltstone, clay is very soft, friable material (0.03' thick)		17.6-19.3' - very soft 17.6-18.6' - laminated bedding 17.6-19.5' - highly weathered 18.5-19.1' - fine gravel sized white clasts	At 17.65-19.3': R-Scale = R0-R1
			10+				
	19.3			19.0-24.0' - Microfractures throughout core filled with white and greenish gray infilling		19.0-19.1' - 0.01-0.05' thick white clasts in bands	R5: 15:14-15:22
20 246.8			10+	19.3-19.5' - Fracture zone, rough, undulating, heavily broken (crumbled)		19.5-26.0' - fresh 19.5-19.7' - 0.01-0.05' thick white clasts	At 19.6': R-Scale = R3-R4
			0				At 20.5': R-Scale = R3-R4
	R5NQ 5 ft 100%	96	0				
			0				At 22.75': R-Scale = R3

PROJECT NUMBER:	BORING 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

WATER LEVELS : 5.3 ft bgs

START : 6/29/06 13:14

END : 6/30/06 10:51

LOGGER : EM/LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			23.7-24.3' - 10-30% fine sand	
24.3							
			1	24.4' - Fracture, horizontal, smooth, undulating		24.3-26.0' - 10-30% fine sand	R6: 15:33-15:41
25 241.8							At 24.8': R-Scale = R3
			1				
				26.1' - Fracture, horizontal, smooth, undulating		**Sandstone** 26.0-26.3' - light greenish gray, soft, fine sand to medium sand, fresh	
	R6NQ 5 ft 100%	99	0				
				26.9' - Contact between sandstones, sandstone contact		**Siltstone** 26.3-26.6' - dark reddish brown, mottled reddish black and greenish gray, soft, fresh	
			1				At 27.7': R-Scale = R3-R4
				28.1' - Fracture, horizontal, smooth, undulating, little black staining		**Sandstone** 26.6-26.9' - light greenish gray, soft, fine sand to medium sand, fresh, gradational contact	
			0				
29.3							
				29.4' - Fracture, horizontal, rough, undulating		**Siltstone** 26.9-28.9' - dark reddish brown, mottled reddish black and greenish gray, soft, fresh	R7: 15:48-15:56
30 236.8			1				
			0				At 30.4': R-Scale = R3-R4
	R7NQ 5 ft 100%	99	1	31.5' - Contact between siltstone and sandstone		**Sandstone** 28.9-31.5' - light greenish gray and light gray, soft to hard, fine sand to coarse sand, angular to subangular, fresh, feldspar and quartz	
				31.6' - Fracture, 50 deg, rough, undulating			At 32.0': R-Scale = R5
			1	32.8' - Fracture, horizontal, smooth, undulating		**Siltstone** 31.5-33.0' - fresh, lens	
				32.8' - Fracture, 45 deg, smooth, undulating		**Sandstone** 33.0-33.3' - light gray, soft to hard, fine sand to coarse sand, angular to subangular, fresh	
			0				R8: 16:02-16:11
34.3							
35 231.8			3				At 34.8': R-Scale = R5
				35.1-35.3' - Fractures (4), horizontal, smooth, undulating		**Siltstone** 33.3-33.4' - fresh, lens	
			1	35.3' - Contact between siltstone and sandstone, sharp		**Sandstone** 33.4-33.6' - light gray, soft to hard, fine sand to coarse sand, angular to subangular, fresh	
	R8NQ 5 ft 92%	78	1	35.6' - Fracture, 10 deg, smooth, undulating			At 36.4': R-Scale = R3
				37.0' - Fracture, horizontal, smooth, undulating		**Siltstone** 33.6-33.7' - fresh, lens	
			0	37.3' - Fracture, horizontal, smooth, undulating		**Sandstone** 33.7-34.6' - light gray, soft to hard, fine sand to coarse sand, angular to subangular, fresh	
			0				At 38.4': R-Scale = R3
39.3				39.1' - Fracture, 85 deg, rough, undulating		**Siltstone** 34.6-34.7' - fresh, lens	R9: 16:18-16:26
40 226.8			2	39.8' - Fracture, horizontal, undulating		**Sandstone** 34.7-35.3' - light gray, soft to hard, fine sand to coarse sand, angular to subangular, fresh	
			10+	40.3' - Fracture zone, 85 deg, rough, undulating, heavily fractured, crumbled			
	R9NQ 5 ft 98%	90	0	40.7' - Fracture, 50 deg, smooth, undulating		**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 36.1' - 0.2' thick mottles	At 41.5': R-Scale = R3-R4
			0				

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

WATER LEVELS : 5.3 ft bgs

START : 6/29/06 13:14

END : 6/30/06 10:51

LOGGER : EM/LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			36.4-38.0' - 0.01-0.05' thick white clasts	
	44.3						
45 221.8			0				R10: 07:59-08:08 on 06/30/06 At 44.6': R-Scale = R3-R4
			1	45.6' - Fracture, horizontal, rough, planar			
	R10NQ 5 ft 108%	100	0				At 46.7': R-Scale = R3-R4
			0				
			0			48.4-49.3' - gravel sized white clasts 48.6-48.8' - laminated beds	At 48.5': R-Scale = R3-R4
	49.3						R11: 08:26-08:37
50 216.8			0			49.9-50.6' - gravel sized white clasts	
			1			50.6-50.8' - <0.05' thick greenish gray mottle	At 50.3': R-Scale = R3-R4
	R11NQ 5 ft 100%	75	10+	51.2' - Fracture, horizontal, rough, undulating 51.7-52.4' - Fracture zone, rough, undulating		51.2-51.3' - very soft 51.3-52.4' - highly weathered 51.3-51.4' - clay seam, very soft, friable material (siltstone laminated alternating within it) 51.7-52.4' - very soft	
			10+				At 53.0': R-Scale = R4
			1			52.4' - gravel sized white clasts 52.4-62.8' - fresh 52.5' - gravel sized white clasts 53.0' - gravel sized white clasts	
	54.3						R12: 08:45-08:55
55 211.8			1			53.5-54.3' - gravel sized white clasts	At 54.8': R-Scale = R4
			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 55.0-55.1' - laminated beds (barely apparent)	
	R12NQ 5 ft 101%	100	0				At 56.8': R-Scale = R3-R4
			0				
			0			58.1-59.3' - 30-40% very fine sand	
	59.3						At 58.6': R-Scale = R3-R4
60 206.8			0				R13: 09:03-09:12
			0				Driller's remark: Lost ~25 gallons of water
	R13NQ 5 ft 96%	96	0				At 60.9': R-Scale = R3-R4
			0				SC-2 collected 62.4-63.4'

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-9	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

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

ORIENTATION : Vertical

WATER LEVELS : 5.3 ft bgs

START : 6/29/06 13:14

END : 6/30/06 10:51

LOGGER : EM/LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			1	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 63.0-63.1' - coarse grained bed 63.3-64.3' - coarse grained bed 65.6-66.1' - coarse grained bed	At 63.8': R-Scale = R3-R4 R14: 09:17-09:30
64.3							
65 201.8			0				
			2	65.6' - Fracture, horizontal, rough, undulating			At 65.7': R-Scale = R3-R4
	R14NQ 5 ft 102%	98	0	66.1' - Contact between siltstone and sandstone, horizontal, rough, undulating		**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 68.8-68.9' - horizontal 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	
			1	67.7' - Fracture, horizontal, rough, planar			At 68.2': R-Scale = R3-R4
			1				
69.3							
70 196.8			10+	69.2' - Fracture, 30 deg, rough, undulating 69.3-69.7' - Fracture zone, rough, undulating, reddish black stains			R15: 09:39-09:53
			0				At 70.2': R-Scale = R3-R4
	R15NQ 5 ft 96%	88	0				
			0				
			0				At 73.1': R-Scale = R3-R4
74.3							
75 191.8			0				R16: 10:02-10:14
			0				
						75.7-76.0' - very soft to soft, 0.02-0.05' thick greenish gray mottles	At 76.1': R-Scale = R3
	R16NQ 5 ft 98%	98	0			76.9-77.0' - very soft to soft, 0.02-0.05' thick greenish gray mottles	
			0				At 77.5': R-Scale = R3-R4
			0				
79.3							
80 186.8			0			79.3-83.5' - trace medium to coarse sand, becomes coarser with depth	R17: 10:20-10:31
			0				At 80.1': R-Scale = R4
	R17NQ 5 ft 103%	100	0				
			0				At 82.9': R-Scale = R3-R4

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

WATER LEVELS : 5.3 ft bgs

START : 6/29/06 13:14

END : 6/30/06 10:51

LOGGER : EM/LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION — DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	LITHOLOGY — ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	COMMENTS — SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
			0			**Sandstone** At 83.5' - 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 83.8-83.9' - coarse grained bed 84.1-84.1' - siltstone lens 84.2' - coarse grained bed 86.1-86.8' - gravel sized silt clasts	
84.3							
85 181.8			0				At 84.0': R-Scale = R3-R4 R18: 10:45-10:51 SC-3 collected 84.3-85.4'
	R18NQ 3.5 ft 100%	74*	0				At 86.4': R-Scale = R4 At 86.8-87.8': R-Scale = R1
			0				First water level = 5.3' bgs taken 6/30/06 at 11:11
87.8			4	86.8' - Contact between siltstone and sandstone, horizontal and 30 deg, rough, undulating 86.9' - Fracture, horizontal and 30 deg, rough, undulating, not a contact 87.3' - Fracture, horizontal, smooth, planar 87.4' - Fracture, horizontal, smooth, planar 87.7' - Fracture, horizontal and 30 deg, rough, undulating, beds at top and bottom are horizontal and convoluted in between		**Siltstone** 86.8-87.8' - dark reddish brown, mottled reddish black and greenish gray, very soft, moderately weathered, gravel sized white clasts Bottom of Boring at 87.8 ft bgs on 6/30/06 10:51	R-Scale performed after drilling on stored samples
90 176.8							
95 171.8							
100 166.8							

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

WATER LEVELS : 3.5 ft bgs

START : 6/27/06 17:00

END : 6/28/06 14:45

LOGGER : JF

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	PP (TSF)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
265.9	0.0				**Silt (ML)**			
		14.0	SS1SS	2-3-3-5 (6)	0.0-1.2' - dark reddish brown, moist to wet, medium dense, very fine to fine grained		1.0	
	2.0							
	2.5				**Silt (ML)**			
		7.0	SS2SS	14-22-50/3 (72/9")	2.5-3.1' - reddish brown, moist, medium dense, very fine to fine grained		2.0	
	4.5							
5								
260.9	5.0	3.0	SS3SS		**Silt (ML)**		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			
	7.5	0.0	SS4SS		**No Recovery**			Soil sampling completed at 17:55 on 6/27/06
				50/0.5 (50/0.5")	At 7.5'			
					Begin Rock Coring at 7.6 ft bgs			
					See the next sheet for the rock core log			
10								
255.9								
15								
250.9								
20								

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-10 SHEET 2 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 bgs

START : 6/27/06 17:00

END : 6/28/06 14:45

LOGGER : JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	7.6		0			**Sandstone** 7.6-8.4' - dark reddish brown, soft, fine sand to medium sand, moderately weathered, 75% sand, 25% silt matrix 8.0' - siltstone lens ~10 degree bedding	Rock coring began at 07:45 on 6/28/06 R1: 07:45-08:00 on 06/28/06 At 8.5-9.0': R-Scale = R0 At 9.0-10.0': R-Scale = R1
	R1NQ 2.5 ft 95%	44*	2	8.2' - Fracture, <5 deg, rough, undulating, tight fit 8.4' - Fracture, <5 deg, rough, undulating, tight fit			
			2	9.2' - Fracture, <5 deg, rough, undulating, tight fit			
10 255.9	10.0					**Siltstone** At 8.4' - dark reddish brown, very soft, fine grained, soil-like characteristics 8.4-12.5' - moderately weathered 9.0-11.1' - some very fine to fine sand (25%) 10.3-10.5' - clay seam 10.9' - clay seam 11.1' - clay seam 11.1-12.0' - becoming more competent 12.0' - clay seam 12.5' - clay seam 12.5-15.6' - fresh	At 10.0-10.2': R-Scale = R0 R2: 08:05-08:35 At 10.2-10.8': R-Scale = R1 At 10.3-10.8': PP: 1.0 tsf At 10.8-10.9': PP: 1.5tsf At 10.9-11.0': PP: 1.0 tsf At 10.95-11.1': PP: 0.5 tsf SC-1 collected 10.5-10.8' At 11.1-12.4': R-Scale = R2 At 12.0': PP: 1.0 tsf At 12.5': PP: 0.5 tsf At 13.7': R-Scale = R3-R4
			10+	9.7' - Fracture, <5 deg, rough, undulating, tight fit			
			10+	11.3-11.5' - Fracture zone, 70 deg, rough, undulating, tight fit			
	R2NQ 5 ft 97%	71*	3	11.5' - Fracture, <5 deg, rough, undulating, tight fit			
			0				
			0				
15 250.9	15.0						R3: 08:40-08:55
			1	15.6' - Fracture, <5 deg, rough, undulating, some darker staining		**Sandstone** 15.6-16.4' - dark reddish brown, trace mottling, soft, fine sand, angular, fresh	At 15.9': R-Scale = R3-R4
			0			**Siltstone** At 16.4' - dark reddish brown, trace blue-green mottling, very soft, fresh, pink clay clasts, mottling band at bottom	
	R3NQ 5 ft 100%	100	1	17.8' - Fracture, <5 deg, rough, undulating			
			0				
			0				
20 245.9	20.0					20.0-23.6' - with fine sand	R4: 09:00-09:12 At 20.72': R-Scale = R3-R4
			0				
			0				
	R4NQ 5 ft 100%	100	0			At 22.5' - sandstone lens, fine to medium grained, 0.05' thick blue-green mottling at top and bottom, bedding at 25 degrees	
			0	23.5' - Contact between siltstone and sandstone		**Sandstone** At 23.6' - reddish gray, fine to medium grained, soft to hard, angular, fresh 24.2-24.7' - fine grained, soft, subangular 24.7-25.0' - angular to subangular At 25.0' - gray, fine to medium grained, soft to hard, subangular 25.5' - trace siltstone lens 26.7' - trace siltstone lens	At 23.8': R-Scale = R3-R4
			0				
25 240.9	25.0						R5: 09:14-09:25
			0				
			0				
	R5NQ						

PROJECT NUMBER:	BORING 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 bgs

START : 6/27/06 17:00

END : 6/28/06 14:45

LOGGER : JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R.Q.D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	5 ft 100%	100	0			27.3' - trace siltstone lens	At 27.6': R-Scale = R3-R4
			1	28.8' - Fracture, 60 deg, rough, undulating, tight fit			SC-2 collected 28.8-30.0'
			0				
30	30.0						
235.9			0			30.0-30.7' - fine to medium grained	R6: 09:30-09:40
			0			30.7-31.6' - medium to coarse grained	
	R6NQ 5 ft 100%	100	0			31.6-33.4' - fine to medium grained	
			0			33.4-34.2' - medium to coarse grained	
			0			At 34.2' - light reddish gray, fine grained, soft, with numerous 3/8" elliptical silt/clay clasts	At 34.3': R-Scale = R3-R4
35	35.0						
230.9			1	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 clay clasts	R7: 09:45-10:00
			0				At 36.5': R-Scale = R3-R4
	R7NQ 5 ft 97%	97	0				
			0				
			0				
40	40.0						
225.9			0				R8: 10:05-10:25
			0				
	R8NQ 5 ft 100%	100	0				At 42.0': R-Scale = R3-R4
			0				
			0				
45	45.0						
220.9			0				R9: 10:30-10:50
			0				At 46.3': R-Scale = R3-R4
	R9NQ						

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-10	SHEET 4 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 bgs

START : 6/27/06 17:00

END : 6/28/06 14:45

LOGGER : JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R.Q.D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	5 ft 103%	100	0				
			1				
			0			**Sandstone** 48.9-49.3' - light reddish gray, very fine to fine grained, fresh	
50 215.9	50.0		5	50.1' - Fracture, <5 deg, rough, undulating		**Siltstone** At 49.3' - dark reddish brown, heavy blue green with purple mottling, very soft, fresh	R10: 10:55-11:20
			0	50.2' - Fracture, <5 deg, rough, undulating 50.4' - Fracture, <5 deg, rough, undulating 50.5' - Fracture, <5 deg, rough, undulating 50.6' - Fracture, <5 deg, rough, undulating			
	R10NQ 5 ft 100%	89	1	52.2' - Fracture, <5 deg, rough, undulating		52.5-54.1' - 15% very fine to fine sand	
			0				At 52.9': R-Scale = R3-R4
			0			54.1-55.0' - 40% very fine to fine sand	
55 210.9	55.0		0			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			**Sandstone** At 57.4' - dark reddish gray, fine grained, soft to hard, thin to bedding, fresh	At 57.3': R-Scale = R4
			0				
60 205.9	60.0		0			59.2-60.0' - fine to medium grained, gradually more coarse at the bottom	
			0			At 60.0' - gray, medium to coarse grained, angular to subangular	R12: 12:30-13:00
			0				At 60.7': R-Scale = R4 SC-3 collected 60.0-61.2'
	R12NQ 5 ft 100%	100	0				
			0				
65 200.9	65.0		0				R13: 13:05-13:25
			0				At 65.6': R-Scale = R3-R4
	R13NQ					**Siltstone** At 66.4' - dusky red, blue-green mottling, very soft, fresh, fine grained	

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

START : 6/27/06 17:00

END : 6/28/06 14:45

LOGGER : JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R.Q.D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (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 mottling, clay clasts	
			0			68.7-68.9' - small (1/4) pink-white clay clasts	
			0			69.5-70.0' - dark rip up clasts	At 69.3': R-Scale = R3-R4
70	70.0						
195.9			0			70.0-70.5' - 2 small clay clasts to 0.3	R14: 13:30-13:45
			2	71.4' - Fracture, 15 deg, rough, undulating, some evidence of slickened edges at higher angle		70.5-71.6' - slickened edge where observed has large quantity (50%) of clay clasts (.4 to .8)	
	R14NQ 5 ft 100%	100	0	71.6' - Fracture, 45 deg, slickensided, undulating, some dark staining		72.0-75.0' - dark purple mottling	
			0				
			0				
75	75.0						At 74.7': R-Scale = R3-R4
190.9			0			75.0-84.4' - dark reddish brown, blue-green and dark purple mottling	R15: 13:55-14:05
			0				
	R15NQ 5 ft 94%	94	0				
			0				At 78.6': R-Scale = R3-R4
			0				
80	80.0						
185.9			0				R16: 14:10-14:29
			0				
	R16NQ 5 ft 104%	100	0				
			0				At 83.7': R-Scale = R3-R4
			0				R17: 14:32-14:38
85	85.0						First water level = 3.5' bgs taken 6/28/06 at 19:00; second water level = 4.5' bgs taken 6/29/06 at 17:32
180.9			0			84.4-85.0' - trace very fine to fine sand with white speckles	
	R17NQ 2 ft 100%	100	0			85.0-85.6' - dusky red, continued white speckles	
	87.0					85.6-86.4' - trace very fine to fine sand and fine sand sized clay clasts	R-Scale performed after drilling on stored samples
						86.4-87.0' - 25% of clay clasts up to 0.6	
						Bottom of Boring at 87.0 ft bgs on 6/28/06 14:45	

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

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

ORIENTATION : Vertical

WATER LEVELS : 4.6 ft bgs

START : 6/5/06 14:15

END : 6/8/06 09:17

LOGGER : LH/MJ

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
264.3	0.0				**Sand (SP-SM)**		
		19.2	SS1SS	4-4-6-8 (10)	0.0-0.4' - very pale brown, dry, loose, very fine to coarse grained, little silt		
	2.0				**Silt (ML)** 0.4-1.6' - red, dry, loose		
	2.5				**Clayey Gravel (GC)** 2.5-2.6' - dark reddish brown, moist to just, very dense		
		5.0	SS2SS	50/5 (50/5")	**Clay (CL)** 2.6-3.1' - dark reddish brown, moist, hard		
	4.5						
5							
259.3	5.0				**Clay (CL)** 5.0-5.3' - dark reddish brown, dry to moist, hard, laminated beds		
		4.0	SS3SS	50/4 (50/4")			
	7.0						Soil sampling completed at 15:05 on 6/5/06
							Soil was friable throughout
	7.5	2.0	SS4SS		**Clay (CL)**		
	7.7			50/2 (50/2")	7.5-7.7' - dark reddish brown, mottled light greenish gray, dry to moist, hard, laminated beds		
					7.7-8.1' - clay seam, very soft		
					Begin Rock Coring at 7.7 ft bgs		
					See the next sheet for the rock core log		
10							
254.3							
15							
249.3							
20							

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-11	SHEET 2 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 EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

ORIENTATION : Vertical

WATER LEVELS : 4.6 ft bgs

START : 6/5/06 14:15

END : 6/8/06 09:17

LOGGER : LH/MJ

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	7.7					**Siltstone**	Rock coring began at 15:37 on 6/5/06
	R1NQ 2 ft 105%	0	3	8.1' - Fracture, horizontal, smooth, undulating, microfractures with greenish gray in fracture		At 7.7' - dark reddish brown, mottled greenish gray, very soft, laminated bedding	R1: 15:37-15:49 on 06/05/06
			4	8.4' - Fracture, horizontal, smooth, undulating		7.7-17.0' - highly weathered	At 7.7-16.3': R-Scale = R0
	9.7			8.5' - Fracture, horizontal, smooth, planar		8.9-9.0' - fine sand to coarse sand, sandstone lense, some clay, very soft	
10 254.3			2	8.9-9.2' - Fracture, horizontal and 45 deg, rough and smooth, undulating		9.5' - trace medium sand	R2: 16:08-16:16
			2	9.6' - Fracture, horizontal, rough, undulating		9.7-11.1' - very soft to soft	
	R2NQ 4.4 ft 98%	0	10+	9.7-11.1' - Fracture, horizontal, smooth, undulating, microfractures throughout			Driller's remark: Rod dropped 0.4-0.5' at 13.5'
			10+	11.1-11.9' - greenish gray in fractures		12.4-13.6' - clay seam with very soft sandstone fragment, medium	
	14.1		1			14.0' - clay seam	
			10+	14.1-14.8' - Fracture, horizontal, smooth, undulating		14.6-14.7' - clay seam, medium	
15 249.3			10+			14.8-15.3' - clay seam, soft	R3: 16:20-16:29
	R3NQ 4.9 ft 88%	59*	10+	15.3-16.0' - Microfractures throughout with greenish gray infrastructure			
			1	16.0-17.9' - Fracture, horizontal, smooth, undulating		17.0-22.0' - moderately weathered	
			10+	16.3' - Fracture, horizontal, rough, undulating			At 17.3': R-Scale = R2-R3
			10+	16.7' - Fracture, horizontal, rough, undulating		17.9-18.4' - clay seam, hard	
	19.0						
	R4NQ 1.2 ft 100%	50*	4	19.0-20.2' - Fracture, horizontal, smooth, undulating		19.0-21.2' - dark reddish brown, soft	
20 244.3	20.2						R4: 09:20-09:21 on 06/06/06
			6				R5: 09:30-09:35
			10+	21.0' - Fracture, horizontal and 45 deg, smooth, undulating		21.2-21.9' - clay seam with sandstone banded seams, very thin bedding	At 20.6-22.0': R-Scale = R0-R1
	R5NQ 4.8 ft 100%	54*	10+	21.9-25.0' - Fracture zone, horizontal, smooth, undulating, laminated		21.9-28.1' - dusky red, soft	
			10+			22.0-28.5' - slightly weathered	
			10+				
25 239.3	25.0						
			7	25.0-28.1' - Fractures, horizontal, smooth, undulating			R6: 10:50-10:57
			3	25.1' - Fracture, horizontal, smooth, undulating			
	R6NQ 4.6 ft	76	2	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			

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-11 SHEET 3 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 EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

ORIENTATION : Vertical

WATER LEVELS : 4.6 ft bgs

START : 6/5/06 14:15

END : 6/8/06 09:17

LOGGER : LH/MJ

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	100%			26.4' - Fracture, horizontal, smooth, undulating			
				26.4' - Fracture, horizontal, smooth, undulating		28.1-28.5' - clay seams	
			10+	26.5' - Fracture, horizontal, smooth, undulating		**Sandstone**	
				26.8' - Fracture, horizontal, smooth, undulating		28.5-29.0' - weak red, soft, fine sand to coarse sand, slightly weathered, coarsens with depth	At 28.6': R-Scale = R3-R4
			1	27.1' - Fracture, horizontal, smooth, undulating			
	29.6			27.2' - Fracture, horizontal, smooth, undulating			
30				27.3' - Fracture, horizontal, smooth, undulating			R7: No time recorded
234.3			3	27.6' - Fracture, horizontal, smooth, undulating		**Conglomerate**	
				28.0' - Fracture, horizontal, smooth, undulating		29.0-30.8' - weak red, soft, coarse sand to fine gravel, slightly weathered	At 30.2-30.7': R-Scale = R0-R1
			3	28.1' - Fracture, horizontal, smooth, undulating			
				28.1' - Fracture, horizontal, smooth, undulating		**Siltstone**	
				28.5-29.6' - Fracture, rough, undulating		At 30.8' - dark reddish brown, greenish gray mottling, soft, laminated bedding	
	R7NQ 5 ft 96%	40	10+	29.0' - Fracture, 45 deg, rough, undulating			
				30.0' - Fracture, rough, undulating		30.8-34.6' - bioturbations filled in with darker gray silt/clay	At 32.1-33.4': R-Scale = R0-R1
				30.1' - Fracture, rough, undulating			
			3	30.4-31.0' - Fragmented, little pieces, contact point		30.8-34.9' - slightly weathered	
				33.0-33.4' - Fracture zone		32.2-32.5' - clay intrusion	
			3				
	34.6						
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	35.9' - Fracture, horizontal, smooth, undulating			
							At 36.5': R-Scale = R3
	R8NQ 5 ft 100%	92	1	37.2' - Fracture, horizontal, smooth, undulating			SC-1 collected 37.5-38.5'
				37.4' - Fracture, horizontal, smooth, undulating			
			0				
			1				
	39.6						At 39.2': R-Scale = R3-R4
40							R9: No time recorded
224.3			1				
			2	40.5-40.8' - Fracture zone, smooth, undulating			
				40.8' - Fracture, vertical			
				41.1' - Fracture, horizontal, rough, undulating			
	R9NQ 5 ft 100%	82	1				
			0			43.0-44.0' - very soft, very thin bedding, banded layers of clay, <0.2' thick	
			2	43.3' - Fracture, horizontal, smooth, undulating, clay seam			
				43.8' - Fracture, horizontal, smooth, undulating			At 44.1': R-Scale = R3
	44.6			44.4' - Fracture, horizontal, smooth, undulating			
45				44.8' - Fracture, horizontal, rough, planar			R10: 13:45-13:56
219.3			2	45.2' - Fracture, horizontal, rough, planar			
			3	46.0' - Fracture, horizontal, rough, planar			Driller's Remark: Had to stop/slow down, several times to let the coring water clean out the bit
				46.1' - Fracture, horizontal, rough, planar			
	R10NQ 5 ft 93%	70	10+	46.6-47.3' - Fracture zone, horizontal, clay seams present (<0.04' thick)		46.6-47.3' - highly weathered	
						47.3-48.6' - fresh	

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-11	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 EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

ORIENTATION : Vertical

WATER LEVELS : 4.6 ft bgs

START : 6/5/06 14:15

END : 6/8/06 09:17

LOGGER : LH/MJ

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			6	47.7' - Fracture, horizontal, rough, planar 47.8' - Fracture, horizontal, rough, planar 48.2' - Fracture, horizontal, rough, planar			At 46.7-47.3': R-Scale = R0-R1
			1	48.2' - Fracture, horizontal, rough, planar, clay seam (0.03' thick) tightly healed		**Sandstone** 48.6-53.2' - dark reddish brown, greenish gray mottling, very soft to soft, thick bedding, very fine sand to fine sand, trace medium grained sand 48.6-49.6' - olive mottling, fresh, black clasts, 0.01' thick	
	49.6						
50 214.3			0	48.5-48.6' - Fracture, horizontal, rough, planar, clay seam spans entire interval			R11: 14:02-14:14
	R11NQ 4.7 ft 100%	98	0				At 51.0': R-Scale = R3-R4
			0				
			2	52.8' - Fracture, horizontal, smooth, planar 53.0' - Fracture, horizontal, smooth, planar			
	54.3		1	53.3' - Fracture, horizontal, rough, planar		**Siltstone** 53.2-53.8' - dark reddish brown, greenish gray mottling, soft, fresh	
55 209.3			0			**Sandstone** At 53.8' - dark greenish gray and white, soft, very thin to thick bedding, fine sand to coarse sand, banded darker and lighter 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, banded darker and lighter, becoming finer with depth 57.6-59.4' - pale red, dark greenish gray, and white, very soft to soft, trace fine to medium grained gravel, little clay and silt material in matrix, not very soft 59.4-66.1' - very dark gray, white and pink, very fine sand to coarse sand, angular to rounded, poorly sorted, little silt and clay, becomes coarser with depth 59.4-66.1' - slightly weathered to moderately weathered	R12: 14:20-14:32 At 55.0': R-Scale = R3-R4 SC-2 collected 56.7-57.7'
			0				
	R12NQ 5.2 ft 100%	100*	0				
			0				
			0				
	59.4						
60 204.3			0				R13: 15:32-15:38
			0				At 60.3': R-Scale = R2
	R13NQ 5.2 ft 100%	100*	0				
			0				
			0				
	64.6						
65 199.3			0				R14: 15:48-15:58 At 65.0': R-Scale = R3-R4
			3	66.1-66.5' - Fracture, horizontal, rough, undulating, clay seams alternate with siltstone		**Siltstone** At 66.1' - dark reddish brown, greenish gray mottling, very soft, laminated bedding 66.1-66.45' - clay seam, very soft	
	R14NQ 5 ft 100%	44*	4	66.4' - Fracture, horizontal, smooth, undulating 66.8' - Fracture, horizontal, rough, planar			

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-11	SHEET 5 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 EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

ORIENTATION : Vertical

WATER LEVELS : 4.6 ft bgs

START : 6/5/06 14:15

END : 6/8/06 09:17

LOGGER : LH/MJ

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (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		66.1-69.6' - slightly weathered to moderately weathered 67.4-68.3' - clay seam, very soft	At 67.4-68.0': R-Scale = R0 - R1
	69.6		10+	67.6' - Fracture, horizontal, rough, undulating 67.7-67.8' - Fracture, horizontal, rough, undulating			
70 194.3			0	68.0' - Fracture, horizontal, rough, undulating 68.4-68.5' - Fracture, horizontal and 45 deg, rough, undulating		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 4.5 ft 100%	100	0	68.6' - Fracture, horizontal, rough, undulating 69.1' - Fracture, horizontal, smooth, planar, greenish gray infilling (mottling in bedrock)			At 71.0': R-Scale = R3-R4
			0	69.2' - Fracture, horizontal, rough, undulating, greenish gray mottling in fracture 69.6-74.1' - Trace microfractures throughout greenish gray infilling tightly healed		71.6-71.9' - 0.02' thick greenish gray mottle, very soft	
			0			72.9-73.1' - thick greenish gray mottle, very soft 73.6-73.7' - 0.02' thick greenish gray mottle, very soft	
	74.1		0			74.1-77.5' - 2 mottles per foot, <0.07' thick	R16: 09:05-09:21
75 189.3			0				
			0				
	R16NQ 5.3 ft 100%	100	0				At 76.5': R-Scale = R3-R4
			0				
			0				
	79.4					**Sandstone** 79.4-81.8' - dark reddish brown, trace greenish gray mottling, soft to hard, laminated to thin bedding, very fine sand, fresh 79.6' - 0.05' thick greenish gray mottle 81.1' - trace <0.02' thick white inclusions	R17: 09:26-09:36
80 184.3			0				
			0				
	R17NQ 5.1 ft 100%	94*	0				
			2			**Conglomerate** 81.8-83.1' - dark reddish brown, white, and light reddish brown, soft to hard, thin bedding, fresh, trace greenish gray clasts	At 82.4': R-Scale = R3-R4
			10+	83.1' - Contact between siltstone and sandstone, horizontal, rough, undulating, Contact between conglomerate and siltstone 83.7' - Fracture, horizontal, rough, undulating		**Siltstone** At 83.1' - dark reddish brown, trace greenish gray mottling, very soft, laminated bedding	At 84.1-84.5': R-Scale = R0
	84.5						R18: 09:44-09:56
85 179.3			2	84.1-84.5' - Fracture zone, horizontal, rough, undulating, at clay seam (0.01' thick), very soft, alternating with siltstone		83.1-84.5' - moderately weathered 83.6-84.1' - <0.05' white clasts, 4-5 per inch	
			0	84.6' - Fracture, horizontal, smooth, undulating 84.6' - Fracture, horizontal, smooth, undulating			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	BORING NUMBER: BPA-11 SHEET 6 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 EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

ORIENTATION : Vertical

WATER LEVELS : 4.6 ft bgs

START : 6/5/06 14:15

END : 6/8/06 09:17

LOGGER : LH/MJ

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				
	89.1		0				
90 174.3			0			89.1-94.2' - grades to very fine to fine sandstone	R19: 10:25-10:35
			0				At 90.1': R-Scale = R3-R4
	R19NQ 5.2 ft 100%	100	0				
			0				At 92.0': R-Scale = R3-R4
	94.2		0				
95 169.3			0			**Sandstone** 94.2-97.5' - dark reddish brown, trace greenish gray mottling, soft to hard, thick bedding, fine sand to medium sand, fresh, coarsens with depth, laminated beds are siltstone and just at the bottom of the unit	R20: 10:40-10:48
			0				SC-3 collected 95.6-96.6'
	R20NQ 5.2 ft 100%	100	0				At 96.3': R-Scale = R3
			0				
	99.4		1	98.6' - Fracture, horizontal, smooth, undulating, top of clay seam		**Siltstone** At 97.5' - dark reddish brown, greenish gray mottling, very soft to soft, laminated to very thin bedding, with sandstone lenses; black clasts throughout (0.02'), 40% sand 97.5-98.6' - fresh 97.5-99.4' - trace black clasts and black laminated beds 98.6-105.4' - slightly weathered	
100 164.3			10+	99.9-100.8' - Fracture zone, horizontal and 40-45 deg, rough, undulating, with clay seams, (0.02-0.2' thick)			R21: 10:55-11:05
			4				
	R21NQ 5.1 ft 100%	83	0	101.5' - Fracture, horizontal, smooth, planar			At 101.2': R-Scale = R3-R4
			0				
	104.5		0				At 103.6': R-Scale = R3-R4
105 159.3			10+	104.5-105.4' - Fracture zone, smooth, planar, clay seams are <0.05' thick		104.5-109.4' - no black clasts	R22: 11:13-11:25
			1	105.7' - Fracture, horizontal, smooth, undulating		105.4-111.8' - fresh 105.5' - greenish gray laminated bed, 0.02' thick, not completely horizontal, convoluted	At 106.0': R-Scale = R3
	R22NQ 4.9 ft 100%	76	0				

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-11	SHEET 7 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 EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

ORIENTATION : Vertical

WATER LEVELS : 4.6 ft bgs

START : 6/5/06 14:15

END : 6/8/06 09:17

LOGGER : LH/MJ

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			107.5-107.8' - 0.06' thick greenish gray mottle	
			0				
	109.4						
110 154.3			1			109.4-111.8' - grading to very fine to fine sandstone; trace <0.05 thick black clasts	R23: 11:28-11:36 At 109.8': R-Scale = R3-R4 SC-4 collected 110.9-111.8'
			3	110.3' - Fracture, horizontal, rough, undulating 110.7' - Fracture, horizontal, rough, undulating 110.9' - Fracture, horizontal, rough, undulating			
	R23NQ 5.2 ft 100%	78*	10+	110.9' - Fracture, horizontal, rough, undulating 111.8' - Fracture, horizontal, rough, undulating 111.9' - Fracture, horizontal, rough, undulating		111.4-111.5' - clay seam, 0.05' thick, very soft **Sandstone** 111.8-114.6' - dark reddish brown and olive gray, very soft, laminated bedding, moderately weathered, alternating sandstone and siltstone 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	At 111.8-112.2': R-Scale = R1
			3	112.4' - Fracture, horizontal, rough, planar 112.5' - Fracture, horizontal and vertical, rough, stepped			
			7	113.5' - Fracture, horizontal, rough, planar 113.6-114.6' - Fracture zone, rough, planar, with clay seams (<0.1' thick)			
	114.6						
115 149.3			10+				R24: 11:50-12:13
			10+	115.2-116.2' - Fracture zone, horizontal and vertical, rough, planar / undulating, clay seams (0.05' thick)		**Clay** 114.6-115.2' - gray, very soft, laminated bedding, moderately weathered, clay seam	
	R24NQ 5 ft 84%	62*	2	116.8' - Fracture, 30 deg, rough, undulating		**Siltstone** 115.2-118.0' - olive gray, greenish gray, and white, soft, moderately weathered, laminated beds	
			3	117.4' - Fracture (2), horizontal, rough, 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	SC-5 collected 118.2-119.2'
			0				
	119.6						
120 144.3			10+	119.6-120.0' - Fracture zone, horizontal, rough, undulating, clay seams (<0.02' thick)		**Sandstone** 118.0-119.2' - dark reddish brown, very soft, medium bedding, grades to fine material at bottom 118.0-118.2' - moderately weathered 118.2-119.2' - slightly weathered	R25: 13:25-13:39
			0				
	R25NQ 4.7 ft 98%	74	0	121.2' - Fracture, horizontal, smooth, undulating 121.3' - Fracture, horizontal, smooth, undulating		**Siltstone** 119.2-121.9' - dark reddish brown and olive gray, greenish gray mottling, soft to hard, slightly weathered, gradational contact	At 122.3': R-Scale = R3-R4
			0			**Sandstone** 121.9-122.5' - gray and white, hard, thin bedding, very fine sand to fine sand, slightly weathered	
			10+	123.5' - Fracture, horizontal, rough, planar 123.9-124.3' - Fracture zone, horizontal, rough, undulating, with clay seams			
	124.3						
125 139.3			0			**Siltstone** 122.5-127.7' - dark reddish brown, greenish gray mottling, soft to hard, gradational contact 122.5-124.3' - slightly weathered 124.3-127.7' - fresh	R26: 13:48-14:00 At 124.6': R-Scale = R3-R4
			0				
	R26NQ 5.1 ft 100%	100	0				At 126.0': R-Scale = R3-R4

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-11	SHEET 8 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 EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

ORIENTATION : Vertical

WATER LEVELS : 4.6 ft bgs

START : 6/5/06 14:15

END : 6/8/06 09:17

LOGGER : LH/MJ

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, 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 fine sand, fresh	
			0				
129.4							
130 134.3			10+	129.5-129.6' - Fracture zone, horizontal and vertical, smooth, undulating, and 45 deg		129.4-133.0' - light gray and greenish gray, soft to hard, laminated bedding	R27: 14:12-14:29 At 130.0': R-Scale = R3-R4
			0				
	R27NQ 5.2 ft 99%	89	3				
			3	132.8-133.0' - Fracture zone, horizontal and vertical, smooth, planar, clay seams (<0.01' thick) laminated beds		133.0-133.9' - reddish brown, becomes coarser with depth	At 132.8-133.1': R-Scale = R0-R1
			0			133.9-136.1' - black and white, hard, very fine sand to coarse sand, angular to subrounded, trace fine gravel	
134.6							
135 129.3			0			134.6-135.3' - becomes coarser with depth	R28: 14:34-14:44 At 135.2': R-Scale = R3-R4
			0			135.3-136.1' - banded coarser and finer areas, lighter and darker areas (not related); discolored reddish brown	
			0	136.1-137.7' - Contacts with sandstone and conglomerate and siltstone and conglomerate, sharp		**Conglomerate** 136.1-137.7' - black, white, very dark grayish green, and light reddish brown, soft, medium bedding, fresh, note that black color seems to be associated with mottles or stains surrounding grains	
	R28NQ 5.1 ft 100%	100	0				
			0				
			0			**Siltstone** 137.7-139.0' - dark reddish brown, mottled black, very soft to hard, fresh, trace to some medium sand, grades to sandstone	At 139.0': R-Scale = R3-R4
139.7							
140 124.3			0	139.7-144.7' - Microfractures throughout core, tightly healed			R29: 14:52-15:01
			2			**Sandstone** At 139.0' - dark reddish brown, black, greenish gray, and white, soft, fine sand to coarse sand, angular to subrounded, poorly sorted	
	R29NQ 5 ft 100%	78*	2			139.0-144.0' - fresh 141.3-144.7' - soft to hard, laminated to thin bedding, very fine sand to fine sand, angular to subrounded, poorly sorted to well sorted	At 141.9': R-Scale = R3-R4
			0	142.4' - Fracture, horizontal, smooth, undulating 142.6' - Fracture, horizontal, smooth, undulating		142.7-143.4' - coarser grained 144.0-144.7' - moderately weathered	
			10+	142.7' - Fracture, horizontal, smooth, undulating 144.0-144.7' - Fracture zone, horizontal, rough, planar, clay seams (hard, <0.03' thick)			
144.7							
145 119.3			10+	144.7-145.4' - Fracture zone, horizontal, rough, undulating, with clay seams, are 0.1' thick (3)		**Siltstone** At 144.7' - dark reddish brown, mottled reddish black and greenish gray, very soft to soft, laminated to medium bedding	R30: 15:32-15:44 At 144.7-145.4': R-Scale = R0-R1
			10+	145.8-146.6' - Fracture zone, horizontal and vertical, slickensided / rough, undulating		144.7-145.4' - clayey material alternates with siltstone, laminated bedding	
	R30NQ 5 ft 98%	54*	0			144.7-147.2' - moderately weathered	

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-11	SHEET 9 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 EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

ORIENTATION : Vertical

WATER LEVELS : 4.6 ft bgs

START : 6/5/06 14:15

END : 6/8/06 09:17

LOGGER : LH/MJ

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			146.6-147.2' - clayey material alternates with siltstone, laminated bedding 147.2-149.7' - fresh	At 148.0': R-Scale = R3-R4
			10+	149.1-149.7' - Fracture zone, 45 deg, rough, undulating			
	149.7						
150 114.3			0			**Sandstone** 149.7-151.5' - dark reddish brown, soft to hard, medium bedding, very fine sand to fine sand, subangular to rounded, well sorted, fresh, trace medium grained	R31: 08:28-08:41 on 6/8/06 At 150.5': R-Scale = R3-R4 At 150.5': R-Scale = R3-R4 SC-6 collected 151.7-152.75'
			0				
	R31NQ 4.7 ft 97%	96	0			**Siltstone** 151.5-159.2' - dark reddish brown, trace greenish gray mottling, very soft, fresh 152.3-153.7' - white, <0.25' thick mottling	
			10+	153.5-153.8' - Fracture zone, horizontal, rough, undulating, no crumbling			
	154.4		0			154.4-159.2' - 40% very fine sand	R32: 09:07-09:17
155 109.3			0				At 155.3': R-Scale = R3-R4
			0				At 157.6': R-Scale = R3-R4
	R32NQ 4.8 ft 101%	100	1	156.8' - Fracture, 45 deg, rough, undulating			First water level = 4.6' bgs taken 6/8/06 at 10:18; second water level = 5.7' bgs taken 6/9/06 at 16:30
			0				
	159.2		0				R-scale performed after drilling on stored samples
160 104.3						Bottom of Boring at 159.2 ft bgs on 6/8/06 09:17	
165 99.3							

CH2MHILL

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 LEVELS : ---

START : 4/12/06 14:45

END : 4/14/06 13:10

LOGGER : DT

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
263.9	0.0						
		24.0	SS1SS	5-14-42-39 (56)	**Lean Clay (CL)** 0.0-2.0' - red, mottled gray and white, moist, hard, medium plasticity, slow dilatancy, some silt		
	2.0						
	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		
	4.5						
5							
258.9	5.0						
		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' Offset: 5.5' N57W of BPA-12 Lab Results USCS: Sandy CL
	6.5						
	7.5						
		8.0	SS4SS	36-50/2 (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		Driller Remark: Switched over to recirculation water after using ~750 gallons
	9.5						
10							
253.9	10.0						
		19.0	SS5SS	15-32-28-50/3 (60)	**Lean Clay (CL)** 10.0-11.6' - red, some mottling, moist, low to medium plasticity, slow dilatancy, trace fine sands		
	12.0						Soil sampling completed at 17:00 on 4/12/06
	12.5	1.0	SS6SS				
	12.6			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		
15							
248.9							
20							

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

WATER LEVELS : ---

START : 4/12/06 14:45

END : 4/14/06 13:10

LOGGER : DT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (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 gray and light gray mottling more frequent in upper half foot,hard, fine grained 12.7-15.8' - fresh	Rock coring began at 08:10 on 4/13/06 R1: 08:18-08:49
			0				
15 248.9			0				
			10+	15.8-17.0' - Fracture zone, 20 deg, rough, undulating		15.8-17.0' - moderately weathered	
	R1/R2NQ 9.3 ft | 81* 89%		10+			17.0-18.2' - fresh	
			0				R2: 08:57-09:21
			0			**Sandstone** 18.2-22.0' - grayish red, very fine sand to coarse sand, subrounded, poorly sorted, fresh, <50% silt, fining upward sequence	
20 243.9			0				
			1	21.0' - Fracture, 20 deg, undulating			
	22.0		0				
			0			**Conglomerate** 21.0-23.5' - grayish red, very fine sand to coarse gravel, subrounded, poorly sorted, fresh, <50% silt	R3: 09:45-10:05
			10+	23.4-24.0' - Fracture zone, undulating		**Sandstone** At 23.5' - grayish red, fine sand to medium sand, poorly sorted, fresh, <50% silt, some rounded grains, thin to medium bedding 24.0-25.6' - lighter gray	
			0				
25 238.9			0				
			0			26.0-30.4' - becomes coarser with depth, conglomerate for about a half a foot, grades to fine grained silty sandstone 26.7-30.4' - up to 40% light gray infilling in matrix	
	R3/R4NQ 10 ft | 92 100%		0				R4: 10:10-10:33
			0				
			0				
30 233.9			0				
			10+	30.5-31.0' - Fracture zone, 30 deg, rough, undulating		**Siltstone** At 30.4' - grayish red, light gray mottling, hard, medium bedding, fresh, coarsens with depth to 33.5'	
	32.0		0				
			1				R5: 10:52-11:32

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

WATER LEVELS : ---

START : 4/12/06 14:45

END : 4/14/06 13:10

LOGGER : DT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
				32.5-33.0' - Fractures, 20 deg, rough, undulating			
			0			33.5' - sandstone lens, very fine to fine grained	
35 228.9			0				
			0				
			1			**Sandstone** 36.5-36.7' - light gray, very thin bedding, coarse sand, well sorted, fresh	
	R5/R6NQ 10 ft 99%	99		36.5-37.0' - Fracture, 45 deg			R6: 11:34-12:04
			0			**Siltstone** 36.7-37.7' - grayish red, light gray mottling, hard, thin bedding, fresh	
			0			**Sandstone** 37.7-37.8' - light gray, very thin bedding, coarse sand, well sorted, fresh, grayish red siltstone clasts caught up in sandstone filling	
			0				
40 223.9			0			**Siltstone** 37.8-38.0' - grayish red, light gray mottling, hard, thin bedding, fresh	
			0				
42.0						**Sandstone** At 38.0' - light gray, thin to medium bedding, very fine sand to coarse sand, well sorted, fresh, coarsening downward 39.0' - medium sand to coarse sand, 0.25 grayish red siltstone clasts 39.3' - becomes lighter with depth 39.7' - grades to finer grained grayish red silty sandstone	R7: 13:10-13:30
			0				
			0				
			0				
45 218.9			2	45.1' - Contact between siltstone and sandstone, sharp contact 45.2-45.7' - Fracture (2), 20 deg		42.0-45.0' - fine sand to medium sand, subrounded, well sorted, few very thin layers of grayish red siltstone, up to 1 thick, coarsens with depth	
			0			**Siltstone** 45.1-45.2' - grayish red, very thin bedding, fresh, irregularly bedded	
	R7/R8NQ 10 ft 99%	73*					R8: 13:33-14:10
			0			**Sandstone** 45.2-47.0' - light gray, very thin to medium bedding, medium sand to coarse gravel, subrounded to subangular, fresh, gravel is only 10% of volume 46.0' - grayish red, very thin bedding, irregularly bedded 46.5' - grayish red siltstone clasts in sandstone	
			1	48.0-48.7' - Fractures, 15 deg, undulating, silt infilling			
			0				
50 213.9			10+	50.3-50.8' - Fracture zone, undulating, numerous joints/fractures		**Conglomerate** 47.0-48.3' - light gray, medium sand to coarse gravel 47.0-48.0' - fresh 48.0-48.3' - moderately weathered	
			3	51.5-52.0' - Fractures, 15 deg, planar to undulating			
52.0							R9: 14:24-14:50
			2				

PROJECT NUMBER:	BORING NUMBER:	
338884	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

WATER LEVELS : ---

START : 4/12/06 14:45

END : 4/14/06 13:10

LOGGER : DT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
				52.5-53.0' - Fractures, 10 deg, undulating		**Siltstone**	
			0			At 48.3' - grayish red, greenish gray mottling, medium bedding, siltstone and claystone or mudstone conglomerate, looks like breccia, clasts are angular and sharp, broken, crumbly	
			0				
55 208.9			0			48.3-50.8' - moderately weathered	
			0			50.2-77.0' - darker grayish red filling of bioturbation tunnels	
	R9/R10NQ 10 ft 99%	92	0			50.8-77.0' - fresh	
			2	58.2-58.7' - Fractures, 15 deg, undulating		52.0-54.2' - numerous greenish gray filling on fracture fragments	
			0			54.2' - uniform grayish red without greenish gray fillings	R10: 14:53-15:35
60 203.9			0			54.5' - shiny glasslike surface on broken clast, not slickenside, more of a dense clast or pebble that broke	
			0			58.4' - laminated bedding preserved, some light gray laminae mixed with grayish red siltstone layers	Driller Remark: Decrease in coring rate from 59.0' to 62.0'
62.0			0			59.0' - disturbed laminae	
			2	62.5' - Fracture, 10 deg, planar		59.3' - coarser, approaches very fine grained silty sandstone	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				
	R11/R12NQ 10 ft 100%	99	0			65.9-67.0' - some greenish gray mottling, hard, gravel sized light gray clasts	
			0				R12: 08:41-09:30
			0				
			0				
70 193.9			2	70.4-70.8' - Fractures, 20 deg, undulating			
			0				
72.0			0				R13: 10:38-11:10

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

WATER LEVELS : ---

START : 4/12/06 14:45

END : 4/14/06 13:10

LOGGER : DT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, 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	
			0				
75 188.9			0				
			0				
	R13/R14NQ 10 ft 97%	96	2	77.2-78.1' - Fractures, 70 deg, undulating		**Sandstone** 77.0-78.7' - reddish brown, light gray, occasional grayish red clasts or greenish gray mottling, medium bedding, fine sand to medium sand, fresh, gradational contact with underlying siltstone	R14: 11:13-11:42
			0			**Siltstone** At 78.7' - grayish red, fresh, sandstone stringers every foot or so, with coarsening with depth, bottom coarse grained sand is 50% volume of rock	
80 183.9			0				
			2	81.2-81.3' - Fractures, 20 deg, undulating			
82.0						81.6-82.0' - dark greenish gray mottling, light gray clasts to 1/2	R15: 11:55-13:10
			2	82.4-83.0' - Fractures, 15 deg and 30 deg, undulating			
			2				
	R15NQ 5 ft 100%	92	0	84.3-84.7' - Fractures, 20 deg, undulating		83.5-85.3' - mottled greenish gray, occasional light gray clasts, some mottling is almost purplish, in lower half foot	
85 178.9			0				Drillers Remark: Recirculation mud was thick
			0			85.5-87.0' - fewer and smaller clasts/mottles	R-Scale not performed on rock core samples
87.0							
						Bottom of Boring at 87.0 ft bgs on 4/14/06 13:10	
90 173.9							

PROJECT NUMBER:	BORING 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
WATER LEVELS : 10.0 ft bgs
START : 6/8/06 15:17
END : 6/15/06 09:50
LOGGER : LH

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
263.7	0.0				**Topsoil** 0.0-0.1'		
		16.8	SS1SS	3-5-8-19 (13)	**Clay (CL)** 0.1-1.4' - yellowish red, mottled light greenish gray, dry, stiff, stratified, trace organics and roots		
	2.0						
	2.5				**Clay (CL)** 2.5-3.7' - yellowish red, mottled very dark gray, moist, hard, trace fine to coarse sand, trace roots		
		20.4	SS2SS	14-23-17-29 (40)			
	4.5				**Clay (CL)** 3.7-4.2' - very dark gray, moist, hard		
5							
258.7	5.0				**Clay (CL)** 5.0-5.4' - yellowish red and very dark gray, mottled light greenish gray, dry to moist, hard, laminated		
		4.0	SS3SS	50/4 (50/4")			
	7.0						
	7.5				**Clay (CL)** 7.5-7.7' - yellowish red, mottled light greenish gray, moist to co, hard, laminated		
		4.0	SS4SS	50/4 (50/4")			
	9.5						Soils are friable throughout
10							
253.7	10.0	3.0	SS5SS		**Clay (CL)** 10.0-10.3' - yellowish red, mottled light greenish gray, moist, hard, laminated		Soil sampling completed at 16:22 on 6/8/06
	10.3			50/3 (50/3")			
	10.8				Begin Rock Coring at 10.8 ft bgs See the next sheet for the rock core log		
15							
248.7							
20							

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-13	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 EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

ORIENTATION : Vertical

WATER LEVELS : 10.0 ft bgs

START : 6/8/06 15:17

END : 6/15/06 09:50

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	10.8					**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
	14.1						
15 248.7			10+	14.2-14.3' - Clay seam, horizontal and vertical, rough, undulating, 0.01' thick, alternating with siltstone		**Siltstone** At 14.1' - dark reddish brown, mottled 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 15.3-15.4' - clay seam, very soft, friable material 17.1-17.2' - clay seam, very soft, friable material 18.25-19.1' - <0.05' thick white clasts 19.1-23.3' - fresh 19.1-23.3' - very soft to soft 19.1-20.3' - white clasts	R2: 08:54-09:04 At 14.1-19.1': R-scale = R0 (with some R1 and R2) At 15.6-16.0': R-scale = R2 At 18.4-18.8': R-scale = R1 R3: 09:18-09:30 At 19.8': R-Scale = R3-R4 At 21.1': R-Scale = R3-R4 At 23.0': R-Scale = R3 At 23.3-23.5': R-Scale = R0 R4: 09:38-09:47 At 25.3': R-Scale = R3-R4 At 28.5': R-Scale = R3 R5: 09:53-10:07 At 30.5': R-Scale = R3-R4
			10+	14.70' - Fracture, horizontal, rough, planar 15.0' - Fracture, horizontal, rough, planar 15.1' - Fracture, horizontal, rough, planar			
	R2NQ 5 ft 100%	0	10+	15.6-16.1' - Fracture zone, horizontal and 45 deg, rough, undulating 16.3' - Fracture, horizontal, rough, undulating			
			10+	16.7' - Fracture, horizontal, rough, undulating 17.5-17.9' - Fracture zone, horizontal, rough, undulating			
			10+	18.2' - Fracture, horizontal, rough, undulating 18.7-18.9' - Fracture zone, horizontal, rough, undulating			
	19.1						
20 243.7			3	19.2' - Fracture, horizontal, rough, undulating 19.5' - Fracture, horizontal, rough, undulating			
			4	19.9' - Fracture, horizontal, rough, undulating 20.0' - Fracture, horizontal, rough, undulating 20.3' - Fracture, horizontal, rough, undulating			
	R3NQ 5 ft 100%	72	3	20.4' - Fracture, horizontal, rough, undulating 20.5' - Fracture, horizontal, rough, undulating 20.6' - Fracture, horizontal, rough, undulating			
			3	21.5-21.8' - Fracture zone, horizontal and vertical, rough, undulating 22.1-22.2' - Fracture zone, rough, undulating, clay seams (0.05' thick)			
			10+	22.6' - Fracture, horizontal, rough, undulating 23.6' - Contact between siltstone and sandstone, horizontal, rough, undulating		**Sandstone** 23.3-26.5' - weak red, soft to hard, thin to medium bedding, very fine sand to fine sand, subangular to rounded, well sorted, fresh 23.3-23.5' - clay seam, very soft, friable 24.1-26.5' - white, reddish gray, greenish gray, and dark gray, greenish gray mottling	
	24.1						
25 238.7			0				
			0				
	R4NQ 5 ft 98%	98	0				
			0			**Conglomerate** 26.5-26.6' - soft to hard, fresh **Sandstone** 26.6-28.0' - white, reddish gray, greenish gray, and dark gray, greenish gray mottling, thin to bedding, subangular to subrounded, fresh 27.1' - becomes coarser with depth 27.7-28.0' - dark reddish brown siltstone clasts	
			0	28.0' - Contact between siltstone and sandstone, horizontal, tightly healed, very evident			
	29.1						
30 233.7			0				
			0				

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-13 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 EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

ORIENTATION : Vertical

WATER LEVELS : 10.0 ft bgs

START : 6/8/06 15:17

END : 6/15/06 09:50

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	R5NQ 5 ft 103%	100	0			**Siltstone** At 28.0' - dark reddish brown, mottled greenish gray and reddish black, fresh, very soft 29.1-39.1' - white mottling	
			0				
			0				At 32.9': R-Scale = R4
34.1							
			0				R6: 10:10-10:21
35 228.7			0				SC-1 collected 34.8-35.9'
	R6NQ 5 ft 103%	100	0				
			0				At 37.4': R-Scale = R3-R4
			0				
39.1							
			2			39.1-43.5' - very soft to soft, trace fine sand	R7: 10:25-10:41
40 223.7				39.8' - Fracture, horizontal, rough, planar 40.1' - Fracture, horizontal, rough, planar			
			0				
	R7NQ 5 ft 98%	92	0				
			0				At 42.3': R-Scale = R3-R4
			0				
44.1							
			0			**Sandstone** 43.5-44.1' - pale red and reddish brown, soft to hard, very fine sand to medium sand, subangular, poorly sorted, fresh, coarsest in middle, finest on top and bottom of length	R8: 13:28-13:32
45 218.7			0				
			0			**Siltstone** At 44.1' - dark reddish brown, mottled greenish gray and reddish black, very soft to soft, laminated to thin bedding, fresh 44.5-45.7' - 30-40% very fine sand with traces of medium and coarse sand in sandy lenses 45.3-46.1' - 30-40% very fine sand with traces of medium and coarse sand in sandy lenses 46.4' - 30-40% very fine sand with traces of medium and coarse sand in sandy lenses	
	R8NQ 5 ft 100%	100	0				At 46.6': R-Scale = R3
			0	47.7' - Contact between siltstone and sandstone, sharp			
			0				
49.1							At 48.6': R-Scale = R3
			1	49.2' - Fracture, horizontal, rough, undulating			R9: 13:46-13:55
50 213.7			0				

PROJECT NUMBER:	BORING 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

WATER LEVELS : 10.0 ft bgs

START : 6/8/06 15:17

END : 6/15/06 09:50

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (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	At 51.4': R-Scale = R3-R4
			0			**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 rounded, poorly sorted, fresh	
			1				At 53.5': R-Scale = R3-R4
54.1				53.8' - Fracture, horizontal and 45 deg, slickensided, undulating		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'	R10: 14:00-14:16
55 208.7			0	54.1-59.1' - Microfractures throughout core sample, greenish gray infilling			
			0			**Siltstone** 51.8-53.2' - dark reddish brown, mottled greenish gray, very soft, thin bedding, fresh, white clasts (<0.05' thick) throughout	
	R10NQ 5 ft 98%	98	0			51.8-52.8' - mottled olive	At 56.3': R-Scale = R4
			0			51.9-52.0' - clay seam, stiff, friable material	
			0			**Sandstone** 53.2-53.4' - greenish gray and white, soft, very thin to thin bedding, fine sand to medium sand, fresh	
59.1							
			0			**Siltstone** At 53.4' - dark reddish brown, mottled greenish gray, very soft, thin to medium bedding, fresh	R11: 08:22-08:36 on 06/13/06
60 203.7			0			54.1-59.1' - mottled greenish gray, black, and reddish black, very soft to soft	At 60.5': R-Scale = R3-R4
	R11NQ 5 ft 100%	100	0			61.5' - 0.02' thick, 0.07' long greenish gray mottle with a vug in the middle, 0.001' thick, 0.02' long	
			0				At 62.6': R-Scale = R3-R4
			1	63.3-63.6' - Fracture, vertical and 60 deg, tightly healed			
64.1						63.9-61.5' - greenish gray mottle, very soft, 0.1' thick, small pin point vugs in the middle	R12: 09:12-09:26
			0				
65 198.7			1			64.6-65.0' - grades to 40% very fine sand	
	R12NQ 5 ft 98%	98	0	65.8-66.0' - Fracture, vertical and 70 deg, tightly healed, very soft		66.5-68.6' - grades to 40% very fine sand	
			0				
			0			67.7-69.1' - trace 0.02' thick white inclusions	At 67.6': R-Scale = R3-R4
69.1							
			10+	69.1-69.7' - Fracture zone, horizontal, rough, undulating		69.1-71.7' - <0.03' thick white inclusions	R13: 09:29-09:47
70 193.7				69.2-74.1' - Trace microfractures with greenish gray infilling throughout core		70.0-75.6' - mottled reddish black	
			0				

PROJECT NUMBER:	BORING 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

WATER LEVELS : 10.0 ft bgs

START : 6/8/06 15:17

END : 6/15/06 09:50

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	R13NQ 5 ft 98%	86	0				
			0				At 72.3': R-Scale = R3-R4
			0				
74.1							
75 188.7			0				R14: 09:51-10:13
			0				
	R14NQ 5 ft 102%	100	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
			0				
			0			77.9-78.7' - 40-50% silt	
79.1							
			0			79.1-83.1' - coarser and finer bands	R15: 10:18-10:28
80 183.7			0				
			0			80.6' - 0.03' thick, 0.08' long greenish gray mottle and <0.02' thick, 0.07' long white clasts	
	R15NQ 5 ft 99%	99	0				At 81.65': R-Scale = R3-R4
			0				
			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'
84.1							
			0				R16: 10:32-10:47
85 178.7			!0+	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
	R16NQ 5 ft 92%	22	10+				
			10+				
			10+				
89.1				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
90 173.7			10+				
			10+				

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-13	SHEET 6 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

WATER LEVELS : 10.0 ft bgs

START : 6/8/06 15:17

END : 6/15/06 09:50

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	R17NQ 5 ft 98%	84	0	89.4-89.5' - Fracture zone, rough, undulating, <0.01' thick clay infilling, clay between laminated siltstone beds, greenish gray mottling		90.6-90.7' - clay seam, 0.04' thick	At 90.6-90.65': R-Scale = R0 At 90.9': R-Scale = R3
			1	92.4-92.8' - Fracture, horizontal and 45 deg, rough, slickensided/undulating, 45 deg fracture with horizontal fractures through it			At 92.1': R-Scale = R3-R4
			0				
	94.1						
95 168.7			1	94.7' - Fracture, horizontal, rough, undulating			R18: 11:25-11:37
			0				At 95.3': R-Scale = R3-R4
	R18NQ 5 ft 103%	99	0			95.9-96.5' - 30-40% very fine sand	
			0				
			0			98.3-101.2' - 30-40% very fine sand	
	99.1						R19: 11:44-11:56
100 163.7			0				At 99.7': R-Scale value: R4
			0				
	R19NQ 5 ft 103%	98	4	101.1' - Fracture, horizontal, rough, undulating 101.2' - Fracture, horizontal, rough, undulating, tightly healed		**Sandstone** 101.2-103.2' - dark reddish brown, white, reddish black and greenish gray, soft to hard, medium bedding, fine sand to medium sand, subangular to rounded, poorly sorted, fresh	
			0	101.4-101.8' - Fracture, 45 deg, rough, undulating			At 102.3': R-Scale = R4
			0	102.0' - Fracture, horizontal, rough, undulating		**Siltstone** 103.2-103.4' - fresh	SC-3 collected 103.1-104.1'
	104.1						
105 158.7			1			**Sandstone** 103.4-103.8' - dark reddish brown, white, reddish black and greenish gray, soft to hard, very fine sand to fine sand, subangular to rounded, poorly sorted, fresh	R20: 13:08-13:19
			4	105.0' - Fracture, horizontal, rough, undulating 105.3' - Fracture, horizontal, rough, undulating 105.4' - Fracture, horizontal, rough, undulating			
	R20NQ 5 ft 98%	84	0	105.6' - Fracture, horizontal, rough, undulating 105.8' - Fracture, horizontal, rough, undulating		**Conglomerate** 103.8-104.0' - dark reddish brown, white, greenish gray, and light reddish brown, soft to hard, very thin bedding, very fine sand to medium gravel, fresh, <0.05' thick white clasts	Driller's Remark: Still losing ~20 gallons a run At 106.2': R-Scale = R3-R4
			0				
			0			**Siltstone** 104.0-113.7' - dark reddish brown, white, reddish black and greenish gray, very soft to soft, fresh 107.2-107.7' - 0.05' thick white clasts	At 108.1': R-Scale = R3-R4
	109.1						
110 153.7			3	109.2' - Fracture, horizontal, rough, undulating 109.3' - Fracture, horizontal, rough, undulating 109.4' - Fracture, horizontal, rough, undulating			R21: 13:26-13:38
			0				

PROJECT NUMBER:	BORING 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

WATER LEVELS : 10.0 ft bgs

START : 6/8/06 15:17

END : 6/15/06 09:50

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	R21NQ 5 ft 101%	90	10+	111.2' - Fracture, horizontal, smooth, undulating		111.3' - clay seam, very soft, 0.03' thick	At 110.7': R-Scale = R3-R4 At 111.3': R-Scale = R0 Driller's Remark: Lost 23 gallons of water during core run At 112.9': R-Scale = R3-R4
			0				
			0				
114.1							
115 148.7			0			**Sandstone** 113.7-117.9' - dark reddish brown, mottled greenish gray, soft to hard, fine sand to medium sand, subangular to rounded, poorly sorted, fresh, trace medium grained sand	R22: 13:47-13:58 At 115.0': R-Scale = R3
			0				
	R22NQ 5 ft 100%	100	0				
			0			116.8-117.2' - coarse grained layer	At 116.9': R-Scale = R3-R4
			1	118.3' - Fracture, horizontal, rough, planar		117.6-117.9' - coarse grained layer **Siltstone** At 117.9' - dark reddish brown, mottled greenish gray and reddish black, soft, fresh	
119.1							R23: 14:04-14:18
120 143.7			1	119.5' - Fracture, 45 deg, smooth, undulating		119.1-129.1' - very soft to soft 119.5-124.1' - laminated beds on 10-40 degree angles	At 119.9': R-Scale = R3-R4
			10+	120.1-120.5' - Fracture zone, horizontal, rough, planar		119.9-120.1' - very fine sand layers, laminated, lighter	
	R23NQ 5 ft 98%	82	10+	121.1-121.5' - Fracture zone, horizontal, rough, undulating, greenish gray stains			
			0				At 122.0': R-Scale = R3-R4
			0				
124.1							
125 138.7			1	124.5' - Fracture, horizontal, smooth, undulating			R24: 14:23-14:36
			1	125.6' - Fracture, horizontal, rough, undulating			Driller's Remark: Water loss now becomes 10 gallons a core run SC-4 collected 126.4-127.4'
	R24NQ 5 ft 99%	96	1	126.0-126.4' - Fracture, 45 deg, rough, stepped			
			0				
			0				At 128.4': R-Scale = R3-R4
129.1							R25: 14:44-14:57
130 133.7			0			129.9-130.1' - trace coarse grained sand	
			0				

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-13	SHEET 8 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

WATER LEVELS : 10.0 ft bgs

START : 6/8/06 15:17

END : 6/15/06 09:50

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	R25NQ 5 ft 104%	99	0			130.3-130.4' - 30-40% very fine to fine 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
			10+	133.5' - Fracture, horizontal, smooth, planar, top of (0.04' thick) clay seam		**Siltstone** At 133.5' - olive gray, dark reddish brown, and greenish gray, mottled very dusky red, very soft	At 133.5': R-Scale = R0 At 133.8': R-Scale = R0 At 133.9': R-Scale = R3 R26: 15:03-15:20
134.1							
			3	133.7' - Fracture, horizontal, rough, planar 134.2' - Fracture, horizontal, smooth, planar			
135 128.7				134.5' - Fracture, horizontal, smooth, undulating		133.5-139.8' - moderately weathered	At 134.5-138.0': R-Scale = R0-R1
			10+	134.7-134.8' - Fracture (2), horizontal, smooth, planar		133.8' - clay seam, 0.03' thick, very soft to soft	At 134.8-135.2': R-Scale = R3
	R26NQ 5 ft 94%	32*	10+	135.1-135.7' - Fracture zone, horizontal and vertical, smooth, rough, planar		135.7-136.0' - clay seam, very soft, friable material	
			1	136.0-136.5' - Fracture zone, horizontal, rough, smooth, planar/undulating 136.9' - Fracture, horizontal, smooth, planar/stepped		136.5-136.8' - clay seam, very soft, friable material	At 137.0-137.3': R-Scale = R3
			10+	137.1-137.5' - Fracture zone, horizontal, rough, smooth, planar/undulating		137.5-137.9' - clay seam, soft, friable material	
139.1				137.9-138.2' - Fracture, 45 deg and horizontal, rough, undulating			At 139.0': R-Scale = R4 R27: 15:38-15:49
			10+	138.5' - Fracture, horizontal, smooth, undulating			
140 123.7				138.8' - Fracture, horizontal, rough, undulating		139.8-144.1' - trace medium grained sand	At 139.6-139.8': R-Scale = R0
			2	139.0-139.1' - Fracture zone, horizontal and vertical, rough, undulating		139.8-145.0' - fresh	
	R27NQ 5 ft 98%	76	3	139.2' - Fracture, horizontal, rough, undulating 139.3' - Fracture, horizontal, rough, undulating 139.5' - Fracture, horizontal, rough, undulating		140.5' - clay seam, 0.03' thick, very soft, friable material	At 141.3': R-Scale = R3
			0	139.7' - Fracture, horizontal and 45 deg, rough, undulating 140.3' - Fractures (2), horizontal, rough, planar		142.0-144.1' - coarsens a little, 30-40% very fine sand	
			2	141.1' - Fracture, horizontal, smooth, planar 142.0' - Fracture, horizontal, smooth, planar			
144.1				143.3' - Fracture, horizontal, smooth, planar			
			1	143.5' - Fracture, horizontal, smooth, planar 143.5' - Fracture, horizontal, tightly healed			R28: 16:00-16:19
145 118.7							At 144.7': R-Scale = R4
			10+	145.0' - Fracture, horizontal, smooth, undulating, very soft, friable material 145.3' - Fracture, horizontal, rough, undulating		145.0-147.3' - moderately weathered	At 145.5-146.3': R-Scale = R1
	R28NQ 5 ft 104%	59*	10+	145.5' - Fracture, horizontal, rough, undulating 145.6' - Fracture, horizontal, rough, undulating, very soft, friable material			At 146.3-146.6': R-Scale = R3-R4
			2	145.8-146.2' - Fracture zone, horizontal, rough, undulating 146.6-147.3' - Fracture zone, horizontal and vertical, rough, undulating, many angles		147.3-149.1' - fresh	At 146.6-147.3': R-Scale = R1
			1	147.9' - Fracture, horizontal and vertical, rough, undulating			
149.1							
			0	148.0' - Fracture, horizontal and vertical, rough, undulating		**Siltstone** At 156.5' - dark reddish brown, mottled reddish black and greenish gray, very soft to soft, medium to laminated bedding, fresh, 30-40% very fine sand	R29: 08:46-09:00 on 06/15/06
150 113.7				148.1' - Fracture, horizontal and vertical, rough, undulating			
			0				

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

WATER LEVELS : 10.0 ft bgs

START : 6/8/06 15:17

END : 6/15/06 09:50

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (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				
			0				At 153.3': R-Scale = R3-R4
154.1							
			0			154.1-156.5' - soft	R30: 09:06-09:19
155 108.7			0				
	R30NQ 5 ft 102%	100	1				
			0	156.8-157.5' - Fracture, 45 deg, rough, undulating		**Sandstone** 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, subrounded, fresh, well sorted to poorly sorted	At 156.9': R-Scale = R3-R4
			0				
159.1						158.2' - beds begin to have trace coarse grained sand and fine to medium gravel sized silt clasts	R31: 09:23-09:40
			0				SC-5 collected 162.8-163.9'
160 103.7			0			**Siltstone** 159.1-160.1' - dark reddish brown, mottled reddish black and greenish gray, very soft to soft, fresh, 30-40% very fine sand	At 161.4': R-Scale = R3-R4
	R31NQ 5 ft 96%	96	0				First water level = 10.0' bgs taken 6/15/06 at 11:30; second water level = 7.8' bgs taken 6/16/06 at 16:57
			0			**Sandstone** 160.1-164.1' - white, greenish gray, light reddish brown, and black, soft to 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
164.1							
165 98.7						Bottom of Boring at 164.1 ft bgs on 6/15/06 09:50	
170 93.7							

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 LEVELS : 0.0 ft bgs

START : 7/6/06 17:20

END : 7/7/06 16:20

LOGGER : LH

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	PP (TSF)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
263.9	0.0							
		23.0	SS1SS	3-2-3-3 (5)	**Topsoil (CL)** 0.0-0.2' - reddish brown, dry to moist, soft, trace gravel and organics		2.0	
	2.0							
	2.5	15.0	SS2SS	8-10-50/3 (60/9")	**Clay (CL)** 2.5-3.9' - reddish brown, mottled light greenish gray, moist, stiff		4.5	Soil sampling completed at 17:45 on 7/6/06
	3.8				Begin Rock Coring at 3.9 ft bgs See the next sheet for the rock core log			
5 258.9								
10 253.9								
15 248.9								
20								

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-14	SHEET 2 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 LEVELS : 0.0 ft bgs

START : 7/6/06 17:20

END : 7/7/06 16:20

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	3.9 R1NQ 1.1 ft 64%	0	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 and reddish black, laminated bedding 6.9-10.0' - moderately weathered 7.3-7.5' - trace gravel sized white clasts	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
5 258.9	5.0						
	R2NQ 5 ft 104%	61	3				
			0				
			0				
			0				At 3.9-8.8': R-scale = R0 - R1
			10+				
10 253.9	10.0					9.6-10.0' - mottled reddish black, soft to hard	
			10+	9.9-10.0' - Fracture zone, 45 deg, rough, undulating, tightly healed fractures associated are vertical to 60 deg		10.0-11.9' - clay-like material, very soft, 4 clay seams 10.0-13.2' - highly weathered	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
			10+	11.6-11.9' - Fracture zone, rough, undulating, very soft clay-like material		11.9-13.3' - mottled reddish black	
	R3NQ 5 ft 100%	36	0				
			0			13.2-15.6' - fresh 13.3-15.0' - mottled reddish black, soft to hard	At 12.8-15.0': R-Scale = R1-R2
			1				
15 248.9	15.0			14.6' - Fracture, rough, undulating, parabolic shaped fracture		14.6-14.6' - very soft, laminated bedding	
			1			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
			3				
	R4NQ 5 ft 102%	46	3				
			4				
			3	19.0' - Fracture, horizontal, smooth, planar 19.1' - Fracture, rough, planar 19.6' - Fracture, horizontal, rough, planar			
20 243.9	20.0			19.7' - Fracture, horizontal, rough, planar			R5: 09:56-10:04 At 20.2-21.4': R-Scale = R0
			10+	20.2' - Fracture, horizontal, smooth, planar 20.3' - Fracture, horizontal, smooth, planar		20.8-22.3' - soft	
			10+	20.4-20.6' - Fracture zone, horizontal, smooth, planar 20.8' - Fracture, horizontal, rough, planar			
	R5NQ 5 ft 100%	58	10+	21.0-21.5' - Fracture, 60 deg, rough, undulating		22.4-23.1' - highly weathered 22.4-22.8' - clay seam, very soft	At 21.8': R-Scale = R3-R4 At 22.0-23.0': R-Scale = R0 At 22.4': PP: 3.1 tsf
			2	22.3' - Fracture zone, horizontal, rough, planar, 0.05' thick 23.3' - Fracture, 10 deg, smooth, planar		23.0-23.1' - clay seam, 0.05' thick, very soft	At 23.0': PP: 1.9 tsf

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-14 SHEET 3 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 LEVELS : 0.0 ft bgs

START : 7/6/06 17:20

END : 7/7/06 16:20

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			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	
25 238.9	25.0					25.0-52.1' - very soft to soft 25.0-26.7' - 0.01-0.1' thick white clasts	R6: 10:18-10:27
	R6NQ 5 ft 98%	98	0 0 0 0 0				At 27.4': R-Scale = R3-R4
30 233.9	30.0		0				R7: 10:36-10:45
	R7NQ 5 ft 100%	79	4 9 0 1	31.1' - Fracture, horizontal, smooth, planar 31.8' - Fracture, horizontal, rough, planar 31.9' - Fracture, horizontal, rough, planar 32.0' - Fracture, horizontal, rough, planar 32.1' - Fracture, horizontal, smooth, planar 32.2' - Fracture, horizontal, rough, planar 32.3' - Fracture, horizontal, rough, planar 32.4' - Fractures (2), horizontal, rough, planar 32.5' - Fracture, horizontal, rough, planar 32.6' - Fracture, horizontal, smooth, planar 32.7' - Fracture, horizontal, smooth, planar		32.9-35.6' - 0-30% very fine sand	At 31.5': R-Scale = R3-R4
35 228.9	35.0			32.9' - Fracture, horizontal, smooth, planar 34.4' - Fracture, horizontal, smooth, planar			R8: 10:54-11:03
	R8NQ 5 ft 100%	100	0 0 0 0 0			37.2-37.4' - gravel sized white clasts 38.8-39.7' - gravel sized white clasts	At 36.0': R-Scale = R3 At 38.2': R-Scale = R3-R4
40 223.9	40.0						
	R9NQ 5 ft 100%	100	0 0 0 0			40.2-40.7' - gravel sized white clasts 42.2-42.8' - gravel sized white clasts 43.0-43.7' - gravel sized white clasts	R9: 11:09-11:20 At 42.0': R-Scale = R3

PROJECT NUMBER:	BORING 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 LEVELS : 0.0 ft bgs

START : 7/6/06 17:20

END : 7/7/06 16:20

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				
45	45.0						
218.9			0			45.2-45.6' - gravel sized white clasts	R10: 11:28-11:33
			0				
	R10NQ		0				
	5 ft	100					At 47.3': R-Scale = R3
	100%		0				
			0				At 49.1': R-Scale = R3-R4
50	50.0						
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	
	R11NQ		0			**Sandstone**	
	5 ft	97				52.1-58.5' - white and very dark greenish gray, soft, laminated to medium bedding, very fine sand to coarse sand, subangular to subrounded, poorly sorted, fresh, coarsens with depth	At 52.1': R-Scale = R3-R4
	97%		0				SC-2 collected 53.0-53.95'
			0				
55	55.0						
208.9			0				R12: 13:15-13:28
			0				At 56.3': R-Scale = R3-R4
	R12NQ		0				
	5 ft	94					
	104%		0				At 58.2': R-Scale = R3-R4
			4	59.3' - Contact between siltstone and sandstone, horizontal, smooth, planar		**Siltstone** At 58.5' - dark reddish brown, mottled greenish gray and reddish black, very soft	
60	60.0						
203.9			0	59.4' - Fracture, horizontal, rough, undulating 59.5' - Fracture, horizontal, smooth, planar		58.5-59.4' - fresh 58.5-61.1' - gravel sized white clasts 59.4-61.2' - slightly weathered	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		61.2-62.4' - moderately weathered	At 61.2-62.4': R-Scale = R1
	R13NQ			61.4' - Fracture, horizontal, rough, undulating			
	5 ft	78	3	61.5' - Fracture, horizontal, rough, undulating 61.7' - Fracture, horizontal, rough, undulating		62.4-76.3' - fresh 62.4-71.3' - soft	
	102%		0	61.7' - Fracture, horizontal, rough, undulating 62.0' - Fracture, horizontal, rough, undulating 62.1' - Fracture, horizontal, rough, undulating			

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-14	SHEET 5 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 LEVELS : 0.0 ft bgs

START : 7/6/06 17:20

END : 7/7/06 16:20

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (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			
198.9			0				R14: 13:52-14:03
			0				At 65.9': R-Scale = R3
	R14NQ 5 ft 99%	99	0				
			0				
			0				
70	70.0						
193.9			0				R15: 14:09-14:22
			0				
	R15NQ 5 ft 99%	99	1	72.3' - Fracture, horizontal, rough, planar			
			1	73.5' - Fracture, horizontal, rough, planar			At 73.0': R-Scale = R3
			0			74.2-75.0' - soft	
75	75.0						
188.9			2				R16: 14:09-14:44
				75.6' - Fracture, horizontal, rough, planar 76.0' - Fracture, horizontal, rough, undulating			
			10+	76.1' - Fracture, horizontal, rough, undulating 76.3-76.5' - Fracture zone, horizontal, rough, undulating		76.3-77.2' - moderately weathered 76.5-79.3' - laminated beds	
	R16NQ 5 ft 100%	61	2	76.6' - Fracture, horizontal, rough, undulating 76.8' - Fracture, horizontal, rough, undulating		77.2-80.0' - slightly weathered to fresh	
			3	76.9' - Fracture, horizontal, rough, undulating 77.3' - Fracture, horizontal, rough, planar 77.5' - Fracture, horizontal, rough, undulating			At 78.1': R-Scale = R3
			2	77.6' - Fracture, horizontal, rough, undulating 78.4' - Fracture, horizontal, rough, planar 78.6' - Fracture, horizontal, rough, undulating			
80	80.0						
183.9			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				
	R17NQ 5 ft 100%	100	0				At 82.2': R-Scale = R3
			0			82.7-85.0' - soft	

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-14 SHEET 6 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 LEVELS : 0.0 ft bgs

START : 7/6/06 17:20

END : 7/7/06 16:20

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				
85	85.0						
178.9			3	85.2' - Fracture, horizontal, rough, planar 85.4' - Fracture, horizontal, rough, planar			R18: 15:33-15:42
			2	85.7' - Fracture, horizontal, rough, undulating 86.0' - Fracture, horizontal, smooth, planar			
				86.3' - Fracture, horizontal, rough, planar		86.6-86.7' - trace fine to medium sand	
	R18NQ 5 ft 104%	82	3	87.3' - Fracture, horizontal, rough, undulating 87.4' - Fractures (2), horizontal, rough, undulating		**Sandstone** 86.7-88.2' - dark reddish gray, soft to hard, medium bedding, very fine sand to coarse sand, subangular, poorly sorted, slightly weathered	At 87.1': R-Scale = R3-R4
			0			**Siltstone** 88.2-100.0' - dark reddish brown, mottled greenish gray and reddish black, soft, slightly weathered	
			0				
90	90.0						
173.9			1	90.4' - Fracture, horizontal, smooth, planar		88.2-90.0' - trace very fine sand	R19: 15:51-16:03
			0				At 91.1': R-Scale = R3
	R19NQ 5 ft 99%	85	0			92.4' - mottled greenish gray 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			
			3	94.3' - Fracture, 30 deg, rough, undulating 94.5' - Fracture, 30 deg, rough, slickensided			At 93.9': R-Scale = R3
95	95.0						
168.9			0	94.7' - Fracture, horizontal, rough, undulating			R20: 16:10-16:20
			10+				At 97.8': R-Scale = R4
	R20NQ 5 ft 94%	82	1	96.8' - Fracture, horizontal, rough, undulating 96.9-97.0' - Fracture zone, horizontal, rough, undulating 97.2' - Fracture, horizontal, rough, undulating			First water level = 0.0' bgs taken 7/7/06 at 18:16; second water level = 1.5' bgs taken 7/8/06 at 14:40
			0	97.3-97.4' - Contact between siltstone and sandstone, horizontal, rough, planar, reddish black stains			
			4	99.1' - Fracture, horizontal, smooth, planar 99.2' - Fracture, horizontal, smooth, planar 99.3' - Fracture, horizontal, smooth, planar			R-scale performed after drilling on stored samples
100	100.0						
163.9				99.7' - Fracture, horizontal, smooth, planar		Bottom of Boring at 100.0 ft bgs on 7/7/06 16:20	

PROJECT NUMBER:	BORING NUMBER:
338884	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 LEVELS : 1.5 ft bgs
START : 7/22/06 16:01
END : 7/24/06 08:43
LOGGER : LH/EM

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
262.7	0.0						
		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		
	2.0						
	2.5						
		24.0	SS2SS	16-27-45-35 (72)	**Clay (CL)** 2.5-4.5' - reddish brown, mottled light greenish gray and black, dry, hard		PT-1 collected 3.0-5.0'
	4.5						
5							
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		
	9.5						
10							
252.7	10.0						
		9.0	SS5SS	24-50/3 (50/3")	**Clay (CL)** 10.0-10.9' - reddish brown, mottled light greenish gray and black, moist, hard		
	12.0						
	12.5	3.0	SS6SS				Soil sampling completed at 17:06 on 7/6/06
	12.8			50/3 (50/3")	**Clay (CL)** 12.5-12.8' - reddish brown, mottled light greenish gray and black, moist, hard		Drillers Remark: Drilled through 12.65-13.4' with tricone bit.
	13.4				Begin Rock Coring at 13.4 ft bgs See the next sheet for the rock core log		
15							
247.7							
20							

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-15 SHEET 2 OF 5

ROCK CORE 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

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

ORIENTATION : Vertical

WATER LEVELS : 1.5 ft bgs

START : 7/22/06 16:01

END : 7/24/06 08:43

LOGGER : LH/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
13.4	R1NQ 0.9 ft 14.3 61%	44	10+	13.4-13.5' - Fracture zone, rough, undulating 13.9' - Fracture, horizontal, rough, undulating		**Siltstone** 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	Rock coring began at 10:26 on 7/23/06 R1: 10:26-10:28 on 07/23/06 R2: 10:52-11:03
15 247.7			0				
			4	15.7' - Fracture, horizontal, rough, undulating 16.0' - Fracture, 30 deg, 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			At 16.8': R-Scale = R2
			0	16.4' - Fracture, horizontal, rough, undulating			
			0				
19.3							R3: 11:11-11:20
20 242.7			1	20.1' - Fracture, horizontal, smooth, planar		20.1-20.5' - 0-20% very fine sand	
			10+			21.0-21.3' - laminated bedding	
	R3NQ 5 ft 104%	96	1	21.1-21.2' - Fracture zone, horizontal, rough, planar, clay, <0.01' thick, very soft, friable 21.6' - Fracture, horizontal, smooth, planar		22.1-22.8' - 0-20% very fine sand	At 21.8': R-Scale = R5
			0			23.0-24.1' - laminated bedding	
			2	23.6' - Fracture, horizontal, smooth, planar 23.8' - Fracture, horizontal, smooth, planar			
24.3							R4: 11:25-11:34
25 237.7			0				
			0	25.4-25.7' - Contact between siltstone and sandstone, gradual, tightly healed		**Sandstone** 25.6-26.1' - white and dark greenish gray, stained dark reddish brown, soft to hard, thin bedding, very fine sand to medium sand, angular to subrounded, poorly sorted, fresh, trace coarse grained sand	
	R4NQ 5 ft 101%	100	1	26.8' - Contact between siltstone and sandstone, horizontal, smooth, planar			At 26.3': R-Scale = R3
			0			**Siltstone** At 26.8' - dark reddish brown, mottled reddish black and greenish gray, soft, fresh	
			0			28.3-36.1' - medium sand to gravel sized white clasts 29.6-30.1' - 0-20% very fine sand	
29.3							R5: 11:42-11:51
30 232.7			0				
			0				At 30.9': R-Scale = R2-R3
	R5NQ 5 ft 97%	95	0			32.0-35.4' - laminated and very soft	
			3	32.3' - Fracture, horizontal, rough, planar 32.4' - Fracture, horizontal, rough, planar 33.1' - Fracture, horizontal, rough, undulating			

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-15	SHEET 3 OF 5

ROCK CORE 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

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

ORIENTATION : Vertical

WATER LEVELS : 1.5 ft bgs

START : 7/22/06 16:01

END : 7/24/06 08:43

LOGGER : LH/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				
	34.3						
35 227.7			3	34.6' - Fracture, horizontal, rough, undulating		24.5-35.4' - very soft, laminated bedding	R6: 11:57-12:07
				35.1' - Fracture, horizontal, rough, undulating			SC-1 collected 35.3-36.2'
			0	35.3' - Fracture, horizontal, rough, undulating			
	R6NQ 5 ft 102%	94	1	37.1' - Fracture, horizontal, rough, planar			
			0				At 38.0': R-Scale = R2-R3
			0				
	39.3						R7: 13:06-13:13
40 222.7			0			**Sandstone** 39.8-41.5' - dark reddish brown, very fine sand, angular to subrounded, poorly sorted, fresh, sandstone lens	
			2	40.6' - Fracture, 45 deg, rough, undulating			
	R7NQ 5 ft 102%	100	0	41.2' - Fracture, 45 deg, rough, undulating		**Siltstone** At 41.5' - dark reddish brown, mottled reddish black and greenish gray, soft, fresh	At 41.4': R-Scale = R2
			0				
			0			43.9-44.0' - gravel size white clasts	
	44.3						R8: 13:22-13:27
45 217.7			0				
			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			At 47.2': R-Scale = R4
			0			**Sandstone** 48.0-50.4' - dusky red to white, greenish gray, and dark reddish gray, mottled greenish gray and dark reddish gray, soft to hard, fresh, gradational contact with overlying siltstone; fines upward	
	49.3						R9: 13:33-13:44
50 212.7			0				
			10+	50.4-50.6' - Fracture zone, <5 deg, rough, undulating, heavily fractured		49.5-49.8' - 0-20% gravel	SC-2 collected 49.3-50.4'
				50.7' - Fracture, <5 deg, rough, undulating		**Siltstone** At 50.4' - dark reddish brown, mottled greenish gray and reddish black, soft	
	R9NQ 5 ft 100%	68	10+	50.8' - Fracture, <5 deg, rough, undulating 51.4' - Fracture, <5 deg, rough, undulating 51.5' - Fracture, <5 deg, rough, undulating		50.4-52.3' - moderately weathered 50.6-52.6' - gravel sized white clasts	
			1	51.7-52.3' - Fracture zone, <5 deg, rough, undulating, 0.01' thick clay infilling, heavily fractured		52.3-82.3' - fresh	

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-15 SHEET 4 OF 5

ROCK CORE 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

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

ORIENTATION : Vertical

WATER LEVELS : 1.5 ft bgs

START : 7/22/06 16:01

END : 7/24/06 08:43

LOGGER : LH/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			1	52.6' - Fracture, <5 deg, rough, undulating, 0.01' thick clay infilling			At 53.6': R-Scale = R3
	54.3			53.9' - Fracture, <5 deg, rough, undulating			R10: 13:50-14:00
55 207.7			1				
			0	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				
			0				At 58.6': R-Scale = R2
	59.3					59.3-63.2' - coarsens with depth	R11: 14:25-14:35
60 202.7			1	60.0' - Fracture, horizontal, smooth, planar			
			4	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
	R11NQ 5 ft 99%	84	0				
			0			62.6-69.3' - coarse sand and gravel sized white clasts, medium sand sized	
			0				
	64.3						R12: 14:40-14:43
65 197.7			0				At 65.1': R-Scale = R4
			1	65.3' - Fracture, horizontal, smooth, planar			
	R12NQ 5 ft 98%	96	3	66.3' - Fracture, horizontal, smooth, planar 66.4' - Fracture, horizontal, smooth, planar 66.9' - Fracture, horizontal, smooth, planar			
			1				
			0				
	69.3						R13: No time recorded on 07/24/06
70 192.7			0				
			0				
	R13NQ 5 ft 98%	98	0				
			0				At 72.5': R-Scale = R3-R4

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-15 SHEET 5 OF 5

ROCK CORE 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

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

ORIENTATION : Vertical

WATER LEVELS : 1.5 ft bgs

START : 7/22/06 16:01

END : 7/24/06 08:43

LOGGER : LH/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				
	74.3						R14: 08:15-08:24
75 187.7			1				
			1	75.5' - Fracture, 45 deg, slickensided, undulating			
	R14NQ 5 ft 103%	100	0				At 76.9': R-Scale = R4
			0				
			0			78.5-79.3' - coarse sand sized white clasts 79.2' - mottled green	
	79.3						At 80.2': R-Scale = R3 R15: 08:33-08:43 First water level = 1.5' bgs taken 7/24/06 at 18:15; second water level = 2.2' bgs taken 7/25/06 at 16:00
80 182.7			0				
	R15NQ 3 ft 110%	100	2	81.1' - Fracture, horizontal, rough, planar 81.2' - Fracture, horizontal, rough, planar		81.2-81.3' - trace coarse sand sized white clasts	
			0				R-scale performed after drilling on stored samples
	82.3						
						Bottom of Boring at 82.3 ft bgs on 7/24/06 08:43	
85 177.7							
90 172.7							

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

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

ORIENTATION : Vertical

WATER LEVELS : 9.0 ft bgs

START : 6/20/06 11:11

END : 6/27/06 14:36

LOGGER : LH/EM

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
262.8	0.0				**Topsoil** 0.0-0.4'		
		20.4	SS1SS	4-7-13-22 (20)	**Clay (CL)** 0.4-1.7' - reddish brown, trace light greenish-gray mottled, dry, very stiff, laminated beds, trace roots		
	2.0						
	2.5	9.0	SS2SS	22-50/3 (50/3")	**Clay (CL)** 2.5-3.2' - reddish brown, mottled reddish black and light greenish gray, dry to moist, hard, laminated beds		
	3.3						
							Soil sampling completed at 11:23 on 6/20/06
	4.8						
5 257.8					Begin Rock Coring at 4.8 ft bgs See the next sheet for the rock core log		
10 252.8							
15 247.8							
20							

PROJECT NUMBER:	BORING 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

WATER LEVELS : 9.0 ft bgs

START : 6/20/06 11:11

END : 6/27/06 14:36

LOGGER : LH/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
257.8	4.8		0			**Siltstone** At 4.8' - reddish brown, mottled reddish black and greenish gray, very soft, laminated beds, high clay content, rock is elastic and cohesive 4.8-17.7' - highly weathered	Rock coring began at 14:01 on 6/20/06 R1: 14:04 - 14:07 and 14:14 - 14:18 on 6/20/06 SC-1 collected 6.0-7.0' At 8.5': R-Scale = R2-R3
	R1NQ 4.5 ft 104%	0	0				
			0				
			0				
	9.3		0				
10 252.8			0			9.3-14.3' - white clasts (0.02' - 0.05' thick)	R2: 14:35-14:39 and 14:40-14:41 At 10.7': R-Scale = R1
	R2NQ 5 ft 84%	0	0				
			0				
			0				
	14.3						R3: 14:48-14:57
15 247.8			0				At 14.8': R-Scale = R1
			0				
	R3NQ 5 ft 104%	32	0				
			0			17.7-27.6' - dark reddish brown, mottled greenish gray, fresh	
	19.3		2				R4: 15:09-15:17
20 242.8			0				At 19.8': R-Scale = R3-R4
			1	20.5' - Fracture, horizontal, rough, undulating			
	R4NQ 5 ft 98%	98	0				At 21.3': R-Scale = R3-R4
			1	23.2' - Fracture, horizontal, rough, undulating		23.3-23.6' - trace medium sand	
			0				
	24.3						R5: 15:22-15:29

PROJECT NUMBER:	BORING 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 ft bgs

START : 6/20/06 11:11

END : 6/27/06 14:36

LOGGER : LH/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R.Q.D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
237.8			1			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	
	R5NQ 5 ft 102%	88	2	25.7' - Fracture, horizontal, rough, planar			At 26.5': R-Scale = R3-R4
			1				
			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, very fine sand to coarse sand, subangular to subrounded, poorly sorted, fresh	
			0				
	29.3					29.3-33.0' - bands of coarser and finer materials	R6: 15:33-15:41
30 232.8			0				Drillers remark: lost 40 gallons in last 2' of core run
			3	30.6-30.8' - Fracture zone (3), horizontal and vertical, rough, undulating			
	R6NQ 5 ft 99%	86	0				At 31.5': R-Scale = R3
			1				
			1	33.3' - Fracture, 30 deg, rough, undulating, black and greenish gray stains		**Siltstone** 33.0-34.3' - dusty red, soft, fresh, very fine to coarse grained sand, fine gravel (<5%), medium bed	
	34.3			34.0' - Fracture, 30 deg, rough, undulating			R7: 15:46-15:56
35 227.8			0			**Sandstone** 34.3-36.5' - weak red, soft to hard, very fine sand to coarse sand, subangular to subrounded, poorly sorted, fresh, bands of coarser and finer materials	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			
	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 37.3-37.7' - very soft to soft, white clasts (0.02-0.04' thick)	
			0				At 37.7': R-Scale = R3-R4
			0				
	39.3						R8: 16:01-16:12
40 222.8			0			39.8-40.2' - very fine sand (30%)	
			0			40.4-43.1' - trace to some white clasts (0.02-0.1')	
	R8NQ 5 ft 94%	94	0			41.4-41.9' - very fine to fine sand (30%)	At 41.7': R-Scale = R3-R4
			0				
			0				
	44.3					44.3-49.3' - mottled greenish gray	R9: 16:17-16:31

PROJECT NUMBER:	BORING 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

WATER LEVELS : 9.0 ft bgs

START : 6/20/06 11:11

END : 6/27/06 14:36

LOGGER : LH/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
217.8			0				
			0				
	R9NQ 5 ft 103%	100	0				
			0			47.4-49.3' - soft, trace medium sand	
			0				At 48.3': R-Scale = R3
	49.3					49.3-50.4' - mottled greenish gray, soft, 0-30% very fine sand	R10: 08:06-08:12 on 6/21/2006
50 212.8			0				At 50.0': R-Scale = R3-R4
			0			**Sandstone** 50.4-57.9' - very dark gray and light reddish gray, soft, very thin to medium bedding, very fine sand to coarse sand, subangular to subrounded, poorly sorted, fresh	
			0	51.0' - Contact between siltstone and sandstone, mixed up; silt extends (in portions) into sandstone			
	R10NQ 5 ft 104%	100	0				
			0				
			0				
	54.3					53.8-54.1' - beds on 30 degree angle	
55 207.8			0				R11: 08:17-08:24
			0				At 55.7': R-Scale = R3
	R11NQ 5 ft 97%	97	0				SC-2 collected 56.2' - 57.2'
			0				
			0	57.9' - Contact between siltstone and sandstone, 45 deg, rough, undulating		**Siltstone** At 57.9' - dark reddish brown, mottled greenish gray, very soft, white clasts (0.02' - 0.04' thick)	
	59.3					57.9-97.7' - fresh	R12: 08:30-08:37
60 202.8			0	59.6' - Fracture, horizontal, rough, planar		59.3-64.3' - mottled greenish gray and reddish black, very soft to soft	
			0	60.1' - Fracture, horizontal, rough, planar 60.2' - Fracture, horizontal, rough, undulating		59.3-62.3' - white clasts (0.01-0.05' thick)	
	R12NQ 5 ft 99%	85	0				At 61.7': R-Scale = R3-R4
			0	62.3' - Fracture, horizontal, rough, planar 62.4' - Fracture, horizontal, rough, planar 62.5' - Fracture, horizontal, rough, planar			
			0				At 63.5': R-Scale = R3-R4
	64.3						R13: 08:42-08:48

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

WATER LEVELS : 9.0 ft bgs

START : 6/20/06 11:11

END : 6/27/06 14:36

LOGGER : LH/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
197.8			0			64.3-69.3' - mottled greenish gray and reddish black, very soft to soft	
			0				At 65.9': R-Scale = R3-R4
	R13NQ 5 ft 100%	100	0				
			0				At 68.1': R-Scale = R3-R4
			0				
69.3							
70 192.8			0			69.3-99.3' - mottled greenish gray and reddish black, soft	R14: 08:55-09:02
			0				
	R14NQ 5 ft 104%	100	0				At 71.7': R-Scale = R3-R4
			0			72.2' - white clast (0.05')	
			0				At 73.7': R-Scale = R3-R4
74.3							R15: 09:08-09:20
75 187.8			0				
			0			75.2-76.0' - white clasts (0.01' - 0.05' thick)	
	R15NQ 5 ft 100%	100	1	76.8' - Fracture, horizontal, smooth, undulating			At 76.1': R-Scale = R3-R4
			0			76.7-79.3' - white clasts (0.01' - 0.05' thick)	At 77.2': R-Scale = R3-R4
			0				
79.3							
80 182.8			1	79.4' - Fracture, horizontal, smooth, undulating			R16: 09:27-09:39
							At 79.9': R-Scale = R3-R4
			4	80.9' - Fracture, 20 deg, smooth, undulating			
	R16NQ 5 ft 102%	82	4	81.1-81.5' - Fractures (7), horizontal, smooth, undulating, 0.01-0.02' thick clay seams		81.1-81.5' - clay seams	
			0	82.2' - Fracture, horizontal, rough, planar			
			1	83.6' - Fracture, horizontal and 20 deg, rough, planar			
84.3				84.2' - Fracture, horizontal, rough, planar			R17: 09:51-10:00

PROJECT NUMBER:	BORING NUMBER:	
338884	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

WATER LEVELS : 9.0 ft bgs

START : 6/20/06 11:11

END : 6/27/06 14:36

LOGGER : LH/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R.Q.D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
177.8			0				At 85.0': R-Scale = R3-R4
			0			85.7-87.7' - white clasts (0.01' thick)	
	R17NQ 5 ft 99%	99	0				At 86.3': R-Scale = R3-R4
			0				
			0				
89.3							R18: 10:10-10:30
90 172.8			0				At 89.8': R-Scale = R3-R4
			0			90.2' - large greenish gray mottles 90.2-91.5' - soft to hard, grades from 0 to 30% fine to medium sand with small white clasts (0.01-0.02') 90.2-94.3' - white clasts (0.01-0.05')	
	R18NQ 5 ft 89%	89	0			91.5' - large greenish gray mottles	At 92.0': R-Scale = R3-R4
			0				SC-3 collected 92.75 - 93.55'
			0				
94.3							
95 167.8			0			94.2' - large greenish gray mottles	R19: 10:37-10:47
			10+	95.8-96.4' - Fracture zone, horizontal, rough		94.8' - 50-95% large greenish gray and reddish black mottles	At 95.1': R-Scale = R3-R4
	R19NQ 5 ft 99%	78*	1	96.6' - Fracture, 30 deg		96.4-97.5' - white clasts 0.01' - 0.05' thick	At 96.7': R-Scale = R3-R4
			10+	97.4' - Fracture, horizontal, rough, undulating 97.7-98.1' - Fracture zone, horizontal, rough, undulating, 0.01' thick clay seam		97.7-98.1' - clay seams 97.7-98.6' - moderately weathered	
			2	98.4-98.6' - Fracture zone, horizontal, rough, undulating, 0.01' thick clay seam 99.0' - Fracture, horizontal, rough, undulating		98.4-98.6' - clay seams 98.6-110.1' - fresh	
99.3							
100 162.8			0			99.3-110.1' - trace greenish gray and reddish black mottling, soft, trace medium sand at bottom	R20: 11:01-11:09
			0				
	R20NQ 5 ft 96%	96	0				At 101.5': R-Scale = R3-R4
			0				
			0				At 103.6': R-Scale = R3
104.3							R21: 11:13-11:36

PROJECT NUMBER:	BORING 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

WATER LEVELS : 9.0 ft bgs

START : 6/20/06 11:11

END : 6/27/06 14:36

LOGGER : LH/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
157.8			0				At 105.0': R-Scale = R3-R4
			0				
	R21NQ 5 ft 104%	100	0				
			0				At 107.5': R-Scale = R3-R4
			0			108.2-108.7' - trace very fine sand (<15%)	
	109.3						R22: 11:31-11:45
110			0			109.7' - large white clasts (0.07' thick, 0.1 long)	At 109.7': R-Scale = R3-R4
152.8			1	110.6-111.0' - Fracture, 60 deg, rough		**Sandstone** 110.1-111.1' - dusky red, mottled dark reddish brown, soft, fresh, thin bed, 30 - 50% silt 110.3' - laminated silt layer	
	R22NQ 5 ft 100%	100	0				At 111.5': R-Scale = R3-R4
			0			**Siltstone** At 111.1' - dark reddish brown, soft to hard, medium bedding, fresh, fine to medium grained, white clasts 0.01-0.05' thick	
			0			112.3-113.8' - trace greenish gray and reddish black mottling, white clasts 0.01' - 0.03' thick	At 113.7': R-Scale = R3-R4
	114.3						R23: 11:35-12:02
115			0			113.8-114.3' - trace greenish gray mottling	
147.8			1	115.8' - Fracture, horizontal, rough, planar		115.4' - begins to grade to sandstone, 0-30% very fine to medium sand	
	R23NQ 5 ft 106%	100	1	116.3-116.3' - Fractures (2), horizontal, rough, undulating, clay and 0.05' thick shale layer		**Sandstone** 116.3-124.0' - dusky red and light reddish gray, very fine to medium grained, soft, medium sand, subangular, poorly sorted, fresh, lighter and darker bands, darker had more silt content (up to 50%)	
			1	117.6' - Fracture, horizontal, smooth, planar			At 117.9': R-Scale = R3-R4
			0				
	119.3						R24: 12:58-13:09
120			0			119.3-124.0' - very fine to coarse grained, soft to hard, very fine sand, subangular to subrounded, grayish green and dusky red siltstone lenses, laminated to medium beds on 15 and 20 degree orientation, well sorted to poorly sorted	
142.8			0				At 120.0': R-Scale = R3-R4
	R24NQ 5 ft 100%	100	0				
			0				
			0				
	124.3						

PROJECT NUMBER:	BORING 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

WATER LEVELS : 9.0 ft bgs

START : 6/20/06 11:11

END : 6/27/06 14:36

LOGGER : LH/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (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 healed		**Siltstone** At 124.0' - dark reddish brown, trace greenish gray and reddish black mottling, soft, fresh	R25: 09:24-09:42 on 6/27/2006
			0	125.0' - Fracture, 45 deg, rough, stepped		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 white clasts	
			3	127.8' - Fracture, horizontal, smooth, planar 127.9' - Fracture, horizontal, smooth, planar			
			1	128.1' - Fracture, horizontal, smooth, planar			At 128.8': R-Scale = R3-R4
	129.3			129.0' - Fracture, horizontal, rough, undulating, greenish gray stains		129.0-129.3' - trace very fine sand	R26: 09:52-10:06
130 132.8			0				Tried to retreive the last 0.55' but couldn't
			0				
	R26NQ 5 ft 89%	89	0				
			0				At 132.7': R-Scale = R3-R4
			0				
	134.3						R27: 10:22-10:41
135 127.8			0				
			10+	136.0-136.2' - Fracture zone, 45 deg and horizontal, slickensided/rough, undulating			
	R27NQ 5 ft 100%	84	0				At 137.1': R-Scale = R3-R4 SC-4 collected 137.5' - 138.5'
			0				
	139.3		10+	138.9' - Fracture, horizontal, rough, undulating			
				139.3' - Fracture zone, horizontal, rough, undulating, 0.05' thick			R28: 10:49-11:08
140 122.8			0				
			0				At 141.1': R-Scale = R3-R4
	R28NQ 5 ft 106%	72*	10+	141.4-141.8' - Fracture zone, horizontal and vertical, rough/smooth, planar		**Siltstone** At 141.4' - olive gray, greenish gray, and dark reddish brown, laminated beds	
			3	142.3' - Fracture, horizontal, smooth, planar 142.9' - Fracture, 30 deg, smooth, undulating		141.4-147.6' - moderately weathered 142.4-143.3' - beds on 30-40 degree angle	
			10+	143.5' - Fracture, horizontal, smooth, planar		143.3' - clay seam, very soft, friable material, 0.05' thick	
	144.3						R29: 11:26-11:52

PROJECT NUMBER:	BORING 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

WATER LEVELS : 9.0 ft bgs

START : 6/20/06 11:11

END : 6/27/06 14:36

LOGGER : LH/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
117.8			10+	143.7-144.3' - Fracture zone, with clay seams, material is crumbled up, very soft rock and clay, very few pieces with horizontal breaks and bedding planes		144.3-146.9' - dark greenish gray and greenish gray, mottled olive yellow and pale olive, very soft, laminated beds	
			10+				SC-5 collected 145.7' - 146.5'
	R29NQ 5 ft 101%	73*	4	144.5-144.9' - Fracture zone, with clay seams, crumbled up, undulating, rough, planar, smooth, clay seams are very soft, friable and > 0.1' thick		146.9-152.4' - mottled dark reddish brown and pale olive, soft, trace very fine sand	
			1	145.2' - Fracture, horizontal, smooth, planar 145.4' - Fracture, horizontal, smooth, planar		146.9-147.0' - clay seam, very soft (easily indented with fingernail), friable material	At 147.9': R-Scale = R3-R4
			3	148.5' - Fracture, horizontal, smooth, planar		147.3-147.6' - clay seam, alternating with siltstone, very soft, friable material, laminated beds, <0.01' - 0.02' thick	
149.3				148.9' - Fracture, horizontal, smooth, planar			R30: 13:27-13:46
150 112.8			3	149.6' - Fractures (2), horizontal, smooth, planar		147.6-152.4' - fresh	
			1	150.0' - Fracture, horizontal, rough, undulating 150.4' - Fractures (2), horizontal, smooth, planar			
	R30NQ 5 ft 99%	97	0				At 151.7': R-Scale = R3-R4
			3	152.7' - Fracture, horizontal, rough, planar		**Siltstone** 152.4-156.3' - dark reddish brown, mottled pale olive and greenish gray, fresh	
			0	152.8' - Fracture, horizontal, rough, planar 152.8' - Fracture, horizontal, rough, planar			
154.3							R31: 13:55-14:09
155 107.8			0				
			0				
	R31NQ 5 ft 96%	96	0				At 156.2': R-Scale = R3-R4
			0			**Siltstone** 156.3-163.3' - dark greenish gray and greenish gray, mottled olive yellow, very soft, fresh, laminated beds	
			0				
159.3							R32: 14:16-14:36
160 102.8			0				
			0				At 160.7': R-Scale = R3-R4
	R32NQ 4 ft 108%	100	0			161.0-163.3' - mottled weak red	First water level = 9.0' bgs taken 6/27/06 at 15:30; second water level = 5.4' bgs taken 6/28/06 at 18:05
			2	162.7-162.9' - Fracture zone, horizontal and 45 deg, rough, undulating, with clay seam at bottom (0.02' thick)			
163.3						Bottom of Boring at 163.3 ft bgs on 6/27/06 14:36	R-scale performed after drilling on stored samples

PROJECT NUMBER:	BORING 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

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
262.4	0.0				**Topsoil** 0.0-0.1'		
		20.4	SS1SS	3-7-11-11 (18)	**Clay (CL)** 0.1-0.7' - yellowish red, mottled black and gray, dry, medium stiff		
	2.0				**Clay (CL)** 0.7-1.7' - reddish brown, dry, very stiff		
	2.5	19.2	SS2SS	5-5-20-26 (25)	**Clay (CL)** 2.5-4.1' - reddish brown, mottled dark reddish gray, weak red, and light greenish gray, dry, very stiff		
	4.5						
5							Soil sampling completed at 08:41 on 7/13/06
257.4	5.0	1.0	SS3SS		**Clay (CL)**		
	5.1			50/1 (50/1")	5.0-5.1' - reddish brown, mottled dark reddish gray, weak red, and light greenish gray, dry, very stiff		
					Begin Rock Coring at 5.2 ft bgs See the next sheet for the rock core log		
10 252.4							
15 247.4							
20							

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-17	SHEET 2 OF 4

ROCK CORE 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

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

ORIENTATION : Vertical

WATER LEVELS : 5.3 ft bgs

START : 7/8/06 08:15

END : 7/8/06 11:26

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	5.2		0			**Siltstone** 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 5.2-12.8' - highly weathered 7.2-7.7' - 20-30% very fine sand	Rock coring began at 09:18 on 7/8/06 R1: 09:18-09:23 on 07/08/06 At 5.2-12.3': R-Scale = R0-R1 At 5.5': PP: 3.25 tsf
	R1NQ 4.8 ft 100%	0	1	6.2' - Fracture, horizontal and 30 deg, rough, undulating			
			0				
			0				
			5	9.5' - Fracture, horizontal, smooth, planar		9.2-9.3' - clay seam, very soft, moist	At 9.2': PP: 1.3 tsf
10 252.4	10.0			9.6' - Fracture, horizontal, smooth, planar		10.0-15.0' - soft, beds not laminated	R2: 09:37-09:53
			4	9.7' - Fractures (2), horizontal, smooth, planar 10.1' - Fracture, horizontal, rough, planar		10.6-10.8' - clay seam, firm, friable material	
			10+	10.2' - Fracture, 45 deg, rough, undulating 10.6' - Fracture, 30 deg, rough, undulating 11.1-12.0' - Fracture zone, rough, smooth, planar, undulating			
	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	
			3				At 13.7': R-Scale = R3
15 247.4	15.0			14.5' - Fracture, horizontal, rough, planar		14.5-20.0' - highly weathered	At 14.5-20.0': R-Scale = R0-R1
			2	14.6' - Fracture, horizontal, smooth, planar 14.8' - Fracture, 20 deg, rough, undulating 15.1' - Fracture, horizontal, rough, planar 15.3' - Fracture, horizontal, rough, planar			R3: 10:02-10:11
			0				
	R3NQ 5 ft 100%	0	0			16.9-18.6' - heavily mottled reddish black	
			0				
			3	19.1-20.0' - Fracture, horizontal, smooth, undulating, clay and siltstone alternating seams, firm			
20 242.4	20.0			20.1-20.6' - Fracture zone, reddish black stains		20.0-20.1' - mottled red 20.1-20.9' - mottled reddish black 20.0-25.5' - moderately weathered	R4: 10:17-10:25
			10+	20.8' - Fracture, horizontal, rough, undulating, reddish black stains			At 20.0-21.3': R-scale = R1
			2	20.9' - Fracture, horizontal, rough, undulating, reddish black stains			
	R4NQ 5 ft 95%	76	1	21.3' - Fracture, horizontal, rough, planar 21.6' - Fracture, horizontal, rough, planar 22.4' - Fracture, horizontal, smooth, planar			At 22.9': R-Scale = R2-R3
			1	23.7' - Fracture, 20 deg, rough, planar			At 23.7-25.0': R-Scale = R1-R2
			0				
25	25.0						

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-17 SHEET 3 OF 4

ROCK CORE 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

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

ORIENTATION : Vertical

WATER LEVELS : 5.3 ft bgs

START : 7/8/06 08:15

END : 7/8/06 11:26

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R.Q.D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			10+	25..0-25.5' - Fracture zone, some clay		25.5-26.2' - highly weathered, clay seam, firm	R5: 10:29-10:40
			4			26.2-35.0' - moderately weathered	At 25.0-26.2': R-scale = R0
	R5NQ 5 ft 98%	61	1	26.5' - Fracture, horizontal, rough, planar 26.6' - Fracture, horizontal, smooth, planar 26.8' - Fracture, horizontal, rough, planar 27.4' - Fractures (2), horizontal and 60 deg, smooth, stepped		27.2-29.0' - soft, no laminated beds, 20-40% very fine sand	
			2				At 27.9': R-Scale = R3-R4
			4	28.5' - Fracture, horizontal, rough, planar 28.6' - Fracture, horizontal, rough, planar 29.0' - Fracture, horizontal, rough, undulating 29.2' - Fracture, horizontal, smooth, planar			
30	30.0						
232.4			0	29.6' - Fracture, horizontal, smooth, planar 29.8' - Fracture, horizontal, smooth, planar		30.0-30.5' - soft, no laminated beds, and 20% very fine sand	R6: 10:47-10:56
			2	31.1' - Fracture, horizontal, rough, planar		31.2-31.7' - soft, no laminated beds, and 20% very fine sand	
	R6NQ 5 ft 100%	74	5	31.7' - Fracture, horizontal, rough, undulating 32.1' - Fractures (2), horizontal, rough, planar 32.4' - Fracture, horizontal, rough, planar		32.1-32.4' - soft, no laminated beds, and 20% very fine sand	At 32.4-33.0': R-Scale = R0-R1 SC-1 collected 33.0-33.5'
			1	33.0' - Fracture, horizontal, smooth, planar 33.5' - Fracture, horizontal, rough, planar		32.9-35.0' - gravel sized white clasts	
			4	34.0' - Fracture, horizontal, rough, planar 34.1' - Fracture, horizontal, rough, planar 34.3' - Fracture, horizontal, rough, planar		34.5-35.0' - soft, no laminated beds, and 20% very fine sand	
35	35.0						
227.4			3	34.5' - Fracture, horizontal, rough, planar 35.3' - Fracture, horizontal, rough, undulating		35.0-40.0' - slightly weathered 35.5-35.6' - 0.1' thick reddish black and greenish gray mottles	R7: 11:01-11:11
			1	35.8' - Fracture, horizontal, rough, undulating 36.0' - Fracture, horizontal, rough, planar 36.1' - Fracture, horizontal, rough, planar		35.7-35.8' - 0.1' thick reddish black and greenish gray mottles	At 36.4': R-Scale = R3-R4
	R7NQ 5 ft 100%	88	0			36.1-40.0' - soft, no laminated beds, 0-40% very fine sand, coarsens with depth	
			0				
			0				
40	40.0						
222.4			0			**Sandstone** 40.0-44.0' - dusky red and weak red, hard, laminated to medium bedding, very fine sand to coarse sand, subangular to subrounded, poorly sorted, fresh, coarser and finer bands	R8: 11:18-11:26
			0				At 41.1': R-Scale = R3-R4 At 42.8': R-Scale = R3-R4
	R8NQ 5 ft 98%	92	0				First water level = 5.3' bgs taken 7/8/06 at 14:36
			2	43.1-43.4' - Fracture, 50 deg, rough, undulating 43.3-43.6' - Fracture, 65 deg, rough, undulating			R-scale performed after drilling on stored samples
			0			43.6-43.7' - siltstone lense with gravel sized white clasts	
45	45.0						

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

ROCK CORE 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

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

ORIENTATION : Vertical

WATER LEVELS : 5.3 ft bgs

START : 7/8/06 08:15

END : 7/8/06 11:26

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION — DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	LITHOLOGY — ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	COMMENTS — SIZE AND DEPTH OF CASING, 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	
50 212.4							
55 207.4							
60 202.4							
65							

PROJECT NUMBER:	BORING NUMBER:
338884	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
WATER LEVELS : 5.5 ft bgs
START : 7/13/06 16:25
END : 7/14/06 13:18
LOGGER : JF

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	PP (TSF)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
261.9	0.0				**Silt (ML)** 0.0-0.8' - red, dry to moist, very fine grained, nonplastic, trace gravel, fill at top, small black oxidation at bottom			
		9.0	SS1SS	7-15-18-21 (33)				Soil is pulverized, acting cohesionless
	2.0							
	2.5				**Sandy Silt (ML)** 2.5-2.9' - dark reddish brown, moist, medium dense to loose, nonplastic, 20% fine sand			
		8.0	SS2SS	11-16-17-13 (33)	**Silt (ML)** 2.9-3.2' - red, dry to moist, nonplastic, trace gravel			Silt is pulverized as above
	4.5							
5								
256.9	5.0				**Clay (CL)** 5.0-5.8' - dark reddish brown, moist, medium stiff, nonplastic to low plasticity			
		9.0	SS3SS	26-15-50/2 (65/8")			1.5	
	7.0							
	7.5				**Clay (CL)** 7.5-7.7' - dark reddish brown, moist, medium stiff, nonplastic to low plasticity			
		5.0	SS4SS	50/5 (50/5")	**Silt (ML)** 7.7-7.9' - red, dry to moist, nonplastic, trace gravel		1.5	
	9.5							
10								Soil sampling completed at 17:40 on 7/13/06
251.9	10.0	3.0	SS5SS		**Silt (ML)**			
	10.3			50/3 (50/3")	10.0-10.3' - red, dry to moist, nonplastic, trace gravel Begin Rock Coring at 10.3 ft bgs See the next sheet for the rock core log			
15								
246.9								
20								

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-18 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 : 5.5 ft bgs

START : 7/13/06 16:25

END : 7/14/06 13:18

LOGGER : JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	10.3		10+			**Siltstone** At 10.3' - dark reddish brown, very soft to soft, fine grained 10.3-12.2' - highly weathered	Rock coring began at 08:20 on 7/14/06 R1: 08:20-09:20 on 07/14/06 At 10.3-11.9': R-Scale = R0-R1
	R1NQ 4.2 ft 101%	53	10+				
			10+			12.2-14.5' - moderately weathered	
			1	12.9' - Fracture, 15 deg, rough, undulating, <0.0002' thick clay infilling 13.2' - Fracture, <5 deg, rough, undulating, <0.0002' thick clay infilling			Driller stopped rig as pressure (9K) rises some clay at top blocking off flow, went back down to finish run
	14.5		0				
15 246.9			0			14.5-19.5' - bluish green mottling 14.5-25.0' - highly weathered	R2: 09:25-09:40 SC-1 collected 15.0-15.8'
			0			15.4-16.6' - soil-like	
	R2NQ 5 ft 96%	0	1			16.6-20.0' - 30% very fine sand	At 16.0-18.8': R-Scale = R0-R1
			0				
			0				
	19.5						At 19.0': R-Scale = R2-R3 At 19.2-24.0': R-Scale = R0-R1
20 241.9			1				R3: 10:05-10:19
			2	20.3' - Fracture, <5 deg, rough, undulating, clay seam, breaks at clay seams, breaks at clay seams: 20.3, 21.2, 21.4, 21.95, 22.1		20.3-20.4' - clay seam 20.7-20.7' - clay seam 21.2-21.4' - clay seam	
	R3NQ 5 ft 98%	0	3	21.8' - Fracture, <5 deg, rough, undulating		22.0-22.1' - clay seam	
			1			23.0-23.3' - clay seam	
			1	23.8' - Fracture, <5 deg, rough, undulating 24.0' - Fracture, <5 deg, rough, undulating			
	24.5						
25 236.9			0			24.5-29.5' - dark purple and trace bluish green mottling 25.0-29.5' - slightly weathered	R4: 10:26-10:44
			0				
	R4NQ 5 ft 102%	98	1	27.1' - Fracture, <5 deg, rough, undulating			At 27.3': R-Scale = R3-R4
			2			28.2-28.4' - clay seam	
			0				
	29.5					29.5-39.5' - red, trace bluish green mottling 29.4' - very fine sand	At 29.2': R-Scale = R3-R4 R5: 10:50-11:15
30 231.9			0				

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-18	SHEET 3 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 : 5.5 ft bgs

START : 7/13/06 16:25

END : 7/14/06 13:18

LOGGER : JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			29.5-31.7' - white pink clay rip up clasts (10%) 0.4 to 0.8 29.5-41.8' - fresh	
	R5NQ 5 ft 100%	100	0				At 32.2': R-Scale = R3-R4
			0				
			0				
34.5							
35 226.9			0				R6: 11:25-11:33
			0				
	R6NQ 5 ft 100%	100	0				At 36.5': R-Scale = R3
			0				
			0				At 38.7': R-Scale = R3-R4
39.5							
40 221.9			0			39.5-40.5' - dark reddish brown, dark purple and trace bluish green mottling, 25% fine sand 40.5-41.8' - very dusky red to gray, grades from siltstone to sandstone, fine grained	R7: 13:00-13:18
	R7NQ 5 ft 100%	100	0			**Sandstone** 41.8-44.5' - gray, soft, fine sand to medium sand, angular to subangular, fresh, slightly darker at bottom (44.25-44.5')	SC-2 collected 41.8-42.65' 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
			0				
			0				
44.5							
45 216.9						Bottom of Boring at 44.5 ft bgs on 7/14/06 13:18	
50 211.9							

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-19 SHEET 1 OF 5

SOIL BORING LOG

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

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

ORIENTATION : Vertical

WATER LEVELS : 9.6 ft bgs

START : 7/11/06 14:09

END : 7/13/06 14:25

LOGGER : LH/EM

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	PP (TSF)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
261.4	0.0				**Top Soil** 0.0-0.3'			
	2.0	21.6	SS1SS	3-4-11-12 (15)	**Clay (CL)** 0.3-1.8' - reddish brown, reddish black and light greenish gray, dry, stiff, trace gravel at the top			
	2.5				**Clay (CL)** 2.5-3.7' - reddish brown, reddish black and light greenish gray, moist, stiff		4.5+	
	4.5	10.0	SS2SS	25-50/4 (50/4")				
5								
256.4	5.0				**Clay (CL)** 5.0-5.4' - reddish brown, reddish black and light greenish gray, moist, stiff			
	7.0	4.0	SS3SS	50/4 (50/4")				PT-1 collected 7.0-7.5'
	7.5				**Clay (CL)** 7.5-9.1' - light yellowish brown, reddish black and light greenish gray, dry to moist, stiff, trace sand, friable material, trace gravel at top 2			
	9.5	19.2	SS4SS	17-20-18-13 (38)				
10								
251.4	10.0				**Clay (CL)** 10.0-10.6' - light yellowish brown, reddish black and light greenish gray, dry to moist, stiff, discontinuities on 45 deg.			
	12.0	5.0	SS5SS	50/5 (50/5")				
	12.5							Soil sampling completed at 15:20 on 7/11/06
	12.7	2.0	SS6SS	50/2 (50/2")	**Clay (CL)** 12.5-12.7' - reddish brown, light greenish gray and light yellowish brown, moist to dry, stiff to hard			
					Begin Rock Coring at 13.0 ft bgs See the next sheet for the rock core log			
15 246.4								
20								

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-19 SHEET 2 OF 5

ROCK CORE LOG

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

ORIENTATION : Vertical

WATER LEVELS : 9.6 ft bgs

START : 7/11/06 14:09

END : 7/13/06 14:25

LOGGER : LH/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
13.0	R1NQ 1.6 ft 88%	0	2	13.5' - Fracture, horizontal, rough, planar		**Siltstone** At 13.0' - dark reddish brown, reddish black and greenish gray, very soft, highly weathered, very soft	Rock coring began at 16:10 on 7/11/06
			0	14.0' - Fracture, horizontal, rough, planar			R1: 16:10-16:15
14.6							At 13.7': R-Scale = R4
15 246.4			0			14.6-21.8' - laminated bedding	R2: 16:32-16:41
			4	16.2' - Fracture, horizontal, rough, planar			
	R2NQ 5 ft 96%	0	0	16.2' - Fracture, horizontal, rough, planar 16.5' - Fracture, horizontal, rough, planar 16.6' - Fracture, horizontal, rough, planar			At 16.9': R-Scale = R1
			1			17.9-18.3' - soft	
			0	18.4-18.8' - Fracture zone, 60 deg, rough, undulating			At 18.2': R-Scale = R3-R4
19.6							
20 241.4			10+	19.8' - Fracture, horizontal, rough, planar 19.9-20.2' - Fracture, horizontal, rough, planar			R3: 08:18-08:27 on 7/12/2006
			10+	20.5-20.8' - Fracture, horizontal, rough, planar 21.0-21.1' - Fracture zone, horizontal and vertical, rough, planar			At 21.4': R-Scale = R2
	R3NQ 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 fine sand to fine sand, subangular to subrounded, well sorted	
			2	22.6' - Fracture, 60 deg, rough, undulating 22.9' - Fracture, 40 deg, rough, undulating		21.8-24.3' - fresh	At 23.4': R-Scale = R3-R4
			2				
24.6				24.3' - Fracture, horizontal, rough, undulating		24.3-26.3' - moderately weathered	
25 236.4			10+	24.5' - Fracture, horizontal, rough, undulating 24.7' - Fracture zone, rough, undulating			R4: 08:34-08:45 SC-1 collected 24.8-25.6'
			2	25.8-26.2' - Fracture zone, vertical, rough, undulating		25.6-25.8' - clay-like siltstone lens 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
	R4NQ 5 ft 104%	100*	2	26.6' - Fracture, horizontal, rough, planar		**Siltstone** 26.3-27.3' - dark reddish brown, mottled reddish black and greenish gray, very soft, moderately weathered 27.1-27.3' - clay seam, very soft to stiff, very fine to fine sand (0 - 30%) in clay, friable material	At 27.1-27.4': R-Scale = R0
			2	28.4-28.5' - Fracture zone, rough, undulating			
			1	29.0' - Contact between siltstone and sandstone, horizontal, rough, undulating			At 29.1-29.3': R-Scale = R0
29.6						**Sandstone** 27.3-27.5' - dark reddish brown, mottled reddish black and greenish gray, soft, thin bedding, very fine sand to coarse sand, subangular, poorly sorted, moderately weathered	
30 231.4			1	30.1' - Fracture, horizontal, rough, undulating			R5: 08:51-09:07 At 30.1-30.7': R-Scale = R2
			3	30.6-31.1' - Clay seams (3), horizontal, rough, planar, alternating with siltstone, friable material, very soft			At 30.7-32.7': R-Scale = R0
	R5NQ 5 ft 102%	34*	10+	31.2-31.3' - Fracture zone, horizontal, rough, planar, 0.02' thick clay infilling 31.4-33.3' - Clay seams, horizontal, rough, planar, up to 0.35' thick clay infilling		**Siltstone** 27.5-28.1' - dark reddish brown, mottled reddish black and greenish gray, very soft, moderately weathered	

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-19 SHEET 3 OF 5

ROCK CORE LOG

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

ORIENTATION : Vertical

WATER LEVELS : 9.6 ft bgs

START : 7/11/06 14:09

END : 7/13/06 14:25

LOGGER : LH/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			10+			28.0-28.1' - clay seam, very soft, 0 - 10% very fine sand, friable material	
			1	34.0' - Fracture, horizontal, rough, undulating		**Sandstone** 28.1-29.0' - white, soft to hard, laminated to thin bedding, very fine sand to coarse sand, subrounded, well sorted, moderately weathered 28.6' - siltstone lens 28.7-28.8' - siltstone lens	
	34.6						
35 226.4			5	35.0' - Fracture, horizontal, rough, planar		**Siltstone** 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 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 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 38.8-39.3' - soft 39.6-44.6' - mottled reddish black, soft, 0-20% very fine sand	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
				35.1' - Fracture, horizontal, rough, planar			
			1	35.2' - Fractures (2), horizontal, rough, planar 35.3' - Fracture, horizontal, rough, planar			
				36.1' - Fracture, horizontal, rough, planar			
	R6NQ 5 ft 97%	88	2	37.0' - Fracture, horizontal, rough, planar			
			2	37.6' - Fracture, horizontal, rough, planar			At 37.9': R-Scale = R3-R4
			0	38.5' - Fracture, horizontal, rough, planar 38.6' - Fracture, horizontal, rough, planar			At 39.0': R-Scale = R3-R4
	39.6						
40 221.4			0				R7: 11:04-11:14
			0				
	R7NQ 5 ft 104%	100	0				
			0				
			0				
	44.6						
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
			0				
	R8NQ 5 ft 98%	92	1	46.5' - Fracture, horizontal, rough, planar			At 46.9': R-Scale = R3-R4
			2	47.7' - Fracture, horizontal, rough, planar 48.0' - Fracture, horizontal, rough, undulating			
			0				
	49.6						
50 211.4			0			**Sandstone** 49.6-55.4' - dark reddish brown, very dark greenish gray, and white to light 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	R9: 11:33-11:43
			0				At 51.0': R-Scale = R3-R4
	R9NQ 5 ft 99%	99	0				

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-19	SHEET 4 OF 5

ROCK CORE LOG

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

ORIENTATION : Vertical

WATER LEVELS : 9.6 ft bgs

START : 7/11/06 14:09

END : 7/13/06 14:25

LOGGER : LH/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION — DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	LITHOLOGY: ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	COMMENTS: SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
			1	51.1' - Fracture, horizontal, rough, undulating			
			0				At 53.6': R-Scale = R4
	54.6						
55 206.4			2				R10: 11:46-12:02
			3	55.4' - Contact between siltstone and sandstone, horizontal, rough, undulating, black and greenish gray stains		**Siltstone** At 55.4' - dark reddish brown, mottled greenish gray, soft 55.4-58.6' - slightly weathered 55.4-57.6' - gravel sized white clasts 56.1-58.6' - very soft, laminated bedding	
	R10NQ 5 ft 103%	92	2	55.4' - Fracture, horizontal, rough, undulating, black and greenish gray stains 55.8' - Fracture, horizontal, smooth, undulating 55.9' - Fracture, horizontal, smooth, undulating			At 57.4': R-Scale = R4
			2	56.5' - Fracture, horizontal, rough, undulating 56.6' - Fracture, horizontal, rough, undulating, black and greenish gray stains			
			0	56.6' - Fracture, horizontal, rough, undulating, black and greenish gray stains		58.6-67.5' - fresh	
	59.6			56.7' - Fracture, horizontal, rough, undulating, black and greenish gray stains			
60 201.4			0	56.8' - Fracture, horizontal, rough, undulating, black and greenish gray stains			R11: 13:03-13:15
			1	57.6' - Fracture, horizontal, rough, undulating, black and greenish gray stains			
	R11NQ 5 ft 100%	94	0	61.5' - Fracture, horizontal, rough, undulating			At 62.0': R-Scale = R3-R4
			0				
			0				
	64.6						
65 196.4			0			64.6-67.5' - very soft to soft	R12: 13:29-13:39
			0				
	R12NQ 5 ft 98%	98	0				At 66.3': R-Scale = R3-R4
			0	67.5' - Contact between siltstone and sandstone, horizontal, rough, undulating		**Sandstone** 67.5-69.2' - very dark gray and light gray, soft to hard, medium bedding, fresh	SC-2 collected 67.5-68.3'
			0				R13: 13:45-13:54
	69.6						
70 191.4			0			**Siltstone** 69.2-70.2' - dark reddish brown, mottled trace greenish gray reddish black, soft, fresh, 0-30% very fine sand, contact is gradual, but abrupt 69.6-70.2' - 15% very fine to fine sand	
			0	70.2' - Contact between siltstone and sandstone			
	R13NQ 5 ft 102%	100	0			**Sandstone** 70.2-74.8' - very dark gray and light gray, soft to hard, medium bedding, fine sand to medium sand, fresh	

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

ROCK CORE LOG

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

ORIENTATION : Vertical

WATER LEVELS : 9.6 ft bgs

START : 7/11/06 14:09

END : 7/13/06 14:25

LOGGER : LH/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			71.6-74.8' - medium sand to coarse sand, alternates with fine to medium grained bed	
			0				At 73.7': R-Scale = R3
	74.6						
75 186.4			3	74.8-75.0' - Contact between siltstone and sandstone, 60 deg, rough, undulating, tightly healed, sharp, some mixing of materials		**Siltstone** At 74.8' - dark reddish brown, trace greenish gray and reddish black mottling, soft, fresh 74.8-78.4' - very soft 74.8-76.8' - gravel sized white clasts	R14: 13:59-14:14 SC-3 collected 75.1-76.1'
			0	75.0-75.1' - Fracture zone (3), horizontal, rough, undulating			
	R14NQ 5 ft 98%	92	3	76.8' - Fracture, horizontal, rough, undulating			
			2	77.25' - Fracture, horizontal, rough, planar 77.6' - Fracture, horizontal, rough, planar 77.7' - Fracture, horizontal, rough, planar 78.0' - Fracture, horizontal, rough, planar			
			0				At 78.6': R-Scale = R3-R4 At 81.2': R-Scale = R3-R4
	79.6						
80 181.4			0			79.6-82.1' - very soft to soft	R15: 14:19-14:25
	R15NQ 2.5 ft 96%	96	0				First water level = 9.6' bgs taken on 7/13/06; second water level = 3.2' bgs taken on 7/14/06
			0				R-scale performed after drilling on stored samples
	82.1						
						Bottom of Boring at 82.1 ft bgs on 7/13/06 14:25	
85 176.4							
90 171.4							

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-20 SHEET 1 OF 3

SOIL BORING 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

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 13:42

END : 7/11/06 10:20

LOGGER : LH

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	PP (TSF)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
261.5	0.0				**Topsoil** 0.0-0.5'			
		20.4	SS1SS	3-4-9-21 (13)	**Clay (CL)** 0.5-0.9' - reddish brown, mottled dark reddish gray, dry, medium stiff, trace roots			
	2.0				**Clay (CL)** 0.9-1.7' - dark reddish gray, dry, stiff			PT-1 collected 2.0-4.0' Offset: 10.2' N37W of BPA-20 Lab Results USCS: CL
	2.5	21.6	SS2SS	10-16-17-22 (33)	**Clay (CL)** 2.5-4.3' - dark reddish gray and reddish brown, mottled light greenish gray, moist, hard		4.5+	
	4.5							
5								
256.5	5.0				**Clayey Sand (SC)** 5.0-5.1' - dark reddish gray, moist, stiff			PT-2 collected 5.0-7.0' Offset: 10.2' N37W of BPA-20 Lab Results USCS: Sandy CL
		15.6	SS3SS	4-4-8-35 (12)	**Clay (CL)** 5.1-5.7' - dark reddish gray and reddish brown, mottled light greenish gray, moist, hard			
	7.0				**Clay (CL)** 5.7-6.3' - reddish brown, mottled reddish black and yellow, dry to moist, stiff			
	7.5	8.0	SS4SS	40-50/2 (50/2")	**Clay (CL)** 7.5-8.2' - reddish brown, mottled light greenish gray, dry to moist, hard			Soil sampling completed at 14:20 on 7/8/06
	8.2				Begin Rock Coring at 8.2 ft bgs See the next sheet for the rock core log			
10 251.5								
15 246.5								
20								

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-20	SHEET 2 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

WATER LEVELS : 5.3 ft bgs

START : 7/8/06 13:42

END : 7/11/06 10:20

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	8.2					**Siltstone**	Rock coring began at 17:05 on 7/10/06
	R1NQ 1.4 ft 111%	0	0	8.7' - Fracture, horizontal, rough, planar		At 8.2' - dark reddish brown, mottled reddish black and greenish gray, soft	R1: 17:10-17:16 on 07/10/06
	9.6		2	9.3' - Fracture, horizontal, rough, planar		8.2-8.5' - clay seam, firm to stiff	
10 251.5			10+	9.8' - Fracture, 15 deg, smooth, planar		8.2-13.2' - highly weathered	At 8.2'-8.4': PP: 2.0 tsf
				10.0-10.1' - Fracture zone, horizontal, rough, planar		8.2-9.6' - very soft, laminated bedding	At 9.0': R-Scale = R1
			1	10.2' - Fracture, horizontal, smooth, planar			R2: 17:28-17:44
				10.3-10.4' - Fracture zone, horizontal, rough, planar			
	R2NQ 5 ft 100%	49	2	10.4-10.5' - Fracture, 45 deg, rough, planar			
				10.7-10.8' - Fracture zone, horizontal, rough, planar		12.2-12.3' - clay seam, soft, friable material	
			0	11.9' - Fracture, horizontal, smooth, planar			
				12.3' - Fracture, horizontal, rough, undulating, soft, friable material		13.2-13.5' - very soft to soft	
						13.2-17.0' - slightly weathered	At 13.5': R-Scale = R3-R4
			0				
	14.6						
15 246.5			1	14.7' - Fracture, horizontal, smooth, planar		14.6-16.0' - soft	R3: 08:47-08:57 on 07/11/06
				15.6' - Fracture, horizontal, rough, undulating			
			2				At 15.7': R-Scale = R2-R3
				16.45' - Fracture, horizontal, smooth, planar			
	R3NQ 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
			0				At 18.9': PP: 4.5 tsf
	19.6						
20 241.5			0			19.6-21.0' - very soft, laminated bedding	R4: 09:03-09:12 and 09:20-09:23
						19.6-20.3' - clay seam, soft	At 19.8': PP: 3.0 tsf
			3	21.0' - Fracture, horizontal, rough, planar		19.6-19.9' - trace medium sand	
				21.4' - Fracture, horizontal, rough, planar		21.0-24.6' - fresh	
	R4NQ 5 ft 101%	71	0	21.5' - Fracture, horizontal, rough, planar			
			0			23.1-24.0' - trace medium sand	
							At 23.6': R-Scale = R3-R4
	24.6					24.2-24.6' - very soft, laminated bedding	
25 236.5			9	24.8-25.0' - Fractures (7), horizontal, rough, planar		24.6-33.8' - slightly weathered	R5: 09:27-09:40
				25.1-25.2' - Fractures (2), horizontal, rough, planar		24.8-25.2' - very soft, laminated bedding	
			3	25.7' - Fracture, horizontal, rough, planar		25.7-26.0' - very soft, laminated bedding	
				25.8' - Fracture, horizontal, rough, planar			At 26.3': R-Scale = R3-R4
	R5NQ 5 ft 102%	65	8	25.9' - Fracture, horizontal, rough, planar		26.6-27.1' - very soft, laminated bedding	
				26.7-26.9' - Fracture, horizontal, rough, planar			
				27.0' - Fracture, horizontal, rough, planar		27.4-28.1' - very soft, laminated bedding	
				27.1' - Fracture, 30 deg, rough, planar			

PROJECT NUMBER:	BORING 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

WATER LEVELS : 5.3 ft bgs

START : 7/8/06 13:42

END : 7/11/06 10:20

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0	27.4-27.5' - Fracture (3), horizontal, rough, planar			
			2	29.0' - Fracture, 20 deg, rough, planar			
29.6							
30 231.5			1	29.5' - Fracture, rough, undulating, parabolic shaped 29.8' - Fracture, horizontal, rough, planar		29.4-29.6' - very soft, laminated bedding	R6: 09:45-09:54
			0				
	R6NQ 5 ft 101%	81	0			31.4-32.6' - very soft, laminated bedding	At 32.3': R-Scale = R2
			0				
			5	33.8-34.2' - Fracture (4), horizontal, rough, planar		33.2-34.6' - very soft, laminated bedding 33.8-35.8' - moderately weathered	
34.6				34.4' - Fracture, horizontal, rough			
35 226.5			10+	34.7-35.0' - Fracture (6), horizontal, rough, planar		34.7-37.4' - very soft, laminated bedding	R7: 09:59-10:08
			3	35.3' - Fracture, 30 deg, rough, undulating 35.5-35.6' - Fracture zone, horizontal, rough, undulating		35.8-39.6' - slightly weathered 35.9-36.1' - white clasts	
	R7NQ 5 ft 100%	76	0	35.7' - Fracture, 30 deg, rough, undulating 35.8' - Fracture, 30 deg, rough, undulating 36.3' - Fracture, horizontal, rough, planar			At 37.0': R-Scale = R3-R4
			0				At 40.0': R-Scale = R2
			0				At 40.3' PP: 0.75 tsf R8: 10:16-10:20
39.6							First water level = 5.25' bgs taken 7/11/06 at 13:58; second water level = 5.5' bgs taken 7/12/06 at 12:10
40 221.5			2	40.0' - Fracture, horizontal, rough, undulating		39.2-41.2' - very soft, laminated bedding 39.6-41.2' - highly weathered	
	R8NQ 1.6 ft 97%	0	0	40.2-40.4' - Clay seam, horizontal, rough, undulating, with fractures at top, very soft			
41.2						40.9-41.0' - clay seam, very soft, friable material	R-scale performed after drilling on stored samples
						Bottom of Boring at 41.2 ft bgs on 7/11/06 10:20	
45 216.5							

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-21 SHEET 1 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

WATER LEVELS : 7.8 ft bgs

START : 7/20/2006

END : 7/21/06 11:00

LOGGER : MJ

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: PP (TSF)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
261.5	0.0	11.0	SS1SS	3-3-3-4 (6)	**Sandy Silt (ML)** 0.0-0.9' - very dark brown to light brown, loose, grades from dark to light, black specks in light brown material at bottom		1.5	
	2.0							PT-1 collected 2.0-4.0'
	2.5	18.0	SS2SS	2-2-2-4 (4)	**Sandy Silt (ML)** 2.5-4.0' - light brown, very loose, black fine grains at 3.0', organic roots		0.75	
	4.5							
5								
256.5	5.0	20.0	SS3SS	3-4-5-7 (9)	**Sandy Silt (ML)** 5.0-6.7' - light brown, loose, very fine to fine grained		3.0	PT-2 collected 5.0-7.0'
	7.0							
	7.5	17.0	SS4SS	6-7-13-33 (20)	**Sandy Silt (ML)** 7.5-8.9' - light brown, loose, very fine to fine grained **Sandy Silt (ML)** 8.0-8.5' - light and dark brown, medium stiff, fine grained **Sandy Silt (ML)** 8.5-9.2' - dark brown, medium stiff, fine grained		1.5-3.5	
	9.5							PT-3 collected 9.0-11.0' Offset: 1.9' S41W of BPA-21 Lab Results USCS: CL
10								
251.5	10.0	8.5	SS5SS	41-50/2.5 (50/2.5")	**Sandy Silt (ML)** 10.0-10.8' - very dark brown, trace mottling, hard, fine to medium grained, mica fragments		4.5	
	12.0							
	12.5	4.0	SS6SS	50/4 (50/4")	**Sandy Silt (ML)** 12.5-12.8' - black and very dark brown, hard, mica fragments		3.5	
	14.5							
15								
246.5	15.0	11.0	SS7SS	32-50/5 (50/5")	**Sandy Silt (ML)** 15.0-15.9' - very dark brown, trace mottling, hard, fine grained, mica fragments, black layers at 15.67' and 15.92'		3.5	
	17.0							
	17.5	8.0	SS8SS	12-20-50/2 (70/8")	**Sandy Silt (ML)** 17.5-18.3' - dark brown, trace mottling, hard, fine to medium grained, mica fragments		1.5-3.0	
	19.5							Soil sampling completed at 11:00 on 7/20/06
20								

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

WATER LEVELS : 7.8 ft bgs

START : 7/20/2006

END : 7/21/06 11:00

LOGGER : MJ

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	PP (TSF)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
241.5	20.0	3.0	SS9SS	50/3 (50/3")	**Silty Sand (SM)** 20.0-20.3' - light brown, very dense, fine to medium grained, sandy silt at top of sample, mica fragments Begin Rock Coring at 20.3 ft bgs See the next sheet for the rock core log			
	20.3							
25 236.5								
30 231.5								
35 226.5								
40								

PROJECT NUMBER:	BORING 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

WATER LEVELS : 7.8 ft bgs

START : 7/20/2006

END : 7/21/06 11:00

LOGGER : MJ

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
20.3	R1NQ 1.3 ft 72%	0	1			**Siltstone** 20.3-24.3' - dark reddish brown, mottled greenish gray and black, very soft, highly weathered 20.6' - clay seam, 0.01' thick	Rock coring began at 11:35 on 7/20/06
21.6							R1: 11:35-11:45 on 07/20/06 R2: 11:52-12:05
	R2NQ 5.5 ft 100%	0	0 0 0 0 0 1			24.2' - clay seam, 0.05' thick **Sandstone** 24.3-25.1' - light reddish brown, fine sand to medium sand, highly weathered, mica fragments 24.8' - black bands	
25 236.5						**Siltstone** 25.1-25.6' - dark reddish brown, mottled greenish gray and black, highly weathered	
27.1				26.8' - Fracture, smooth			
	R3NQ 4.9 ft 104%	61	2 1 0 0 1	27.2' - Fracture, smooth, undulating 27.8' - Fracture, 50 deg, smooth, undulating 28.8' - Fracture, 40 deg, smooth, undulating		**Sandstone** 25.6-26.1' - light reddish brown, mottled greenish gray, highly weathered, mica fragments **Siltstone** 26.1-27.1' - dark reddish brown, mottled throughout, highly weathered 26.1' - clay seam, 0.2' thick **Sandstone** At 27.1' - light reddish brown, mottled greenish gray and black, soft, slightly weathered, mica fragments 27.3-27.5' - mottling 28.5' - mottling	R3: 12:10-12:30 At 29.5': R-Scale = R3-R4 At 30.9': R-Scale = R3
30 231.5							
32.0							
	R4NQ 5 ft 90%	82	10+ 1 1	32.1' - Fractures, multiple, at top of run 34.5' - Fracture, 70 deg, rough		**Siltstone** At 29.1' - dark reddish brown, mottled pink and black, slightly weathered, fine grained, mica fragments 31.5' - mottled greenish gray and pink 33.5' - clay seam, 0.1' thick, very soft, with rock fragment	R4: 12:35-12:55
35 226.5			1 1 1	35.2' - Fracture, rough 36.3' - Fracture, 20 deg, rough		**Sandstone** At 33.7' - pinkish gray, fine sand to coarse sand, gray, white and black grains, alternating pinkish gray and reddish brown 33.7-37.2' - slightly weathered 34.8-34.9' - reddish brown band with gray and white coarse grains (0.15' thick) 35.2-35.7' - reddish brown, trace greenish gray mottling, fine sand to medium sand, white and gray grains (0.02' thick) 35.7-36.5' - some white and gray grains, 0.02' thick	SC-1 collected 35.2-36.35'
37.0							
	R5NQ 5.2 ft 104%	92	2 0 0	37.4' - Fracture, horizontal, smooth, undulating			R5: 13:11-13:32 At 38.9': R-Scale = R3-R4
40 221.5				40.0' - Fracture, smooth, undulating			

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-21	SHEET 4 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

WATER LEVELS : 7.8 ft bgs

START : 7/20/2006

END : 7/21/06 11:00

LOGGER : MJ

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			1	40.1' - Fracture, 40 deg, smooth, undulating, multiple fractures along one long fracture		36.5-37.2' - pinkish gray, fine sand to coarse sand	
			1	40.3' - Fracture, 35 deg, rough		37.2-39.6' - fresh	
						37.2-38.2' - reddish brown, mottled, fine sand	
	42.2		0			38.2-39.0' - greenish gray	
						39.0-39.6' - fine sand to medium sand, 0.05' thick inclusions	R6: 13:43-14:05
			0			**Siltstone**	
			0			At 39.6' - reddish brown, mottling throughout, laminated bedding, fresh	At 43.1': R-Scale = R3-R4
			0	43.7-44.5' - Microfractures		39.8-40.5' - reddish gray clasts	
	R6NQ 4.9 ft 100%	100	0			41.0-42.1' - 0.03' pinkish gray inclusions	
45 216.5			0			41.3' - 0.03' pinkish gray inclusions	
						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	
	47.1					42.1-42.8' - laminated bedding, transitions to more siltstone, pinkish gray clasts throughout	
			1	47.1' - Fracture, at top of run		42.8-43.7' - pinkish gray clasts	R7: 08:15-08:30 on 07/21/06
			0			43.7-44.5' - grains become coarse, fine to medium grains	At 47.8': R-Scale = R3
	R7NQ 5 ft 100%	97	0			44.5-45.0' - grains become coarser, more pinkish gray clasts	
50 211.5			0			45.0-45.9' - 0.05' thick pinkish gray clast	
						45.9-46.5' - 0.05' thick pinkish gray clast	At 49.8': R-Scale = R3
			0			46.5-47.0' - greenish gray mottling inclusions, more clasts speckled throughout, fine to medium grains	
	52.1					47.0-47.4' - 0.05' thick pinkish gray clast	
			0			47.4-48.0' - 0.02-0.06' thick greenish gray clasts	R8: 08:37-08:52
			0			50.6-51.2' - large greenish gray mottle inside core, with fine grains and trace medium grains	
			2	54.1' - Fractures (2), 35 deg and 40 deg, smooth, undulating, contact between siltstone and sandstone		51.2-52.9' - grains become more coarse, transitions to sandstone	
	R8NQ 5.4 ft 100%	94				**Sandstone**	
55 206.5			0			52.9-53.4' - pinkish gray, mottled, fine sand, fresh	
						Siltstone	
			0			53.4-54.1' - reddish brown, mottling throughout, fresh, very fine grained	
	57.5					**Sandstone**	
			0			At 54.1' - pinkish gray, fine sand to medium sand, fresh	At 56.9': R-Scale = R4
			0			55.0' - fine sand, 0.03' thick gray band, 150 degree angle	R9: 09:05-09:20
						55.2' - rust colored band	
						56.5' - rust colored band	SC-2 collected 58.6-59.6'
	R9NQ 4.6 ft 100%	100	1			56.9' - rust colored band	
60 201.5				59.8' - Fracture, horizontal, rough		57.2' - 0.01' thick gray band	
						58.6' - 0.01' thick rust bands 30 angle degree	

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-21 SHEET 5 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

WATER LEVELS : 7.8 ft bgs

START : 7/20/2006

END : 7/21/06 11:00

LOGGER : MJ

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			58.9' - 0.03' thick rust clast 59.1' - very fine sand to fine sand, transitions to siltstone; white, pink, gray grains	
			1			**Siltstone** 59.1-59.9' - dark reddish brown, fine sand 59.4-59.9' - mottling and gray clasts	At 61.6': R-Scale = R3-R4 R10: 09:25-09:40
62.1							
			1	62.2' - Fracture, horizontal, smooth		**Sandstone** At 59.9' - pinkish gray, fine sand to coarse sand, white, gray, pink, and rust colored grains	
			0	62.8' - Fracture, horizontal and 40 deg, smooth, undulating		61.0-61.7' - rust specks are clustered 61.7-61.9' - white specks are clustered	
65 196.5	R10NQ 5.4 ft 100%	100	1	64.4' - Fracture, horizontal, smooth, undulating		62.5-64.3' - gray, pink, rust colored grains	At 64.8': R-Scale = R3-R4
			0			64.3-66.1' - reddish brown, mottled throughout, sandstone with silt 66.1-66.3' - fine sand	
			1	66.3' - Fracture, horizontal, smooth, undulating		66.3-67.5' - sandstone with silt; gray, pink, rust grains	
67.5			0				
			0			67.7' - 0.01' thick rust colored band, 140 degrees	R11: 09:50-10:05
			0			68.6' - 0.05' greenish gray clast	
						69.1-69.2' - rust colored mottling clustered	
70 191.5	R11NQ 5 ft 104%	100	0			70.2-70.5' - rust colored mottling clustered 70.7' - soft, grains become coarser	
			0			71.3' - white inclusion	
			0				At 71.7': R-Scale = R4 R12: 10:10-10:30
72.5			XXX			72.1-76.1' - coarse sand, pink, white, gray, rust colored grains	
			0			72.4' - coarse grains, mostly pink, white, gray	
			0			73.0' - 0.01' thick inclusions 73.7' - 0.02' thick greenish gray mottling inclusion	Run R12NQ RQD of 100% includes extra recovery from previous run.
75 186.5	R12NQ 5 ft 96%	100	0			73.9-74.4' - rust colored mottling	
			0				
			1			**Siltstone** At 76.1' - reddish brown, green mottling throughout, soft, fine sand, fresh	At 76.4': R-Scale = R3-R4
77.5			XXX				R13: 10:40-11:00
			2	78.2' - Fracture, rough, undulating		77.7' - greenish gray clasts 77.8' - greenish gray clasts	
			0	78.4' - Fracture, rough, undulating 79.0' - Fracture, 30 deg, smooth, undulating		78.0' - greenish gray clasts	
						Sandstone 78.2-78.4' - sandstone band, pinkish gray, pink white, fine to medium grained	At 78.7': R-Scale = R5 First water level = 7.8' bgs taken 7/21/06 at 18:30; second water level = 7.6' bgs taken 7/22/06 at 17:06
80 181.5	R13NQ 5.2 ft	95	0				

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

WATER LEVELS : 7.8 ft bgs

START : 7/20/2006

END : 7/21/06 11:00

LOGGER : MJ

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION — DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	LITHOLOGY — ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	COMMENTS — SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
	100%		0			**Siltstone** At 78.4' - dark reddish brown, soft, dark round mottling 78.7' - dark round mottling 78.9' - dark round mottling 79.2' - mottling 80.1' - dark mottling 80.4' - dark mottling 80.7' - mottling 81.2' - mottling 81.4' - mottling 82.3' - mottling	SC-3 collected 80.9-82.0' R-scale performed after drilling on stored samples
			0				
82.7							
85 176.5						Bottom of Boring at 82.7 ft bgs on 7/21/06 11:00	
90 171.5							
95 166.5							
100 161.5							

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-22 SHEET 1 OF 6

SOIL BORING 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
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 bgs
START : 5/18/06 15:00
END : 5/22/06 11:15
LOGGER : JS

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	PP (TSF)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
262.1	0.0				**Sandy Silt (ML)** 0.0-0.4' - brown, moist, loose, low plasticity, 25% very fine to medium sand			
		12.0	SS1SS	3-2-4-5 (6)	**Clay (CL)** 0.4-1.0' - red, moist, low plasticity, slow dilatancy, color increasing in intensity with depth			
	2.0							
	2.5				**Fat Clay (CH)** 2.5-2.9' - reddish brown, mottled white, moist, stiff, medium to high plasticity, no dilatancy			
		14.0	SS2SS	3-7-16-21 (23)	**Lean Clay (CL)** 2.9-3.7' - reddish brown, mottled purple, black, white, moist, very stiff, medium plasticity, slow dilatancy		2.5	
	4.5							
5								
257.1	5.0				**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'
		16.0	SS3SS	8-10-12-20 (22)			4.0	
	7.0							
	7.5				**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 with depth			
		22.0	SS4SS	24-26-42-50/4.5 (68)				
	9.5				**Sandy Silt (ML)** 8.7-9.3' - light gray, mottled yellow and red, moist, dense, low plasticity, 30% very fine to fine sand, mica			
10								
252.1	10.0				**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			PT-2 collected 10.0-12.0'
		21.0	SS5SS	20-28-36-50/5 (64)				
	12.0							
	12.5				**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			
		13.0	SS6SS	12-21-30-27 (51)				
	14.5							
15								
247.1	15.0				**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			
		5.0	SS7SS	50/5 (50/5")				
	17.0							
	17.5				**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			
		4.0	SS8SS	16-50/4 (50/4")				Soil sampling completed at 09:50 on 5/19/06
	19.5							
20								

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-22 SHEET 2 OF 6

SOIL BORING 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

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 bgs

START : 5/18/06 15:00

END : 5/22/06 11:15

LOGGER : JS

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	PP (TSF)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
242.1	20.0	1.5	SS9SS	50/1.5 (50/1.5")	**Clay (CL)** 20.0-20.2' - reddish brown, mottled white, some yellow, black, moist, hard, low to medium plasticity, slow to rapid dilatancy			
20.2					20.0-20.3' - clay seam			
					Begin Rock Coring at 20.3 ft bgs			
					See the next sheet for the rock core log			
25 237.1								
30 232.1								
35 227.1								
40								

PROJECT NUMBER:	BORING 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

WATER LEVELS : 8.4 ft bgs

START : 5/18/06 15:00

END : 5/22/06 11:15

LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	20.3		1			**Siltstone** 20.3-21.0' - dark reddish brown, mottled, very soft, fine sand, highly weathered, clayey matrix	Rock coring began at 10:10 on 5/19/06 R1: 10:30-10:45
			0				
	R1NQ 4.7 ft 91%	52*	1			**Sandstone** 21.0-21.9' - brown, mottled, very soft, fine sand to medium sand, highly weathered, highly weathered	
			2	23.0' - Fracture, 5 deg, smooth, undulating, possible black staining		**Siltstone** At 21.9' - reddish brown, mottled, very soft, highly weathered 22.4-23.7' - dark reddish brown, mottled green, very soft to soft, moderately weathered	
			0				
25	25.0						
237.1			0			**Sandstone** At 23.7' - reddish brown, some mottling, soft, thin to medium bedding, fine sand to medium sand, multicolored grains, some clay around grains 23.7-28.8' - moderately weathered 25.0-28.4' - mottled, changes colors throughout core 25.0-26.7' - dark reddish gray to dark gray, becomes greenish gray, by 26.7', dark green mottling to 2" size 25.0-25.7' - fine sand to medium sand 25.7-28.4' - soft to hard, becomes coarse grained, a lot of clay around grains in coarse material, some in finer grained material 28.4-28.8' - clay seam 28.8-29.9' - dark greenish gray, some green and black mottling, fine sand, slightly weathered	R2: 10:55-11:07
			0				
	R2NQ 5 ft 104%	90*	1				
			1				
			1				
30	30.0						
232.1				29.9' - Fracture, 30 deg, smooth, undulating, black staining on surface 30.0-31.3' - Fine microfracture pattern			R3: 11:15-11:33
			0				
			2	31.3' - Fracture, horizontal, smooth, undulating 31.6' - Fracture, horizontal, smooth, stepped			SC-1 collected 30.2-31.0'
	R3NQ 5 ft 94%	90	0			**Siltstone** At 29.9' - dark reddish brown, mottled yellow, black, 30% green mottling, very soft, fine grained 29.9-44.0' - slightly weathered 30.0-31.3' - 5-10% green mottling 32.4-33.0' - soft, some very fine sand	
			1	33.2' - Fracture, horizontal, smooth, stepped			
			0				
35	35.0						
227.1			4	35.1' - Fracture, horizontal, smooth, undulating 35.2' - Fracture, horizontal, smooth, undulating 35.4' - Fracture, horizontal, smooth, undulating 35.6' - Fracture, horizontal, smooth, undulating		35.0' - soft	R4: 11:40-12:00
			0				
	R4NQ 5 ft 96%	72	0				
			1	38.2' - Fracture, horizontal, smooth, undulating			
			10+				
40	40.0			39.6-40.0' - Fracture zone			
222.1						40.0-41.0' - soft	R5: 13:43-13:56

PROJECT NUMBER:	BORING 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

WATER LEVELS : 8.4 ft bgs

START : 5/18/06 15:00

END : 5/22/06 11:15

LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, 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 5 ft 100%	56	0	41.9' - Fracture, 10 deg, rough, undulating		41.8-42.3' - soft	
			6	43.1' - Fracture, horizontal, rough, stepped			
			10+	43.3-43.5' - Fracture zone, horizontal, smooth, undulating		43.6-45.0' - fewer green mottles 44.0-45.4' - highly weathered 44.3' - clay seam, 0.1' thick clay infilling	
45 217.1	45.0						
			10+	45.4' - Contact between siltstones, 60 deg, smooth, stepped		45.0-45.4' - fewer green mottles 45.0-45.4' - clay seam 45.4-47.9' - green mottling, fresh, abundant mica particles, coarsens with depth	R6: 14:05-14:25
			1	46.4' - Fracture, 30 deg, smooth, undulating			
	R6NQ 5 ft 94%	88	0				
			0			**Sandstone** At 47.9' - dark reddish brown to gray, trace greenish gray mottling, soft, laminated to medium bedding, very fine sand to fine sand, fresh, faint convoluted laminae in last 0.5'	
			0				
50 212.1	50.0					50.0' - more convoluted laminae, scattered red brown silt inclusions in irregular shapes and bands, discontinuous bedding generally at 150 degrees, becomes lighter colored and more gray with depth	R7: 14:50-15:04
			0				
			0				
	R7NQ 5 ft 99%	99	0	52.6' - Contact between siltstone and sandstone, horizontal, smooth, stepped		52.4-52.6' - reddish brown siltstone swirled in with sandstone 52.6-53.4' - gray, soft to hard, fine sand to medium sand, multicolored grains, mottling around some grains, 10-15% scattered coarse grains 53.4-53.7' - medium sand to coarse sand, mottling around grains	
			0				
55 207.1	55.0						
			0			53.7-53.8' - dark gray, very fine sand to fine sand 53.8-54.2' - fine sand to medium sand, finer grained than 52.6-53.4' 54.2-54.3' - light gray, very fine sand to fine sand 54.3-55.0' - medium sand to coarse sand, mottling around grains	R8: No time recorded SC-2 collected 55.0-56.1'
			0				
	R8NQ 5 ft 95%	84	2	57.6' - Fracture, 10 deg, smooth, undulating			
			1	57.9' - Fracture, 10 deg and 30 deg, rough, undulating, in silt lens		55.0' - soft to hard, 10% coarse grains scattered throughout, 5% scattered silt inclusions to coarse sands size 56.7-57.6' - mottled, several hairline silt seams, dark gray mottling 57.6-57.9' - mixed siltstone and sandstone	
			0	58.8' - Fracture, 80 deg, rough, undulating			
60 202.1	60.0						R9: 15:27-15:39

PROJECT NUMBER:	BORING 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 ft bgs

START : 5/18/06 15:00

END : 5/22/06 11:15

LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			1	60.3' - Fracture, horizontal, rough, planar		**Siltstone** 57.9-58.0' - dark reddish brown, mottled greenish gray, soft, fresh	
			0			**Sandstone** 58.0-60.8' - gray, soft to hard, very fine sand to fine sand, fresh, pink mottling 58.4' - 10% coarse grains scattered throughout, 5% scattered silt inclusions to coarse sands size 58.5' - rhomboidal shaped feature, yellow and red with white; hard 60.7' - light gray, medium sand to coarse sand	
	R9NQ 5 ft 102%	100	0				
			0				
65	65.0		0				
197.1						**Siltstone** 60.8-60.9' - dark reddish brown, soft to hard, fresh	R10: 09:20-09:36 on 05/22/2006
			0			**Sandstone** At 60.9' - light reddish brown, hard, fine sand to medium sand, fresh 60.9-64.7' - banded in finer and coarser grained beds, trace silt inclusions 64.7-65.0' - soft to hard 65.0-66.4' - pinkish gray 65.0-67.4' - fine to medium grained with some coarse sand grains 67.4-68.7' - medium grained with 25% coarse grained material in bands 67.8-69.2' - pinkish gray 68.7-69.2' - more coarse sized material, to 1/4 size, some silt inclusions	
			0				
	R10NQ 5 ft 100%	98	0				
			1				
			0				
70	70.0						
192.1			0	69.9' - Fracture, 15 deg, smooth, undulating, not as loose fit			R11: 09:49-10:02
			2			**Siltstone** At 69.2' - dark reddish brown, mottled trace greenish gray, soft, fresh, fine grained 69.8-70.0' - trace very fine sand 70.5-71.0' - siltstone and sandstone beds alternating	
	R11NQ 5 ft 100%	98	0	72.1' - Fracture, 5 deg, rough, planar, in siltstone seam, tight			
			0	72.3' - Fracture, 10 deg, rough, undulating, loose fit		**Sandstone** 71.0-74.3' - very dark gray, mottled reddish with multicolored grains, soft to hard, medium sand, fresh, generally beds on 0-10 degrees, remainder on 20-30 degrees 71.0-71.6' - fine sand to medium sand 71.6-72.8' - fine grained, up to 20% medium grained, laminae siltstone lenses, some irregularly shaped 72.8' - becomes lighter colored, gray to dark gray with greenish tint 72.9-73.3' - medium to coarse grained, trace fine gravel 73.3-74.3' - fine grained, fine to medium grained, and medium grained, convoluted laminae to thin bedding	
			0				
75	75.0						
187.1			0				R12: 10:27-10:39
			1	76.3' - Fracture, horizontal, rough, undulating, in fine grained material			SC-3 collected 76.3-77.2'
	R12NQ 5 ft 99%	99	0				
			0				
			0				
80	80.0						
182.1							R13: 10:50-11:08

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 : 8.4 ft bgs

START : 5/18/06 15:00

END : 5/22/06 11:15

LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			**Conglomerate** 74.3-75.8' - very dark gray, soft to hard, coarse sand to fine gravel, fresh 74.3-75.0' - grades from sandstone to conglomerate	
			2				
	R13NQ 5 ft 101%	100	0			**Sandstone** 75.8-76.2' - very dark gray, soft to hard, fine sand, fresh, banded with light gray brown	First water level = 8.4' bgs taken 5/22/06 at 11:29; second water level = 7.6' bgs taken 5/23/06 at 18:00
			0			**Siltstone** 76.2-76.9' - black, mottled faint yellow and lighter gray, stained yellow-orange, very soft to soft, fresh, very fine sand lenses, light gray with mottling	
85 177.1	85.0		0			**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	R-scale not performed on rock core samples
90 172.1						**Siltstone** 82.9-85.0' - dark reddish brown, very soft to soft, fresh, fine grained	
95 167.1						Bottom of Boring at 85.0 ft bgs on 5/22/06 11:15	
100 162.1							

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 LEVELS : 5.3 ft bgs
START : 6/9/2006
END : 6/19/06 11:00
LOGGER : MJ/JS/JF/DT

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	PP (TSF)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
259.7	0.0	14.4	SS1SS	2-3-4-7 (7)	**Silty Sand (SM)** 0.0-1.2' - brownish yellow, moist, medium stiff to stiff, black specks			
	2.0							
	2.5	6.0	SS2SS	10-35-50 (85)	**Sandy Clay (CL)** 2.5-3.0' - brown, dark brown, hard			PT-1 collected 2.0-4.0'
	4.5							
5								
254.7	5.0	15.0	SS3SS	5-8-20-50 (28)	**Silty Sand (SM)** 5.0-5.4' - very dark brown, fine to medium grained, brown, black, and white grains, coarsens with depth **Sandy Clay (CL)** 5.4-6.3' - light brown, very stiff, fine grained		2.0	PT-2 collected 5.5-7.5' Offset: 3.5' S44E of BPA-23 Lab Results USCS: SC-SM & SC
	7.0							
	7.5	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 clay **Silt (ML)** 8.1-8.4' - brown, some mica particles, some clay, banded with greenish gray mottling			
	9.5							
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			
	12.0							Soil sampling completed at 16:20 on 6/9/06
	12.5 12.8	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	
15								
244.7								
20								

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-23	SHEET 2 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

WATER LEVELS : 5.3 ft bgs

START : 6/9/2006

END : 6/19/06 11:00

LOGGER : MJ/JS/JF/DT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	12.8 R1NQ 1.2 ft 107% 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
						12.8' - clay seam, 0.05' thick	R1: No time recorded on 06/15/06
						12.8-28.0' - highly weathered to completely weathered	R2: No time recorded
15 244.7			0				
			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			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)			
			8	18.8' - Fractures (2), 60 deg and 60 deg, rough, undulating		19.3-19.8' - very fine sand	R3: 08:54-09:15
20 239.7			10+	19.5-19.7' - Fractures (8), horizontal and 10 deg, black stains			
						20.8-20.9' - clay seam, bedrock	
	R3NQ 5 ft 100%	0	10+			21.0-21.1' - clay seam	SC-2 collected 21.8-23.0'
			0				At 21.1-23.0': R-Scale = R0-R1
						22.8-23.4' - very fine sand	
			10+				At 23.0-25.0': R-Scale = R0-R1
	24.0			23.5' - Fracture, 5 deg, in weak rock			
			1	23.7-24.3' - Fracture, 5 deg, 1/2-1 clay seams and very soft rock			R4: Finished at 09:25
25 234.7				24.0' - Fracture, horizontal			
						25.0-25.5' - clay seam	At 25.0-26.0': R-Scale = R2
			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	
	R4NQ 5 ft 97%	20	0				
						27.0-27.6' - very soft, clay seams, mixed with rock	
			10+			27.6-29.0' - few green mottles, up to 35% fine sand	
			3	28.3-28.7' - Fractures (3), horizontal, smooth, undulating, some black and yellow staining		28.0-39.0' - slightly weathered	At 28.0': R-Scale = R2
	29.0						
			0				R5: Finished at 10:10
30 229.7							
			0			30.0-30.5' - mottled greenish gray	
						30.5-32.1' - mottled greenish gray and purple, soft, up to 40% very fine sand	At 30.5': R-Scale = R3-R4
	R5NQ 5 ft 92%	71	10+				Driller Remarks: Expect lost recovery in clayey seam, very fast drilling in this section
						31.6-32.1' - clay seam	
			0			32.1-33.1' - very soft to soft, 5-15% very fine sand	

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-23	SHEET 3 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

WATER LEVELS : 5.3 ft bgs

START : 6/9/2006

END : 6/19/06 11:00

LOGGER : MJ/JS/JF/DT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R.Q.D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			2	33.1' - Fracture, 45 deg, smooth, undulating, black and orange staining 33.3' - Fracture, 45 deg, partly open to <0.5 mm		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
	34.0						
35 224.7			5	34.0-34.3' - Fracture zone, vertical, rough, undulating			At 34.5' R-Scale = R3-R4
			0				
	R6NQ 5 ft 100%	84	0			36.2-36.5' - very dark gray, mottled dark green and yellow, soft 36.5-37.4' - soft, very fine to fine sandy lenses 37.4-39.0' - very dark gray, mottled green, yellow, trace to 10% very fine sand, grades to sandstone	At 36.5' R-Scale = R3-R4
			4				
			5	37.8' - Fracture, horizontal, rough, undulating, some small bedrock fragments and some clay			
	39.0						
			0			**Sandstone** 39.0-40.3' - dark gray with white and gray grains, soft to hard, slightly weathered, fine to medium sand, most bedding on 20 degree angle	R7: 11:00-11:19
40 219.7							At 39.5': R-Scale = R4
			10+	40.2' - Fractures (2), 10 deg 40.3' - Fractures (2), 30 deg and 40 deg, smooth, undulating		**Siltstone** At 40.3' - very dark gray, mottled green, very soft, fine sand, moderately weathered	At 40.5': R-Scale = R1
	R7NQ 5 ft 102%	76*	3	40.5' - Fractures (2), horizontal, smooth, undulating			
			1	41.1' - Fracture, 10 deg, slickensided, undulating, green staining 41.3' - Fracture, horizontal, rough, stepped 41.8' - Fracture, horizontal, rough, stepped		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	At 42.2': R-Scale = R4
			0	42.0-42.1' - Fractures (2), horizontal and 20 deg, smooth, undulating			
	44.0					**Sandstone** 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
			5	44.6-44.9' - Fractures (5), horizontal, to 5 deg, smooth, undulating			
45 214.7			1	45.1' - Fracture, 20 deg, smooth, undulating		**Siltstone** 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 sand, irregularly shaped siltstone clasts 45.5-49.4' - up to 40% very fine sand	At 45.5': R-Scale = R4
	R8NQ 5 ft 99%	88	0				
			0				
			0				At 48.0': R-Scale = R3-R4
	49.0						
			0				R9: 13:02-13:24
50 209.7			0			49.4-50.9' - fine sand, coarsens with depth, up to 60% fine white and black sand	
	R9NQ 5 ft 96%	89	0			50.9-54.8' - mottled green and purple, up to 10% very fine grained sand	
			2				SC-3 collected 51.1-52.2'

PROJECT NUMBER:	BORING 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

WATER LEVELS : 5.3 ft bgs

START : 6/9/2006

END : 6/19/06 11:00

LOGGER : MJ/JS/JF/DT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			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
	54.0		1	54.5' - Fracture, 60 deg, smooth, undulating, tight			R10: 08:00-08:50 on 06/16/06
55 204.7			2	55.4' - Fracture, <5 deg, rough, undulating, tight 55.8' - Fracture, <5 deg, rough, undulating		54.8-56.2' - pinkish gray clasts, <0.03' diameter, fine grained	
	R10NQ 4.5 ft 100%	72	1	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 break 30v50 tight			
	58.5		0				R11: 08:55-09:25
			0				
60 199.7			1	59.8' - Fracture, 40 deg, rough, undulating, tight		**Sandstone** 59.6-60.1' - dark reddish brown, mottled blue-green, soft, fresh, fine to medium grained	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, tight		**Siltstone** At 60.1' - dark reddish brown, trace blue-green mottling, very soft to soft, fresh, fine grained	
			1				
	63.5		0	63.1' - Fracture, <5 deg, rough, undulating, tight			At 63.0': R-Scale = R4 R12: 09:40-10:00 At 63.5': R-Scale = R5
			1				
65 194.7			0				
	R12NQ 5 ft 100%	83	0			66.2-67.0' - light pinkish gray clasts	
			0				At 67.0': R-Scale = R4
			1	67.9-69.0' - Fracture, >80 deg, rough, undulating		67.5-68.8' - dark purple mottles	
	68.5		1				R13: 10:20-11:15
70 189.7			1			69.4-70.0' - light pinkish gray clasts	
	R13NQ 5 ft 100%	100	4				At 70.0': R-Scale = R4 At 70.5': R-Scale = R4
			0				

PROJECT NUMBER:	BORING NUMBER:	
338884	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

WATER LEVELS : 5.3 ft bgs

START : 6/9/2006

END : 6/19/06 11:00

LOGGER : MJ/JS/JF/DT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	73.5		0				
			0			73.5-74.5' - very fine to fine sand	R14: 11:20-11:40
75 184.7			0			74.5-76.4' - with thin light blue to purple mottles, gradational contact to sandstone	At 75.0': R-Scale = R4
	R14NQ 5 ft 100%	100	0				
			0			**Sandstone** At 76.4' - reddish gray, soft, fresh, very fine to fine, some rip up clasts 76.5-78.5' - interbedded siltstone lenses (4) 0.1 to 0.2' thick, dark reddish brown to blue-gray	
	78.5		0				At 78.0': R-Scale = R4
			0			78.5-82.8' - multicolored--black/white, pink/tan, blue/gray, hard, fine sand to coarse sand, trace rip up clasts, quartzitic	R15: 12:00-12:30
80 179.7			0				
	R15NQ 5 ft 100%	100	0				At 81.0': R-Scale = R4
			0				
			0				
	83.5		0			82.8-82.9' - laminated dark gray siltstone lens, 20 degree bedding 82.9-83.5' - fine sand to medium sand	R16: 12:35-13:00
			0			83.5-84.7' - light reddish brown, soft to hard, medium sand to coarse sand, feldspathic, 20 degree bedding at bottom	At 84.0': R-Scale = R3
85 174.7			0			84.7-85.4' - pinkish white, hard, medium sand to coarse sand, quartzitic	At 85.0': R-Scale = R4
	R16NQ 4.3 ft 100%	100	0	85.4' - Contact between siltstone and sandstone, sharp		**Siltstone** 85.4-97.5' - very dusky red to dark reddish brown, mottled blue-green, very soft to soft, fresh, fine grained	SC-4 collected 85.6-86.8'
			0			85.7-94.0' - mottled purple and green 85.7-86.2' - <0.007' light pink clasts	R17: 13:10-13:35
	87.8		0				At 88.0': R-Scale = R3
			0				
90 169.7			0				
	R17NQ 5 ft 100%	100	0				
			0				At 91.0': R-Scale = R3
			0				
	92.8						

PROJECT NUMBER:	BORING 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

WATER LEVELS : 5.3 ft bgs

START : 6/9/2006

END : 6/19/06 11:00

LOGGER : MJ/JS/JF/DT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	R18NQ 1.2 ft 100%	100	0				R18: 13:40-13:55
94.0			0				At 93.0': R-Scale = R3
			0			94.0-97.5' - very dark gray, soft, 25 degree bedding planes, laminated, very fine grained with trace very fine to fine sand	R19: 14:00-14:15
95 164.7			0				
	R19NQ 5 ft 100%	100	2				At 96.0': R-Scale = R4
			0	97.4' - Fracture, 25 deg, smooth, planar, very tight slickensided surfaces on MB's (upper portion)		**Sandstone** At 97.5' - very dark gray, soft, fresh, fine	At 97.5': R-Scale = R5
99.0			0	97.5' - Fracture, 25 deg, smooth, planar, very tight		98.2-99.0' - medium sand to coarse sand	
			0			**Conglomerate** 99.0-99.2' - very dark gray, hard, fresh	R20: 14:20-14:45
100 159.7						**Sandstone**	At 99.5': R-Scale = R5
			0			At 99.2' - very dark gray with black, gray and white, hard, fine sand, fresh, up to 20% medium grained, some banding	
	R20NQ 5 ft 100%	94	2			101.6' - very thin black thread like lens, scattered siltstone clasts	
			1	101.9' - Contact between sandstones, sharp contact at 20 deg		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'	At 102.5': R-Scale = R4
			1	102.4' - Fracture, 20 deg, smooth, planar, in gray lens, thin clay coating over ~1/2 of surface			
104.0				103.8' - Fracture, horizontal, rough, undulating		102.4' - fine grained lens at fracture, 0.03' thick	
			0	104.3' - Contact between sandstones, 20 deg, sharp		102.9-103.0' - soft to hard 103.8-103.9' - soft to hard	R21: 14:50-15:10 At 104.5': R-Scale = R3-R4
105 154.7			0	105.1' - Contact between sandstones, horizontal, sharp		**Siltstone** 104.3-104.4' - very dark gray, very soft to soft, laminated bedding, fresh, very fine grained, laminations are gray and black	
	R21NQ 5 ft 98%	94	0				SC-5 collected 106.4-107.4'
			2			**Siltstone** 104.4-105.1' - dusky red, mottled green, soft, fresh, very fine to fine grained, banded with gray and black thready lenses	
			0	108.3' - Fracture, horizontal, rough, undulating		**Sandstone**	
109.0				108.4' - Fracture, horizontal, rough, undulating		105.1-111.6' - dusky red, hard, very fine sand to fine sand, subrounded to subangular, poorly sorted, fresh, 25% medium grained	R22: 15:15-15:27 At 109.5': R-Scale = R5
			0			105.1-106.1' - siltstone lens	SC-6 collected 112.15-113.15'
110 149.7			0			108.2-109.0' - siltstone lenses 109.0-109.1' - siltstone lens	
	R22NQ 5 ft 101%	100	0			111.4-111.6' - contact zone, material mixed, irregularly shaped contact	
			0				At 112.0': R-Scale = R2

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-23 SHEET 7 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

WATER LEVELS : 5.3 ft bgs

START : 6/9/2006

END : 6/19/06 11:00

LOGGER : MJ/JS/JF/DT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			**Siltstone** At 111.6' - dark reddish brown, faintly mottled yellow-green and purple, very soft to soft, fresh, very fine grained 114.0-115.3' - heavily mottled green, yellow, red, fine fractures throughout	R23: 15:34-16:00
114.0							
			6	114.4' - Fracture, 20 deg, smooth, stepped, with 0.02' relief			At 114.5': R-Scale = R2
115 144.7			2	114.8-115.2' - Fractures (5), horizontal, to 10 deg, smooth to rough, undulating, several hairline fractures		115.3-116.0' - begin picking up very fine sand, coarsens with depth, gradational contact	At 115.5': R-Scale = R4
	R23NQ 5 ft 90%	84	0	115.3' - Fracture, horizontal, smooth, stepped, 0.02' relief 115.5' - Fracture, 20 deg, hairline		**Sandstone** 116.0-117.7' - dark reddish brown, mottled green and yellow, fresh, interbedded sandstone and siltstone, sandstone is very fine to fine grained, hard, siltstone is soft, laminated to thin bedding, gradational contacts	
			0				
			0				
119.0							
			0			**Siltstone** At 117.7' - dark reddish brown, mottled green and yellow, soft, fresh, fine grained, little sand	R24: 08:43-09:13 on 06/19/06
120 139.7			0	119.7' - Contact between siltstone and sandstone, horizontal, sharp contact		120.5-123.0' - mottled bluish gray, bioturbation	At 119.5': R-Scale = R3
	R24NQ 5 ft 100%	100	0				At 121.0': R-Scale = R3
			0				
			0				
124.0							
			0			124.0-124.9' - mottled dark purple, bioturbation	R25: 09:17-09:40 At 124.0': R-Scale = R3
125 134.7			0			125.3-129.3' - 30% fine sand, micaceous, feldspar	
	R25NQ 5 ft 98%	98	0				At 126.0': R-Scale = R4
			0				
			0				
129.0							
			0			129.3-130.3' - mottled bluish gray, bioturbation	R26: 09:52-10:14 At 129.0': R-Scale = R3
130 129.7			1	130.5' - Fracture, 40 deg, slickensided, undulating, loose		130.3-130.7' - bluish gray, very fine to fine grained 130.7-131.5' - micaceous	At 130.5': R-Scale = R3-R4
	R26NQ 5 ft 101%	100	0			131.5-134.5' - mottled bluish gray, 30% fine to coarse sand, micaceous, feldspar	
			0				

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

WATER LEVELS : 5.3 ft bgs

START : 6/9/2006

END : 6/19/06 11:00

LOGGER : MJ/JS/JF/DT

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

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-24 SHEET 1 OF 5

SOIL BORING 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
DRILLING EQUIPMENT AND METHOD : CME-550, Tricone Bit, 24" Split Spoon, and 140 lb. Automatic Hammer
ORIENTATION : Vertical
WATER LEVELS : 7.6 ft bgs
START : 6/7/06 09:30
END : 6/8/06 13:51
LOGGER : JS

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	PP (TSF)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
259.0	0.0							
		18.0	SS1SS	2-2-9-42 (11)	**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, rootlets		0.5	
	2.0				**Silt Clay (CL)** 0.8-1.5' - pale brown, dark reddish brown mottling, moist, very stiff, low plasticity, rapid dilatancy			
	2.5				**Fat Clay (CH)** 2.5-2.8' - brown, moist, stiff, medium to high plasticity, slow to no dilatancy			
		11.0	SS2SS	10-50 (50")	**Sandy Silt (ML)** 2.8-3.4' - pale yellow, dry to moist, hard, low plasticity, rapid dilatancy, up to 10% very fine sand		<0.5	
	4.5							
5								
254.0	5.0				**Sandy Silt (ML)** 5.0-6.3' - brown, black, yellow and pale orange mottling, dry to moist, hard, low to medium plasticity, 15-20% very fine sand			
		15.0	SS3SS	32-42-50/3 (92/9")				PT-1 collected 2.0-4.0'
	7.0							
	7.5				**Sandy Silt (ML)** 7.5-7.8' - brown, black, yellow and pale orange mottling, dry to moist, hard, low to medium plasticity, 15-20% very fine sand			
		4.0	SS4SS	50/4 (50/4")				PT-2 collected 9.0-11.3' Offset: 3.8' N44W of BPA-24 Lab Results USCS: Sandy CL
	9.5							
10								
249.0	10.0				**Lean Clay (CL)** 10.0-11.1' - reddish brown, black and whitish mottling, dry to moist, hard, low to medium plasticity, slow dilatancy			
		13.0	SS5SS	17-21-50 (71)				
	12.0							
	12.5	0.5	SS6SS	50/0.5 (50/0.5")	**Sandy Silt (ML)** 12.5-12.6' - gray to pinkish gray, brown mottling, dry to moist, hard, very soft, fine sand to medium sand, some silt, medium grained particles are white, some mica some quartz; some black mottling			Soil sampling completed at 11:50 on 6/7/06
	12.6				Begin Rock Coring at 12.6 ft bgs See the next sheet for the rock core log			
15								
244.0								
20								

PROJECT NUMBER:	BORING NUMBER:
338884	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

WATER LEVELS : 7.6 ft bgs

START : 6/7/06 09:30

END : 6/8/06 13:51

LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	12.6		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 sand, slightly weathered	Rock coring began at 12:00 on 6/7/06
	R1NQ 2.3 ft 104%	100	1				R1: 12:10-12:18 on 06/07/06 At 13.6': R-Scale = R3
15	14.9		0	14.4' - Fracture, 30 deg, rough, planar			
244.0			1			14.9-16.3' - few black laminae siltstone lenses	R2: No time recorded
			1	15.5' - Fracture, 20 deg, smooth, stepped, some black stains, 0.02' relief		15.9-16.3' - soft, 15-20% coarse sand	At 15.9': R-Scale = R3
	R2NQ 5 ft 98%	95*	1	16.9' - Fracture, horizontal, rough, undulating, <0.01' relief		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	
			0	17.8' - Fracture, horizontal, smooth, undulating			
			10+				
20	19.9						
239.0			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 fracture has 0.03' white fat clay infilling		**Fat Clay (CH)** 19.7-19.9' - moderately weathered, clay lens and bedrock pieces	At 19.65-23.6': R-Scale = R0-R1 R3: 14:02-14:13
			4			**Sandstone & Siltstone** 19.9-20.8' - brown, very soft to soft, laminated to thin bedding, fine sand to coarse sand, moderately weathered, well sorted	
	R3NQ 5 ft 100%	52*	2			**Clay (CL)** 20.8-22.4' - mottled, very soft	SC-1 collected 22.65-23.6'
			0			**Siltstone** At 22.4' - reddish brown, faintly mottled green and yellow, very soft, fine grained, very friable 22.4-40.5' - moderately weathered	
			0				At 24.1': R-Scale = R2
25	24.9						
234.0			10+	24.9-25.2' - Fracture zone, clay, friable material		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
			1				
	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
			10+			28.3-28.6' - 1/2" thick clay/clay-like rock seams, 2	
			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		29.1-29.9' - trace green mottling, very soft to soft, very fine grained, 40% coarse silt or very fine sand, many hairline fractures	At 28.3-28.9': R-Scale = R0-R1
30	29.9						
229.0			1	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			R5: 14:55-15:09 At 30.0': R-Scale = R3
			0			31.1-32.8' - rounded, 5-10% black coarse sand	
	R5NQ 5 ft	92*	2				

PROJECT NUMBER:	BORING 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

WATER LEVELS : 7.6 ft bgs

START : 6/7/06 09:30

END : 6/8/06 13:51

LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	103%			32.6' - Fracture, horizontal, rough, undulating, bedrock fragments, coarse sand sized		32.8-32.9' - clay seam	At 32.5-33.0': R-Scale = R0-R1
			1	32.9' - Fracture, horizontal, rough, stepped, 0.03' relief		33.1-33.2' - clay/clay-like rock seam	
			0	33.2' - Fracture, 5 deg, smooth, undulating		33.2-39.9' - faint white, brown and gray mottling, very soft to soft	At 34.0': PP = 2.5 tsf
35	34.9						
224.0			NA				R6: 15:45-16:08
			NA	35.5' - Fracture, horizontal, smooth, stepped 35.8-36.0' - Fracture zone (2), horizontal, smooth, undulating			At 36.3-37.65': R-Scale = R0-R1
	R6NQ 5 ft 104%	38*	NA	36.4-36.7' - Fracture, horizontal, smooth, undulating 36.8' - Fracture, 60 deg, undulating, <0.0002' white infilling, tightly healed		37.0-37.2' - clay seam and bedrock fragments 37.4-37.7' - clay and clay-like rock seam, friable	
			NA			38.7-38.8' - clay and bedrock flakes	
			10+	39.1-39.9' - Fracture zone, horizontal, few clay seams to 1/4-1/2 thick		39.0-39.1' - clay and bedrock flakes	At 39.1-39.6': R-Scale = R0-R1
40	39.9						
219.0			5	40.3-40.5' - Fractures (4), horizontal, smooth to rough, stepped to undulating, up to 0.03' relief, small bedrock fragments		39.9-41.1' - heavy green, purple, and yellow mottling, very soft to soft, multiple clay seams 40.3-40.5' - likely site of breaks 40.5-53.0' - fresh	R7: 08:40-09:00 on 06/8/06
			0	41.0' - Fracture, horizontal, smooth, undulating		41.1' - fine to medium grained, becoming coarser with depth, coarser silt	
	R7NQ 5 ft 101%	98*	1	42.1' - Fracture, horizontal, smooth, undulating			At 41.65': R-Scale = R3-R4
			0			42.8' - green and purple mottling, soft, 40-50% coarse silt and up to 20% fine to medium white sand grains throughout	
			1	44.4' - Fracture, 70 deg, undulating, lift 0.0003' wide			At 43.9': R-Scale = R3-R4
45	44.9						
214.0			8	44.9-45.1' - Fracture, 60 deg, smooth, undulating		44.9-46.5' - 30-40% coarse silt/very fine sand	R8: 09:04-09:20
			0	45.3' - Fracture, 60 deg, smooth to rough, undulating, 0.01' relief			
	R8NQ 5 ft 98%	94	0			46.5-46.9' - green mottling, soft	SC-2 collected 46.3-47.35'
			0				At 48.3': R-Scale = R3-R4
			1	49.3' - Fracture, horizontal, rough, undulating			
50	49.9						
209.0			0				R9: 09:27-09:44
			1	51.5' - Fracture, horizontal, smooth, undulating to stepped, 0.01' relief		51.0-53.0' - dark reddish gray, sand content varies in irregular bands, over several inches, 60% very fine to medium sand and 40% silt	At 50.7': R-Scale = R3-R4
	R9NQ 5 ft	88	0				

PROJECT NUMBER:	BORING 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 : 7.6 ft bgs

START : 6/7/06 09:30

END : 6/8/06 13:51

LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	100%		0			**Sandstone & Siltstone** 53.0-54.1' - dark reddish gray, soft to hard, fresh, mixed sandstone and siltstone lenses, irregular beds and lenses 53.2-53.5' - swirled patterns in sandstone, harder in sandier zones, softer in finer zones	
			10+				At 54.2-54.6': R-Scale = R0-R1 At 54.4-54.6': PP: 2.75 tsf R10: 09:53-10:09
55 204.0	54.9		10+	55.3' - Fracture, horizontal, smooth, undulating, bedrock flakes; likely in weak lens		**Siltstone** At 54.1' - dark reddish gray, heavy green mottling, soft, fresh, mostly siltstone	
			3	55.9-56.2' - Fractures, horizontal, smooth, undulating, <0.05' clay infilling, bedrock fragments		54.4-54.6' - clay seam	
	R10NQ 5 ft 100%	79	0			54.6-79.9' - dark reddish brown, heavy green mottling, very soft	At 57.3': R-Scale = R3-R4
			5	58.2-58.3' - Fractures (2), horizontal, smooth, undulating, bedrock fragments		56.2-58.2' - fine grained, 30-40% coarse silt	
			0	58.7' - Fracture, 5 deg, smooth, undulating, 0.01' clay infilling		57.5-57.8' - sandy lens; fine white sand, black threads	
60 199.0	59.9		0	58.9' - Fracture, horizontal, smooth, undulating, 0.02' relief		58.6-65.2' - fine grained 59.9-61.0' - increasing coarse silt/very fine sand with depth	R11: Finished at 12:30
			0				
	R11NQ 5 ft 100%	100	0			61.0-62.4' - up to 60% fine sand, amount varies in irregular shaped zones over several inches; scattered siltstone clasts up to 1/4; up to 10% white medium sand	At 61.7': R-Scale = R3-R4
			0			62.4-63.8' - 10-25% very fine sand	
			0			63.8-64.9' - up to 60% very fine sand	At 63.7': R-Scale = R3-R4
65 194.0	64.9		1	65.2' - Fracture, horizontal, smooth, undulating, tight fit		64.9-65.2' - 50-60% very fine sand; 4 long pink sand lense, oval shaped along vertical axis of borehole	R12: 12:43-13:10
			0			65.2-69.9' - trace green and purple mottling, fine grained; up to 25% very fine sand; trace white clasts to 1/4	
	R12NQ 5 ft 100%	96	0			66.5-67.1' - less sand with depth	
			0			67.5-68.2' - trace white sand, medium grained	
			1	68.9' - Fracture, horizontal, smooth, undulating, tight fit			At 68.3': R-Scale = R3-R4
70 189.0	69.9		0			69.9-74.5' - fine grained	R13: 13:16-13:30
			0				
	R13NQ 5 ft	100	0				At 71.5': R-Scale = R3-R4

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-24 SHEET 5 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 : 7.6 ft bgs

START : 6/7/06 09:30

END : 6/8/06 13:51

LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	100%		0				First water level = 7.6' bgs taken 6/8/06 at 15:40; second water level = 5.9' bgs taken 6/9/06 at 14:25
			0				
75 184.0	74.9		0			74.9-79.9' - scattered medium grained sand in last 0.5'	R14: 13:37-13:51
			0				At 75.9': R-Scale = R3-R4
	R14NQ 5 ft 96%	96	0				SC-3 collected 76.9-77.9'
			0				At 78.4': R-Scale = R3-R4
			0				R-scale performed after drilling on stored samples
80 179.0	79.9		XXX			Bottom of Boring at 79.9 ft bgs on 6/8/06 13:51	
85 174.0							
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

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

ORIENTATION : Vertical

WATER LEVELS : 17.7 ft bgs

START : 4/28/06 14:15

END : 5/3/06 11:05

LOGGER : JS/JF

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
266.4	0.0				**Lean Clay (CL)** 0.0-1.1' - yellow, mottled, moist, medium stiff, medium plasticity, 15% scattered fine sand, becomes red		
		13.0	SS1SS	2-3-3-5 (6)			
	2.0						
	2.5				**Lean Clay (CL)** 2.5-3.2' - reddish yellow, heavily mottled with multiple colors, moist, medium stiff to stiff, low to medium plasticity		
		15.0	SS2SS	3-3-22-50 (25)	**Fat Clay (CH)** 3.2-3.5' - heavily mottled white and red, moist, stiff, high plasticity, no dilatancy, laminated		
	4.5						Drilling became hard at 4.5'
5 261.4					**Clay (CL)** 3.5-3.8' - weak red, moist, stiff to hard, fine sand and mica particles, weathered bedrock in shoe		Driller missed sample at 5'. Rock likely at 5' +
							Soil sampling completed at 15:00 on 4/28/06
	7.5	1.5	SS3SS		**Clay (CL)** 7.5-7.6' - reddish brown, hard		
	7.6			50/1.5 (50/1.5")	Begin Rock Coring at 8.0 ft bgs See the next sheet for the rock core log		
	8.0						
10 256.4							
15 251.4							
20							

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-25	SHEET 2 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 bgs

START : 4/28/06 14:15

END : 5/3/06 11:05

LOGGER : JS/JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	8.0		1	8.5' - Fracture, 50 deg, smooth, undulating		**Sandstone** 8.0-13.3' - light gray, very soft, fine sand to medium sand, highly weathered to completely weathered, multicolored grains	Rock coring began at 15:30 on 4/28/06 R1: 15:30-15:55
			1				
10 256.4				9.7' - Fracture, horizontal, smooth, planar			
			0				
			10+	11.0-11.2' - Fracture zone, horizontal and 70 deg, loose sand and clay			
	R1HQ 8 ft 87%	0		11.8' - Fracture, horizontal, rough, undulating, loose sand and clay			
			2	12.6 and 13.0' - Fractures (2), 0-10 deg, smooth, undulating, loose sand and clay			
			1			**Claystone** 13.3-16.0' - red, pink, greenish white, very soft, highly weathered to completely weathered, fine grained 13.3-13.7' - fat clay (CH), white and red brown, heavily mottled, highly plastic 14.2-14.4' - clay seam, highly plastic, laminated	GS-1 collected 13.3-13.7'
			1				
15 251.4							
	16.0						R2: 16:07-16:45
			1	16.2' - Contact between siltstone and sandstone, horizontal, smooth, undulating		**Siltstone** 16.0-16.2' - dark reddish brown, very soft, highly weathered to completely weathered, with mica particles, fine grained	
			1	17.0' - Fracture, 30 deg, smooth, stepped, tight fit, sand on joint			
			1	18.5' - Fracture, horizontal, smooth, undulating, loose fit		**Sandstone** 16.2-17.9' - brown, mottled red, white, black, very soft, highly weathered to completely weathered, fine sand, abundant silt/clay	
			0				
20 246.4						**Siltstone** At 17.9' - brown to yellow brown, multicolored mottling, very soft to soft, highly weathered to completely weathered, fine grained, varying amounts of fine sand, some in bands	
			10+	20.2' - Fracture, 60 deg, rough, planar, black stains, tight fit			
	R2HQ 10 ft 100%	0		20.8-20.9' - Fracture zone, horizontal and 50 deg, rough, undulating, loose fit, loose sand and clay			
			0				
			2	22.6' - Fracture, 60 deg, rough, stepped, tight fit			
			0	22.9' - Fracture, 40 deg, smooth, undulating, orange stains, loose fit			
			1	24.1' - Fracture, horizontal, smooth, undulating, loose fit			SC-1 collected 24.4-25.3'
25 241.4							
			0				
	26.0						R3: 16:55-17:10 and 17:15-17:30
			0			26.6-28.9' - dusky red	
			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

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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			10+	27.7-27.9' - Fracture zone, smooth, undulating, loose fit		28.3-28.9' - clay seams 28.5-28.9' - slightly weathered	
			0	28.9' - Fracture, 40 deg, smooth, undulating, loose		**Sandstone** At 28.9' - dark reddish brown, green mottling, soft to hard, slightly weathered, fair amount of silt, fine grained	
30 236.4			1				
	R3HQ 10 ft 97%	75	0	30.8' - Fracture, 50 deg, smooth, stepped, tight fit		29.7-33.3' - weak red, hard, less silt	
			2	32.2 and 32.4' - Fractures (2), 70 deg and 30 deg, smooth, undulating, loose fit			
			2	33.3' - Fracture, horizontal, smooth, stepped, loose fit		33.3-36.0' - dark gray	
			3	33.9' - Fracture, horizontal, smooth, undulating, loose fit		34.3-34.9' - hard to very hard, medium sand to coarse sand	
35 231.4			1	34.2 and 34.3' - Fractures (2), 20 deg, smooth, stepped, loose fit 34.9 and 35.6' - Fractures (2), horizontal, rough, planar, loose fit		34.9-36.0' - fine to medium sand	
	36.0						
			0	36.0-38.0' - Microfractures		**Siltstone** 36.0-38.0' - dusky red, mottled red/yellow, soft, slightly weathered, fine grained	R4: 17:35-18:50
			2	37.1' - Fracture, 10 deg, smooth, stepped, tight fit			
			1	37.6' - Fracture, horizontal, rough, undulating, tight fit 38.0' - Fracture, 10 deg, smooth, undulating		**Sandstone** 38.0-40.7' - dark reddish gray, hard, slightly weathered, fine to medium sand, some coarse sand	
			3	39.1' - Fracture, 10 deg, rough to smooth, stepped, tight fit			
40 226.4			10+	39.7' - Fracture, 20 deg, smooth, stepped, tight fit 39.9' - Fracture, horizontal, smooth, stepped, loose fit			
	R4HQ 10 ft 96%	71	1	40.1-40.6' - Fracture zone, rough, fine to coarse gravel size		**Siltstone** At 40.7' - very dark gray, very soft, slightly weathered, slightly weathered	
			10+	41.8' - Fracture, 10 deg, smooth, planar 42.2-42.7' - Fracture zone, coarse sand to fine gravel-sized bedrock		41.8-42.2' - clay seam 41.8-42.7' - highly weathered	
			0			**Siltstone** At 42.7' - dusky red, soft, fresh, some fine sand	
			0				
45 221.4			0				
	46.0						
			3			46.0-46.7' - dark reddish brown, mottled green	R5: 08:36-09:39
			0	46.7' - Joint, 50 deg, smooth, undulating, tight fit		**Sandstone** 46.7-47.7' - dark reddish brown, fine sand to medium sand, fresh, some 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 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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			2	48.3' - Fracture, horizontal, smooth, undulating, tight fit		**Siltstone**	
			0	48.4' - Fracture, 60 deg, smooth, undulating, loose fit		At 47.7' - dark reddish brown, mottled green 47.7-49.8' - fresh 48.9-49.6' - scattered coarse sand	
50 216.4						49.8-51.0' - highly weathered	
	R5HQ 10 ft 94%	84	10+	50.3' - Fracture, horizontal, smooth, undulating, loose fit		50.4-51.0' - mottled gray, very soft	
			2	50.4-51.0' - Fracture zone 51.0' - Fracture, 60 deg, smooth, undulating 51.2' - Fracture, horizontal, smooth, planar		51.0-56.0' - green and gray mottling, soft to hard, fresh	
			0				
			1	53.4' - Fracture, 10 deg, smooth, undulating			SC-2 collected 53.35-54.65'
			0				
55 211.4			0				
	56.0						
			1	56.3' - Fracture, horizontal, rough, planar		56.0-57.7' - mottled green, yellow, gray, soft to hard, fresh	R6: 10:00-10:26 and 10:30-10:40
			10+	57.7-58.4' - Fracture zone, mostly horizontal breaks, laminated		57.1-57.7' - fine sand 57.7-58.4' - very soft, highly weathered	
			10+			58.4-59.4' - soft, fresh	
			1	59.1' - Fracture, horizontal, smooth, stepped		59.4-67.1' - dusky red, mottled black and green, fresh, very fine sand increasing with depth, soft to hard	
60 206.4			1	60.2' - Fracture, horizontal, smooth, planar, tight fit			
	R6HQ 10 ft 100%	85	0				
			0				
			10+	63.0-63.4' - Fracture zone, smooth to rough, stepped, main fracture at 70 deg 63.8' - Fracture, horizontal, smooth, planar			
			1	64.4' - Fracture, horizontal, smooth, planar			
65 201.4			0				
	66.0						
			0				R7: 11:08-11:52
			0				

PROJECT NUMBER:	BORING 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

WATER LEVELS : 17.7 ft bgs

START : 4/28/06 14:15

END : 5/3/06 11:05

LOGGER : JS/JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			**Sandstone** 67.1-70.2' - dark gray, multicolored mottling, hard, fine sand, fresh	
			0				
70 196.4							
	R7HQ 10 ft 97%	84	4	70.2-70.7' - Fractures (4), horizontal, smooth, undulating, loose fit		**Siltstone** 70.2-71.6' - dusky red, heavily mottled, soft to very soft, slightly weathered	
			2	71.0-71.4' - Fractures (2), horizontal and 10 deg, smooth, undulating, loose fit			
			0			**Sandstone** 71.6-73.0' - hard, slightly weathered, fine sands	
			3	73.2' - Fractures (2), horizontal and 5 deg, smooth, undulating, loose fit		**Siltstone** At 73.0' - dusky red, heavily mottled, less with depth, very soft to soft 73.0-74.2' - slightly weathered 74.2-76.2' - fresh	
			2	73.6' - Fracture, horizontal, smooth, undulating, loose fit			
75 191.4				74.2' - Fracture, horizontal, smooth, stepped, loose fit			
			0				
	76.0						
			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, increasing fine sand with depth	
			0				
			1	79.5' - Fracture, 40 deg, smooth, stepped, loose fit			
80 186.4							
	R8HQ 10 ft 100%	100	0	80.6' - Fracture, horizontal, smooth, planar, tight fit			
			0			**Sandstone** 81.4-84.0' - gray, multicolored mottling, hard, fine sand to medium sand, fresh	
			0				
			0				
			0			**Siltstone** At 84.0' - dusky red to dark reddish brown, mottled gray, green, black, fresh, sand varies throughout 84.0-86.0' - soft	
85 181.4							
			0				
	86.0						
			0			86.0-96.0' - soft to hard	R9: 13:25-13:50 and 13:53-14:12
			0				

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-25	SHEET 6 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 bgs

START : 4/28/06 14:15

END : 5/3/06 11:05

LOGGER : JS/JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				
			0				
90 176.4			0			90.2-91.5' - scattered white medium sand	
	R9HQ 10 ft 99%	99	0	90.6' - Fracture, horizontal, smooth, planar			
			0				
			0				SC-3 collected 93.0-94.1'
			0				
			0				
95 171.4			0				
	96.0						
			0			96.0-102.0' - mottled green, soft to very soft, scattered coarse sand	R10: 08:30-09:10 on 5/1/06
			0				
			1	98.0-99.0' - Horizontal joints, very soft 98.4' - Fracture, 10 deg, smooth, undulating, loose fit			
			0				
100 166.4			1	100.0-102.0' - Horizontal joints, very soft			
	R10HQ 10 ft 100%	100	1	100.5' - Fracture, horizontal, smooth, undulating, loose fit 101.6' - Fracture, 10 deg, smooth, undulating, loose fit			
			2	102.3' - Fracture, horizontal, smooth, stepped		**Sandstone** At 102.0' - dark reddish gray, mottled red and green, hard, fine sand to medium sand, fresh, scattered white medium sand	
			0	102.9' - Fracture, 20 deg, smooth, stepped			
			0				
105 161.4			0				
	106.0						
			0			106.0-107.8' - brown, mottled light/dark gray in beds, multicolored grains	R11: 09:33-09:48 and 09:51-10:10
			0				

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-25	SHEET 7 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 bgs

START : 4/28/06 14:15

END : 5/3/06 11:05

LOGGER : JS/JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			107.8-112.9' - pinkish gray, hard to very hard, medium sand to coarse sand, multicolored grains	
			0				
110 156.4			0				
	R11HQ 10 ft 99%	99	0	110.6' - Fracture, horizontal, smooth, stepped, loose fit			SC-4 collected 109.7-110.6'
			0				
			0			112.9' - fine to medium sand, banded	
			0				
115 151.4			0			115.1' - medium sand to coarse sand	
	116.0						
			0				R12: 10:20-10:52 and 11:10-11:39
			0				
			1	118.4 and 119.9' - Fractures (2), horizontal, smooth to rough, planar		**Siltstone** At 118.3' - dark reddish brown, mottled green, very soft to soft, fresh	
			1				
120 146.4				119.7-120.7' - Microfractures		119.7-120.7' - heavily mottled	
	R12HQ 10 ft 97%	97	0	119.9' - Fracture, horizontal, smooth to rough, planar 120.7' - Fracture, horizontal, smooth, planar			
			0				
			1	122.4' - Fracture, horizontal, smooth, planar			
			1	123.4' - Fracture, 60 deg, partial fracture over 1/4 of core		123.1' - soft to hard, fine sand	
			0				
125 141.4			0				
	126.0						
			0			126.0' - soft	R13: 11:55-12:17 and 12:22-12:45
			0				

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-25	SHEET 8 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 bgs

START : 4/28/06 14:15

END : 5/3/06 11:05

LOGGER : JS/JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			128.4' - grading to sandstone	
			1	129.3' - Fracture, 30 deg, smooth, undulating			Rig begins to chatter at 129.0' bgs
130 136.4						129.9' - grayer	
	R13HQ 10 ft 98%	97.5	2	130.3' - Fracture, 20 deg, smooth, undulating, loose fit		**Sandstone** At 130.3' - very dark gray, soft to hard, very fine sand to fine sand, fresh, laminated, 30 deg beds	
			1	130.8' - Fracture, 10 deg, smooth, planar, loose fit 131.2' - Fracture, 5 deg, smooth to rough, undulating, tight fit			
			1	132.0' - Fracture, 20 deg, smooth, undulating, loose fit			
			2	133.1' - Fracture, 10 deg, smooth, stepped, loose fit			
			1	133.9' - Fracture, 10 deg, smooth to rough, stepped, loose fit		133.9-136.0' - gray, hard to very hard, medium sand to coarse sand, multicolored grains	
135 131.4			1	134.6' - Fracture, 5 deg, rough, undulating, loose fit, in fine grained band		135.4' - siltstone clasts	
	136.0			135.4' - Fracture, 15 deg, rough, undulating, loose fit		136.0-138.6' - reddish gray, hard to very hard, medium sand to coarse sand, multicolored grains, siltstone clasts	R14: 13:28-13:50
			0				
			0				
	R14HQ 5.1 ft 100%	100	1	138.6' - Fracture, horizontal, smooth, undulating		**Siltstone** 138.6-142.7' - dark reddish brown, mottled green, soft to hard, fresh, very fine to fine sand throughout	Pull 5' core at 14:10 due to rig chatter
140 126.4			0				
			0				
	141.1						R15: 14:15-14:49
			0				
			1	142.7' - Contact between siltstone and sandstone, 10 deg, rough, undulating, loose fit		**Sandstone** 142.7-144.5' - very dark gray, hard to very hard, medium sand to coarse sand, fresh, multicolored grains	
	R15HQ 4.9 ft 100%	96	0				SC-5 collected 141.4-142.4'
			2	144.5' - Contact between siltstone and sandstone, horizontal, smooth, undulating, loose fit		**Siltstone** At 144.5' - dark reddish brown, mottled green and dark gray, very soft to soft 144.5-146.0' - fresh	
145 121.4			0	144.6' - Fracture, horizontal, smooth, stepped, tight fit			
	146.0					146.0-149.0' - moderately weathered to highly weathered	R16: 16:00-16:48 and 16:57-17:30
			6	146.0-149.0' - Fracture zone, horizontal, smooth, stepped			
			5				

PROJECT NUMBER:	BORING NUMBER:	
338884	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

WATER LEVELS : 17.7 ft bgs

START : 4/28/06 14:15

END : 5/3/06 11:05

LOGGER : JS/JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			7			149.0-159.7' - fresh	Driller's Remark: Rig chatter continuous - having to run at lower speed
			3			At 149.4' - soft, very fine to fine sand in varying amounts	
150 116.4			1				
	R16HQ 10 ft 95%	69*		150.6' - Fracture, horizontal, smooth, planar			
			0				
			1	152.5' - Fracture, horizontal, smooth, planar			
			1				
			1	153.9' - Fracture, 10 deg, smooth, undulating			
155 111.4			1	154.6' - Fracture, horizontal, smooth, undulating			
	156.0			155.5' - Fracture, rough to smooth, stepped, loose fit			R17: 14:40-15:20 on 05/02/06
			0				
			0				
			1	158.4' - Fracture, <5 deg, smooth, undulating			
			0				
160 106.4						**Sandstone** 159.7-161.0' - very dusky red, soft, fine sand, fresh	
	R17HQ 10 ft 100%	97	1	160.6' - Fracture, <5 deg, rough, undulating			
			1	161.5' - Fracture, <5 deg, smooth, undulating		**Siltstone** 161.0-165.2' - dark reddish brown, mottled blue-green, soft, fresh	
			1	162.5' - Fracture, 10 deg, rough, undulating			
			1				
			4	163.7-164.4' - Fractures (5), <5 deg, smooth to rough, undulating			
165 101.4							
	166.0		0			**Sandstone** At 165.2' - very dusky red, fine sand to medium sand, fresh, fining upwards	R18: 16:45-17:30
			0				
			1	167.3' - Fracture, <5 deg, rough, planar			

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-25	SHEET 10 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 bgs

START : 4/28/06 14:15

END : 5/3/06 11:05

LOGGER : JS/JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, 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'
			1				
170 96.4			1	170.0-170.7' - Fractures (2), <5 deg, rough, undulating		170.0-171.0' - multicolored fine to medium sand	
	R18HQ 10 ft 100%	98	0			171.0-172.0' - very dusky red, hard, fine sand	
			0			172.0-176.8' - hard, multicolored grains, medium to coarse sand	
			1	173.2' - Fracture, <5 deg, rough, undulating			
			1	174.4' - Fracture, 15 deg, rough, undulating			
175 91.4			2	175.3' - Fracture, <5 deg, rough, undulating		175.5' - quartz grains, <0.1'	
	176.0			175.8' - Fracture, <5 deg, rough, undulating			
			1			**Siltstone** At 176.8' - dark reddish brown, soft, fresh	R19: No time recorded
			1	176.8' - Fracture, 30 deg, rough, undulating			
			2	177.6' - Fracture, <5 deg, rough, undulating			
			1	177.9-179.9' - Fractures (4), <5 deg, rough, undulating		178.7-179.5' - inclusions	
			2				
180 86.4	R19HQ 9.1 ft 101%	91.5	0				
			0				
			1	182.2-183.1' - Fractures (2), <5 deg, smooth, planar			
			1				
			1				
185 81.4	185.1			184.7' - Fracture, <5 deg, rough, undulating			
			0			**Sandstone** At 185.1' - very dusky red, soft to hard, fresh, fine sand	
			0				R20: 07:50-08:35 on 05/03/06
			0	187.0' - Fracture, <5 deg, rough to smooth, planar		186.6' - siltstone lens 0.15' thick	
	R20HQ						

PROJECT NUMBER: 338884	BORING NUMBER: 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 bgs

START : 4/28/06 14:15

END : 5/3/06 11:05

LOGGER : JS/JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	5.9 ft 96%	100	1			187.7-188.8' - multicolored fine to medium sand, soft to hard	
				188.8' - Fracture, <5 deg, rough, undulating		188.8-194.3' - medium to coarse sand	
			0				Water pressure lost at 191.0' bgs
190 76.4			0				
	191.0						
			0				R21: 08:45-09:10
			1				
	R21HQ 5 ft 100%	100	0	192.8' - Fracture, <5 deg, smooth, undulating			
			1	194.3 and 195.5' - Fractures (2), <5 deg, rough, undulating		194.3-196.6' - fine to medium sand	
195 71.4			1				
	196.0						
			5				R22: 09:20-10:05
				196.6-197.0' - Fractures (4), <5 deg, rough, undulating		**Siltstone** 196.6-206.0' - dark reddish brown, mottled blue-green, soft, fresh	
			0				
	R22HQ 5 ft 100%	88	1	198.7' - Fracture, <5 deg, smooth, planar			
			0				
200 66.4			0				
	201.0						
			1				R23: 10:20-11:05
			1	201.9-203.2' - Fractures (3), <5 deg, rough, undulating			
							SC-7 collected 203.9-204.9'
	R23HQ 5 ft 100%	100	2				
				203.9' - Fracture, <5 deg, rough, undulating			First water level = 17.7' bgs taken 5/4/06 at 16:35; second water level = 16.8' bgs taken 5/5/06 at 10:20
			1				
205 61.4				204.9' - Fracture, <5 deg, rough, undulating			
			2	205.3' - Fracture, <5 deg, smooth, planar			R-scale not performed on rock core samples
	206.0						
				205.9' - Fracture, <5 deg, rough, undulating		Bottom of Boring at 206.0 ft bgs on 5/3/06 11:05	

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-26 SHEET 1 OF 5

SOIL BORING 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
DRILLING EQUIPMENT AND METHOD : CME-550, Tricone Bit, 24" Split Spoon, and 140 lb. Automatic Hammer
ORIENTATION : Vertical
WATER LEVELS : 2.0 ft bgs
START : 6/1/06 13:16
END : 6/6/06 10:00
LOGGER : JS

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	PP (TSF)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
252.3	0.0				**Silty Sand (SM)** 0.0-0.6' - brown, moist, very loose, very fine to medium grained, scattered organics and black staining			
		19.0	SS1SS	2-1-1-1 (2)	**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			
	2.0 2.5							
		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		0	
	4.5							
5								
247.3	5.0				**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'
		17.0	SS3SS	3-3-4-4 (7)			2.0-3.0	
	7.0							
	7.5				**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			
		14.0	SS4SS	3-3-4-13 (7)	**Clay (CL)** 7.9-8.7' - dark reddish brown, moist, stiff, low to medium plasticity, slow to rapid dilatancy, trace very fine sand; 1/2 sand lens, black staining, stiffer with depth		1.25-1.5	
	9.5							
10								
242.3	10.0				**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
		11.0	SS5SS	13-16-21-26 (37)				
	12.0							
	12.5				**Clay (CL)** 12.5-13.4' - reddish brown, mottled black and light green, stiff, low to medium plasticity			
		9.0	SS6SS	35-50/3 (50/3")				
	14.5							
15								Soil sampling completed at 14:50 on 6/1/06
237.3	15.0 15.3	2.0	SS7SS	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:	BORING 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

WATER LEVELS : 2.0 ft bgs

START : 6/1/06 13:16

END : 6/6/06 10:00

LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R.Q.D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	15.3		10+	15.6' - Contact between siltstone and sandstone, horizontal, clay seam (15.4-15.6')		**Siltstone** 15.3-15.4' - dusky red, mottled dark green and yellow, very soft, highly weathered, fine grained	Rock coring began at 15:58 on 6/1/06 R1: 15:58-16:12 on 06/01/06
			10+	15.9' - Fracture, 60 deg, undulating, partial fracture		**Clay (CL)** 15.4-15.6' - dusky red, mottled heavy whitish-green, highly weathered	At 15.9': R-Scale = R3
	R1NQ 4.7 ft 105%	0	0	16.1' - Fracture, horizontal, smooth, undulating, contact with clay zone 16.9' - Fracture, horizontal, clay seam		**Sandstone** 15.6-16.1' - dusky red, heavy green, black, and rust colored mottling, soft, very fine sand, highly weathered, 40% silt	At 16.1-19.4': R-scale = R0
			10+				
			10+	18.9-19.1' - Fracture zone, 30 deg and 30 deg, several rock pieces, clay-like		**Clay (CL)** 16.1-16.9' - dark reddish brown, whitish-green mottling, very soft, highly weathered, very fine grained, clay-like bedrock	At 19.4-20.0': R-Scale = R2
20	20.0						
232.3			0			**Siltstone** 16.9-18.9' - light greenish gray, mottled yellow, black, and dark reddish brown, very soft, highly weathered, fine grained, more lithified with depth	R2: 16:32-16:47 At 20.0-22.6': R-scale = R0
			1	21.0' - Fracture, horizontal, in clay-like material			
	R2NQ 5 ft 92%	0	1	21.9' - Fracture, 20 deg, smooth, stepped, bedrock chunks-medium to coarse sand 22.5' - Fracture, 20 deg, smooth, undulating			At 22.6-23.3': R-Scale = R1
			1			**Siltstone** At 18.9' - dark reddish gray, mottled heavy green, white, purple, and yellow, very fine grained, very soft 18.9-25.0' - highly weathered 19.6-20.0' - very soft to soft 20.0-22.6' - reddish brown, mottled very heavy green, yellow, and purple 22.6-25.0' - dark reddish brown, mottled green and purple 25.0-25.7' - dusky red, mottled green and purple, fine grained 25.0-33.3' - slightly weathered 25.7-26.4' - scattered medium sand, 10-15% 28.4-30.0' - 30% very fine to medium sand	
			1	23.8' - Fracture, 30 deg, smooth, undulating, rock is very soft			
25	25.0			24.4' - Fracture, 10 deg, smooth, undulating and stepped			
227.3			0				R3: 08:40-08:48 on 6/02/06 At 25.5': R-Scale = R3-R4
			0				
	R3NQ 5 ft 93%	90	3	27.2-27.4' - Fracture, 20 deg and 70 deg, smooth to rough, undulating, 0.05' thick clay seam, some rock pieces			SC-1 collected 26.2-27.2'
			0				
			0				
30	30.0						
222.3			0			30.0-35.0' - green mottling, 50% very fine sand with trace medium sand	R4: 09:00-09:08
			0				
	R4NQ 5 ft 103%	92	5				At 31.6': R-Scale = R3-R4
			0	33.3-33.5' - Fracture, horizontal, smooth, undulating, 0.05' thick clay infilling		33.3-33.8' - highly weathered 33.8-35.0' - slightly weathered	
			0	33.6-33.8' - Fracture zone, horizontal and 50 deg, several bedrock pieces, clay and bedrock fragments, in zone of breakage			At 34.2': R-Scale = R4
35	35.0						
217.3							

PROJECT NUMBER:	BORING NUMBER:
338884	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

WATER LEVELS : 2.0 ft bgs

START : 6/1/06 13:16

END : 6/6/06 10:00

LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			5	35.6' - Fracture, horizontal, rough, undulating		**Sandstone** 35.0-36.9' - gray to dark gray, slightly weathered, lighter gray and darker gray banding throughout on 0-20 degree bedding planes, thin bedding	R5: No time recorded
			10+	35.7' - Fracture, 30 deg, smooth, planar, gravel sized fragments			At 36.5-36.9': PP: 4.0 tsf
	R5NQ 5 ft 100%	85	0			35.5-36.1' - rust colored mottling, very soft, fine sand 36.5-36.9' - clay-like material	
			0			**Siltstone** 36.9-38.6' - dark reddish brown, faint green mottling, very soft to soft, slightly weathered, fine grained, 20% sand/coarse silt	At 38.8': R-Scale = R3-R4
40	40.0		1				
212.3			10+	39.8' - Fracture, horizontal, smooth to rough, undulating		**Sandstone** 38.6-39.7' - very dark gray, mottled darker gray and rust, soft, slightly weathered, fine grained, gradational contact over 0.1' with siltstone below	At 39.9-40.0': PP: 4.5 tsf R6: Finished at 09:58
			0	40.0' - Microfractures 40.7' - Fracture, 25 deg, smooth, undulating, 0.02' relief		**Siltstone** 39.7-39.8' - very dark gray to very dark greenish gray, very soft, slightly weathered, fine grained	SC-2 collected 42.6-43.5'
	R6NQ 5 ft 100%	86	0			**Siltstone** At 39.8' - dark reddish brown, green mottling, very soft 39.8-41.2' - slightly weathered 40.0-40.6' - mottled dark gray and green, very soft	
			0				
45	45.0		0			40.2-40.4' - clay seam, coarse sand sized fragments of bedrock	
207.3			0			40.6-43.7' - trace green mottling, soft, fine grained, 15% white medium sand throughout; 20% of sand/ coarse silt 41.2-45.0' - fresh 43.7-43.9' - sandy lens; 50% medium grained sand	R7: 10:04-10:14 At 45.8': R-Scale = R3-R4
			0				
	R7NQ 5 ft 102%	100	0			44.1-45.0' - becomes coarser with depth; grading into sandstone/siltstone mix; silt varies from 40-60% very fine to fine sand	At 47.7': R-Scale = R3
			0			**Sandstone** At 45.0' - gray, soft to hard, fine sand to medium sand, fresh, multi-colored grains: white pink, gray, and black; contacts at 0 degrees	
50	50.0		0				
202.3			0	50.0-60.0' - Microfractures		45.0-46.1' - rusty mottling at top, scattered coarse sand sized clasts	R8: 10:33-10:47
			1			46.1-46.1' - medium to coarse lens 46.1-46.2' - dark brown colored silty lens	
	R8NQ 5 ft 100%	100	0	51.9' - Fracture, horizontal, smooth, undulating		46.2-46.5' - medium sand to coarse sand 46.5-47.0' - irregular shaped dark brown bands approximately 0.05-0.1' thick	At 52.5': R-Scale = R3
			0			47.0-47.4' - up to 10% coarse sand sized clasts; interfingered silty lenses	
			0			47.4-47.8' - dark brown colored silty lens	
55 197.3	55.0						

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-26 SHEET 4 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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			47.8-49.7' - medium sand to coarse sand, coarser with depth; last 0.3' has up to 50% coarse sand and fine gravel 49.7-50.0' - rust colored mottling, very fine sand to fine sand, contact at 150 degrees 50.0-51.1' - very fine sand to fine sand, fresh 50.5-50.8' - coarse sand to fine grained clasts; siltstone clasts of same size 50.9-51.0'	R9: 10:51-11:06
			0				
	R9NQ 5 ft 100%	100	0				
			0				
			1				At 59.0': R-Scale = R3
60 192.3	60.0			59.6' - Fracture, horizontal, smooth, to rough, planar		**Siltstone** At 51.1' - dark reddish brown, mottled green and purple, soft, fresh, fine grained 53.1-54.5' - becomes coarser; contact over 0.1 to 0.2' with 10-20% fine to medium white sand, increases with depth up to 30% very fine sand/coarse silt	R10: Finished at 11:30
			1	60.6' - Fracture, 50 deg, smooth, undulating, 0.01' relief, hairline fractures 0.05' away			
			0			**Sandstone** 54.5-54.8' - fresh, fine grained, greenish-gray, sandstone lens, irregular shaped and mixed with siltstone at top; undulating contact at bottom (0.03' relief)	
	R10NQ 5 ft 100%	90	0				
			0				At 63.8': R-Scale = R3
65 187.3	65.0		2	64.5' - Fracture, horizontal and 50 deg, compound fractures, 0.03' relief, small bedrock fragments		**Siltstone** At 54.8' - dark reddish brown, mottled green and purple, soft, fresh 55.0-60.0' - some bands of coarser silt 60.6-64.9' - trace green mottling 62.7-62.9' - 15% white coarse sand to fine gravel 64.9-65.0' - mottled trace green and purple, very soft to soft 65.0-70.0' - dusky red 65.1-65.2' - trace mottling, very soft to soft 65.2-68.1' - mottled trace green and purple, very soft to soft, fine grained, coarsens with depth 68.1-70.0' - mottled trace green, up to 50% very fine sand, coarsens with depth 70.0-71.9' - dark reddish brown, trace green mottling, soft, coarsens with depth	R11: 08:36-08:56 on 06/06/06 SC-3 collected 65.3-66.3'
			2	64.9' - Fracture, 40 deg, rough, undulating, 0.05' relief			
			10+	65.2-65.3' - Fractures (2), horizontal and 10 deg, smooth, undulating			
	R11NQ 5 ft 96%	84	0	66.3-66.6' - Fracture zone, horizontal, rough, undulating, up to 0.02' relief, fine to coarse gravel sized bedrock fragments			At 67.5': R-Scale = R3-R4
			2				
			0	68.7' - Fracture, horizontal, smooth, undulating, 0.01' relief 69.0' - Fracture, 15 deg, rough, planar, tight fit			At 69.1': R-Scale = R4
70 182.3	70.0						R12: 09:03-09:20
			0				
			1				
	R12NQ 5 ft 98%	98	1	71.9' - Fracture, 20 deg, smooth, planar, partial slickensides in siltstone/claystone seam, tight fit		71.9-71.9' - sandstone lens at 20 degrees; gray, fine to medium grained 71.9-72.0' - siltstone lens at 20 degrees, trace sand	
			0	72.9' - Fracture, 50 deg, rough, planar			
			0				
75 177.3	75.0						

PROJECT NUMBER:	BORING NUMBER:
338884	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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			**Sandstone** At 72.0' - gray to reddish gray, fine sand to medium sand, fresh, trace coarse sand sized siltstone clasts, laminated to medium bedding, bedding on 20 degree angle, darker and lighter bands of well sorted sand, rust colored mottling 74.6-74.7' - siltstone lens 75.0-77.2' - gray to brown 77.2' - medium grained, light gray sandstone lens 0.03' thick, black thready silt lens at bottom 77.5-79.2' - gray, white, pink, and black grains; gradation varies in zones; a few thready silt lenses <0.0002'	R13: No time recorded
			0				At 76.1': R-Scale = R3-R4
	R13NQ 5 ft 100%	100	0				
			0				At 78.3': R-Scale = R3-R4
80	80.0		0				
172.3							R14: No time recorded
			0				
			0			**Siltstone** 79.2-79.5' - dark reddish brown, trace green mottling, soft, fresh, dark gray and light gray sand beds interfingered in siltstone, laminated bedding	At 82.9': R-Scale = R3-R4
	R14NQ 5 ft 100%	98	0				First water level = 2.0' bgs taken 6/6/06 at 16:56; second water level = 1.3' bgs taken 6/7/06 at 19:18
			0			**Sandstone** At 79.5' - gray to reddish gray, trace rust color mottling, fresh, trace coarse sand sized siltstone clasts 80.0-85.0' - gray, soft to hard, medium grained with varying amounts of fine grained and up to 20-30% coarse grains 80.9-81.0' - conglomerate lens, silt to 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	
			3	84.3' - Fracture, horizontal, rough, planar			R-scale performed after drilling on stored samples
85	85.0			84.9' - Fractures (2), horizontal, smooth and rough			
167.3						Bottom of Boring at 85.0 ft bgs on 6/6/06 10:00	
90							
162.3							
95							
157.3							

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

WATER LEVELS : 8.5 ft bgs

START : 6/2/06 08:20

END : 6/12/06 10:45

LOGGER : JF/JS/MJ

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	PP (TSF)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
258.3	0.0				**Clay (CL)** 0.0-0.5' - dark yellowish brown, mottled, moist, medium stiff			
	2.0	13.5	SS1SS	2-3-4-5 (7)	**Clay (CL)** 0.5-1.1' - yellowish red, mottled, moist, medium stiff		2.5	
	2.5				**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' Offset: 5.7' N387E of BPA-27 Lab Results USCS: CL
	4.5	14.5	SS2SS	5-7-10-17 (17)				
5								
253.3	5.0				**Clay (CL)** 5.0-5.6' - reddish brown, mottled, moist, stiff, low plasticity			
	7.0	15.0	SS3SS	12-20-26-50 (46)	**Silty Sand (SM)** 5.6-6.3' - pale brown, moist, medium dense, low plasticity, trace to little clay		4.0-2.5	
	7.5				**Clay (CL)** 7.5-8.3' - reddish brown, mottled, moist, stiff, low plasticity		3.5	
	9.5	10.5	SS4SS	23-50/4.5 (50/4.5")				
10								
248.3	10.0				**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 6/2/06
	12.0	4.0	SS5SS	50/4 (50/4")				
	12.5	3.0	SS6SS	50/3 (50/3")	**Clay (CL)** 12.5-12.8' - dark reddish brown, trace mottling, moist, hard		4.5+	
	12.8				Begin Rock Coring at 12.8 ft bgs See the next sheet for the rock core log			
15								
243.3								
20								

PROJECT NUMBER: 338884	BORING NUMBER: 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

WATER LEVELS : 8.5 ft bgs

START : 6/2/06 08:20

END : 6/12/06 10:45

LOGGER : JF/JS/MJ

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	12.8		2	12.8' - Fracture, 50 deg, smooth, 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
				13.5' - Fracture, 25 deg, smooth, undulating 13.8-14.4' - Fracture zone, soil-like, sandy clay			
	RA1NQ 3.7 ft 85%	0	10+				
15 243.3			1	15.0' - Fracture, 60 deg, undulating			At 14.9-16.5': R-Scale = R1
	16.5						
			1	16.6' - Fracture, horizontal, smooth, planar			RA2: 17:01-17:15 At 16.5-19.0': R-Scale = R0-R1
			0				
	RA2NQ 5 ft 96%	0	0				SC-6 collected 18.35-19.35'
						18.8-20.1' - heavy dark purple mottling	
20 238.3			1				
			1	20.2' - Fracture, horizontal, smooth, planar		**Sandstone** 20.1-20.4' - heavily mottled and banded dark gray, black, dark purple, soft, very fine sand to fine sand, highly weathered to completely weathered, lens, beds at approximately 20 degrees	
	21.5			21.3' - Fracture, horizontal, weak material			At 21.0-25.0': R-Scale = R0-R1 RA3: 17:30-17:38
			0			**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'	
	RA3NQ 4 ft 100%	0	0				
25 233.3			0			21.5-22.5' - dark reddish brown, mottled 22.1-22.5' - mottled greenish-white and reddish yellow, clayey	At 25.0-25.5': R-Scale = R2 R1: 13:05-13:15 on 6/7/06
	25.5					**Siltstone** 22.5-24.7' - gray, heavily mottled with light red, black, and greenish white, very soft, highly weathered to completely weathered, very fine grained, clay-like rock	
			0				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
	R1NQ 2.5 ft 37%	0					
	28.0			27.8' - Fracture, 60 deg, rough, undulating 28.0-33.0' - Microfractures			R2: 13:27-13:55
			2	28.2' - Fracture, 20 deg, rough, undulating 28.5' - Fracture, 20 deg, rough, undulating		**Siltstone** At 24.7' - dusky red, some mottling, dark green, yellow, black staining, very soft, fine grained	At 28.5': R-Scale = R2
			0				
30 228.3	R2NQ 5 ft 100%	90	1	30.2' - Fracture, horizontal, smooth, undulating 30.4' - Fracture, horizontal, smooth, undulating		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	
			0				At 31.3': R-Scale = R3-R4
			1	32.2' - Fracture, 35 deg, smooth, undulating			

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-27 SHEET 3 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 bgs

START : 6/2/06 08:20

END : 6/12/06 10:45

LOGGER : JF/JS/MJ

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
33.0						30.5' - mottled greenish gray 32.3' - mottled greenish gray 33.0-38.0' - mottled greenish gray, soft	R3: 14:16-14:30
			1	33.5' - Fracture, 45 deg, rough, undulating			At 33.0-34.0': R-Scale = R3 At 34.0-36.0': R-Scale = R2
35 223.3			2	34.6' - Fracture, horizontal, rough			
	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		38.0-43.0' - light reddish brown, mottled greenish gray, soft to very soft, very thin bedding, fresh, angular bedding	R4: 14:45-15:15
			2	38.8' - Fracture, 30 deg, smooth, undulating 38.9' - Fracture, horizontal, undulating 39.0' - Fracture, horizontal, undulating			At 39.2-39.8': R-Scale = R2
40 218.3	R4NQ 5 ft 100%	66	0	39.7' - Microfractures 39.9' - Fracture, horizontal, smooth, undulating		39.7' - very soft	At 39.6': R-Scale = R3-R4 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 fragments	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		42.1-42.4' - very soft	At 42.5': R-Scale = R3-R4
			1			42.7-42.8' - clay, greenish gray and brown, very soft, some siltstone fragments	R5: 15:30-15:50 At 43.5': R-Scale = R4
			0			**Sandstone** 43.0-48.0' - light reddish brown, mottled greenish gray, soft, fine sand, fresh, fragile	At 44.5': R-Scale = R3-R4
45 213.3	R5NQ 5 ft 100%	96	0				
			1				
			0	46.9' - Fracture, 60 deg, smooth, undulating		47.0-48.0' - grain size increase, white particles to the bottom	
48.0							At 47.5': R-Scale = R3-R4
			0			**Siltstone** 48.0-50.2' - light reddish brown, mottled greenish gray, soft, fresh	R6: 16:43-17:10
			1				At 49.0': R-Scale = R3-R4
50 208.3	R6NQ 5 ft 94%	94	1			**Sandstone** 50.2-53.0' - light reddish brown, soft, fine sand, fresh	
			0				
			0				At 52.0': R-Scale = R3

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-27	SHEET 4 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 bgs

START : 6/2/06 08:20

END : 6/12/06 10:45

LOGGER : JF/JS/MJ

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	53.0						
			0			**Siltstone** 53.0-56.9' - light reddish brown, mottled greenish gray, laminated bedding, fresh, coarse grained	R7: 08:57-09:20 on 06/08/06
			0				
55 203.3	R7NQ 4.5 ft 100%	100	0				At 54.5': R-Scale = R3-R4
			0				
			0				
	57.5		0	56.9' - Contact between siltstone and sandstone, smooth, undulating		**Sandstone** 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		**Siltstone** At 57.5' - light reddish brown, mottled greenish gray, soft, laminated bedding, fresh	At 57.2': R-Scale = R3-R4 R8: 09:43-10:05
			4	57.7' - Fracture, horizontal, smooth, undulating 58.1' - Fracture, 30 deg, rough, undulating 58.2' - Fracture, 30 deg, rough, undulating			
60 198.3	R8NQ 5 ft 90%	68	0				At 59.0': R-Scale = R4
			0			60.5' - fine grains become more visible	
			2	61.2' - Fracture, 40 deg, smooth 61.3' - Fracture, 40 deg, smooth 61.4' - Fracture, 40 deg, smooth			SC-2 collected 60.2-61.1' At 61.4': R-Scale = R3-R4 At 61.8': R-Scale = R0-R1
	62.5					61.8' - very soft 61.8-62.2' - clay seam, rock particles and multiple fractures 62.5' - mottled greenish gray and black	R9: 10:22-10:48 At 62.8': R-Scale = R4
			3				
			1	63.4' - Fracture, horizontal, smooth, undulating			At 64.0': R-Scale = R3-R4
65 193.3	R9NQ 6 ft 100%	100	0				
			0				
			0				At 66.2': R-Scale = R3-R4
			0				
	68.5					**Sandstone** At 67.9' - pinkish gray, soft to hard, fresh, transitions to sandstone	R10: 12:30-12:42
			0				At 69.2': R-Scale = R3-R4
70 188.3	R10NQ 4 ft 100%	100	0			69.5' - grains become larger, more coarse, white and gray	
			0				At 70.9': R-Scale = R4
			0			71.8' - grains are larger (0.01) pink and white	
	72.5						

PROJECT NUMBER:	BORING 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

WATER LEVELS : 8.5 ft bgs

START : 6/2/06 08:20

END : 6/12/06 10:45

LOGGER : JF/JS/MJ

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			**Siltstone** At 72.9' - light reddish brown, mottled greenish gray, soft, laminated bedding, rounded, fresh, fine grained	R11: 12:52-13:10
			0				At 73.3': R-Scale = R3-R4
75 183.3	R11NQ 5.5 ft 100%	100	0				
			0			75.5' - pink grains, smooth, rounded	
			0				At 75.9': R-Scale = R4
			0				
78.0			0			78.0' - very soft	R12: 13:15-13:35
			0				
			0				
80 178.3	R12NQ 5 ft 100%	100	0				At 80.1': R-Scale = R3-R4
			0				SC-3 collected 80.45-81.25'
			0				
83.0			0				R13: 13:50-14:10
			0				At 83.6': R-Scale = R3
			0				
85 173.3	R13NQ 5.2 ft 100%	100	0				
			0				At 86.1': R-Scale = R3-R4
			0			**Sandstone** At 86.3' - light reddish brown, mottled green, soft, fine sand, fresh	
88.2							R14: 14:25-14:55
			0			88.6' - mottled greenish gray, white fine grains	At 88.7': R-Scale = R3-R4
			0				
90 168.3	R14NQ 5.2 ft 100%	100	0				
			0			90.6' - 20 degree black band	
							At 91.0': R-Scale = R4
						92.1' - mottled greenish gray, white fine grains	

CH2MHILL

PROJECT NUMBER:	BORING 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

WATER LEVELS : 8.5 ft bgs

START : 6/2/06 08:20

END : 6/12/06 10:45

LOGGER : JF/JS/MJ

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0	92.6' - Fracture, vertical, vertical inclusion, slight fracture of side of core		**Siltstone** 92.6-93.4' - fresh, greenish gray inclusions	
	93.4						At 93.2': R-Scale = R3-R4 R15: 15:12-15:30
			0			**Sandstone** 93.4-108.4' - light reddish brown, mottled greenish gray, soft, laminated bedding, fine sand to coarse sand, fresh	
95 163.3			0				
	R15NQ 4.9 ft 96%	96	0			93.6' - greenish gray band 20 degree 94.3' - 0.02' thick greenish gray band 94.6-95.5' - medium sand	At 95.8': R-Scale = R3-R4
			0			95.5' - soft to hard, white, black, rust colored, fine to medium grained 95.6' - rust colored band	
			0			97.4-98.2' - becomes coarser	
	98.3					97.9-98.2' - rust colored 0.05-0.1' thick bands	At 97.9': R-Scale = R3-R4
			1	98.4' - Fracture, horizontal, smooth, undulating		98.3-103.3' - fine sand to medium sand	R16: 15:47-16:08
			0			98.5' - rust colored mottling, coarse sand, siltstone inclusions	
100 158.3						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			99.4-99.6' - rust colored bands at 20 degree angle	
			0			99.8-101.6' - greenish gray band at 10 degree angle 101.6' - rust colored band	
			0			101.6' - rust colored siltstone inclusion, 0.05' thick, fine grained, smooth around inclusion	At 102.3': R-Scale = R3-R4
	103.3					102.3' - siltstone inclusions	
			0			102.8-103.5' - medium sand to coarse sand, white, black, light reddish brown, greenish gray grains are 0.05' thick	R17: 08:36-08:55 on 06/07/06
			0				At 104.4': R-Scale = R4
105 153.3						103.0' - mottled, rust band at 103'	
	R17NQ 5.1 ft 100%	94	1			103.3-108.4' - pinkish white, mottled, white, gray, black, pink fine to medium grains	
			1	106.0' - Fracture, smooth, undulating 106.9' - Fracture, 10 deg, fissure along core		106.0' - mottling through to end of core, very soft, sandstone/siltstone mixture	SC-4 collected 106.0-106.5'
			0			106.5-106.7' - gray, reddish brown, alternating bands	At 107.4': R-Scale = R3-R4
	108.4					106.7' - clay seam, 0.01' thick 106.8' - clay seam, 0.01' thick	
			0			107.0' - very soft, very fine sand, clay seams, reddish brown	R18: 09:15-09:40
			0			107.0-108.4' - dark mottling, larger grains observed 108.1-109.3' - dark mottling	
110 148.3						**Siltstone** At 108.4' - dusky red, mottled greenish gray, soft, fresh	
	R18NQ 5.1 ft 100%	100	0			109.0-109.7' - larger inclusions	
			0			110.0' - soft to hard, coarsens with depth 111.0' - 0.05' inclusion	At 111.6': R-Scale = R3-R4

PROJECT NUMBER:	BORING 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 bgs

START : 6/2/06 08:20

END : 6/12/06 10:45

LOGGER : JF/JS/MJ

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			111.6-113.5' - dark mottling 0.02' in size	
	113.5					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	At 114.2': R-Scale = R4-R5
115			0			113.2' - fine sand to medium sand, grains become coarser	
143.3	R19NQ					113.5-114.6' - siltstone/sandstone layer, siltstone	
	4.9 ft	100	0			113.7' - coarser grains	
	100%					114.4' - 0.02' band	
			0			**Sandstone**	
						At 114.6' - soft, fine sand to medium sand, fresh, white, gray, black	At 117.0': R-Scale = R3-R4
			0			115.0' - black bands 0.01' thick	
	118.4					115.1' - rust colored bands starting	
			0			115.2' - becomes finer with depth	R20: 10:42-11:00
						115.6' - some coarse grains	
120			0			115.8' - fine sand to coarse sand, white and black band, grains become coarse, grains vary 0.001-0.01'	
138.3	R20NQ					117-118.4' - fine sand to coarse sand	
	5 ft	100	0			117.3-118.0' - greenish gray mottling	
	100%					118.4-123.4' - light reddish brown, soft to hard, fine sand to coarse sand	At 121.1': R-Scale = R3-R4
			0			119.2-119.9' - coarse grained	
						119.6' - coarse sand, very coarse grains	
			0			120.5' - rust colored band, 0.01' thick	
	123.4					120.8' - rust colored band, 0.01' thick	
			0			121.2-121.4' - rust colored band, very thin, 0.01' thick, grains are finer	R21: 08:50-09:15 on 6/12/06
			0			122.0' - medium sand to coarse sand, grains become coarse	At 123.9': R-Scale = R3-R4
125						123.0' - grains become smooth, transitions to siltstone	
133.3	R21NQ		0			**Siltstone**	
	5 ft	97				At 123.4' - very dark gray to dark reddish brown, scattered green mottles, soft, fine sand, fresh	
	97%		0			125.2-128.4' - trace green mottles, 1.3-2.0" bands, 15-20% very fine sand/ clayey silt	At 126.4': R-Scale = R3-R4
			0				
	128.4						
			0			128.4-133.4' - trace faint green and yellow mottles	R22: 09:32-10:00
			0				
130							
128.3	R22NQ						At 130.3': R-Scale = R4
	5 ft	100	0				
	100%					131.0-131.3' - trace rectangular, thin clasts harder than matrix	
			0			131.3-133.4' - heavily mottled yellow, black, purple, very soft to soft, bedding on 20 deg	

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-27 SHEET 8 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 bgs

START : 6/2/06 08:20

END : 6/12/06 10:45

LOGGER : JF/JS/MJ

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (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		133.4-134.4' - heavily mottled yellow, black, purple, very soft to soft	R23: 10:20-10:45
135 123.3			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, 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 lenses	At 135.1': R-Scale = R3
	R23NQ 5.2 ft 100%	87	0				
			0			137.0-138.6' - mottled purple, very soft to soft	First water level = 7.4' bgs taken 6/13/06 at 17:13
			0				At 136.6': R-Scale = R3-R4
138.6							SC-5 collected 137.3-138.2'
						Bottom of Boring at 138.6 ft bgs on 6/12/06 10:45	R-scale performed after drilling on stored samples
140 118.3							
145 113.3							
150 108.3							

CH2MHILL

PROJECT NUMBER:	BORING 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

WATER LEVELS : 21.2 ft bgs

START : 5/30/06 10:05

END : 6/1/06 11:50

LOGGER : JF/JS

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	PP (TSF)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
272.7	0.0				**Clayey Sand (SC)** 0.0-0.3' - yellow brown, moist, medium dense, organics			
	2.0	8.0	SS1SS	3-3-4-5 (7)	**Clay (CL)** 0.3-0.7' - yellow red, mottled, moist, medium stiff, organics		3.0	
	2.5							PT-1 collected 2.0-4.0'
	4.5	13.0	SS2SS	5-7-12-14 (19)	**Clay (CL)** 2.5-3.6' - reddish brown, mottled, moist, medium stiff		4.0	
5								
267.7	5.0				**Clay (CL)** 5.0-6.4' - reddish brown, mottled, moist, medium stiff			
	7.0	17.0	SS3SS	8-12-28-25 (40)			4.5	
	7.5				**Clay (CL)** 7.5-8.5' - reddish brown, mottled, dry to moist, stiff			
	9.5	12.0	SS4SS	22-27-50/4 (77/10")			4.5+	
10								
262.7	10.0				**Clay (CL)** 10.0-10.3' - reddish brown, mottled, dry to moist, stiff to hard			
	12.0	3.0	SS5SS	50/3 (50/3")			4.5+	PT-2 collected 10.0-11.5' Offset: 4.1' N49E of BPA-28 Lab Results USCS: CL w/Sand
	12.5				**Clay (CL)** 12.5-12.9' - reddish brown, mottled, dry to moist, stiff to hard			
	14.5	4.5	SS6SS	50/4.5 (50/4.5")			4.5+	
15								
257.7	15.0				**Clay (CL)** 15.0-15.4' - reddish brown, mottled, dry to moist, stiff to hard			
	17.0	4.5	SS7SS	50/4.5 (50/4.5")				
	17.5							Soil sampling completed at 11:50 on 5/30/06
	17.8	3.0	SS8SS	50/3 (50/3")	**Clay (CL)** 17.0-17.8' - reddish brown, mottled, dry to moist, stiff to hard Begin Rock Coring at 17.8 ft bgs See the next sheet for the rock core log			
20								

PROJECT NUMBER:	BORING 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

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

PROJECT NUMBER:	BORING 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

WATER LEVELS : 21.2 ft bgs

START : 5/30/06 10:05

END : 6/1/06 11:50

LOGGER : JF/JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	R4NQ 5 ft 100%	94	1	38.0' - Fracture, 35 deg, rough, undulating		38.0-38.7' - mottled blue green	SC-1 collected 35.5-36.5'
			4	38.7-39.2' - Fracture zone, 35 deg, rough, undulating, dark stains			
40 232.7			0	39.2-45.5' - Microfractures			At 39.4': R-Scale = R2
	40.5					40.5-41.8' - some blue green mottling	R5: 15:00-15:25
			0			40.5-47.0' - fresh	
			0			41.8-45.5' - very dusky red, soft, fine grained, some sand	
	R5NQ 5 ft 100%	98	0			41.8-43.8' - mottled blue green	At 42.7': R-Scale = R3
			0			43.8-45.5' - mottled blue green and dark purple, numerous surface microfractures	
45 227.7			2				At 45.0': R-Scale = R3
	45.5						R6: 15:30-15:55
			0				
			0			**Sandstone** 47.0-48.0' - very dusky red, mottled, very soft to soft, very fine sand to fine sand, fresh, laminations at bottom	
	R6NQ 5 ft 100%	100	1				At 47.6': R-Scale = R4
			1	48.5' - Fracture, 60 deg and vertical, rough, undulating		**Siltstone** 48.0-50.5' - dark reddish brown to greenish gray, heavily mottled, very soft, fresh, fine grained, bedding on 30 degree angle	
50 222.7			0	49.5' - Fracture, 5 deg, rough, undulating			
	50.5					**Sandstone** At 50.5' - dark reddish brown to greenish gray, soft, very fine sand to fine sand, fresh	R7: 16:00-16:20
			0				
			2	51.9' - Fracture, 60 deg and vertical, rough, undulating, tight fit		51.0-51.6' - black mottling	At 51.6': R-Scale = R3-R4
	R7NQ 5 ft 100%	100	0	52.0' - Fracture, 60 deg and vertical, rough, undulating, tight fit		52.2-55.5' - heavily mottled, disturbed bedding, and iron staining	
			0				
55 217.7			0				At 54.6': R-Scale = R3-R4
	55.5					55.5-56.3' - very dark greenish gray, fine sand, dark staining, bedding at 30 degrees, slightly disturbed	R8: 08:10-08:50 on 05/31/06
			0			55.9-56.3' - no staining	
			0			56.3-56.8' - fine sand, dark staining, bedding at 30 degrees, slightly disturbed	At 56.9': R-Scale = R4

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-28	SHEET 4 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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	R8NQ 5 ft 100%	100	0			56.8-60.5' - bluish-gray, soft to hard, fine sand to medium sand, angular to subangular, bedding at 30 becoming massive at bottom (59.5-60.5')	
			0				At 59.2': R-Scale = R3-R4
60 212.7			0				
	60.5						
			0			60.5-67.2' - very dark bluish gray, fine grained with trace of very fine sand, soft, micaceous	R9: 08:55-09:20
			0				At 61.5': R-Scale = R3-R4
	R9NQ 5 ft 100%	100	0				
			0			63.5-64.4' - very dark bluish gray, mottled reddish brown, thin (0.04') silt lens at 64.25' with red brown staining around it	
65 207.7			0			64.4-66.2' - dark reddish-brown, mottled blue gray, thin (<0.01') siltstone to fine sandstone lens at 65.2'	At 64.7': R-Scale = R3
	65.5						R10: 09:25-09:45
			0	65.8' - Fracture, 60 deg, rough, undulating, tight fit		66.2-67.2' - dark reddish-brown, fine sand	
			0				
	R10NQ 5 ft 100%	94	0			67.2-73.0' - dark greenish gray, soft to hard, fine sand to medium sand, coarser at bottom, remnant 30 deg bedding plane	At 68.0': R-Scale = R3-R4
			0			67.7-71.2' - reddish brown	
70 202.7			0				
	70.5						SC-2 collected 69.25-70.2'
			0			70.5-71.2' - becoming coarse grained, 30 deg bedding plane with clasts at bottom (70.9-71')	R11: 09:50-10:10
			0			**Siltstone** 71.2-73.0' - multi-colored (yellow-tan, bluish-gray, red brown), thinly mottled, very soft, fresh, fine grained, gradational, banded, 30 deg bedding plane	At 72.0': R-Scale = R2
	R11NQ 5 ft 100%	71	3	72.6-73.0' - Fracture zone (2), 5 deg, rough, undulating, tight fit			At 73.0-73.9': R-Scale = R0
			10+	73.0-74.0' - Clay seam, heavily fractured/chipped rock fragments with clay, highly weathered soil-like fragments are slickensided		**Siltstone** 73.0-74.0' - multi-colored (yellow-tan, bluish-gray, red brown), mottled, very soft, highly weathered, fine grained, soil-like characteristics	At 74.3': R-Scale = R3-R4
75 197.7			0				
	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
			0	75.5-80.5' - Microfractures			
			0				At 77.0': R-Scale = R3-R4

PROJECT NUMBER: 338884	BORING NUMBER: 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

WATER LEVELS : 21.2 ft bgs

START : 5/30/06 10:05

END : 6/1/06 11:50

LOGGER : JF/JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	R12NQ 5 ft 100%	100	0			**Siltstone** At 74.3' - dark reddish brown, mottled bluish gray, very soft to soft, fresh, fine grained, remnant 30 degree bedding plane, large iron stain (0.007-0.01') at 75'	
			0				At 79.0': R-Scale = R3-R4
80 192.7			0			75.5-81.9' - mottled light yellow, large spot (0.3') at 77', fine to medium sand at bottom (0.2')	
	80.5						
			0			80.5-81.9' - no fine sand	R13: 10:45-11:15
			1			81.9-84.0' - heavily mottled with blue-green-gray, yellow, and purple	
	R13NQ 5 ft 100%	100	0	82.3' - Fracture, 60 deg, rough, undulating			
			0				At 83.7': R-Scale = R3-R4
85 187.7			0			84.0-85.5' - blue green mottling along bedding	
	85.5						
			0			85.5-87.5' - heavily mottled with white, green, and purple, more laminated bedding in last 0.4'	R14: 11:20-11:45
			1	86.9' - Fracture, 70 deg, rough, undulating, bedrock flaking on surface, heavily mottled purple and green, yellow-red around fracture, 0.02' relief			
	R14NQ 5 ft 102%	100	0			87.5-88.7' - heavily mottled with dark yellow, purple, dark red, dark green, very soft to soft, finer grained then siltstone above, bedding visible at 150 degrees	At 87.9': R-Scale = R4
			3	88.7' - Fracture, 50 deg and 50 deg, smooth to slickensided, undulating, some healed fractures with white hard infilling			
90 182.7			0			88.7-90.5' - heavily mottled with dark yellow, red, purple, soft to hard, fine to medium white sand throughout	
	90.5						At 90.0': R-Scale = R3-R4
						90.2-90.4' - fine to medium sandstone lens	R15: 13:15-13:45
			1			**Siltstone** 90.5-91.8' - multi-colored (yellow-tan, bluish-gray, red brown), thinly mottled, very soft, fresh, gradational contact, banded, fine sand in top, 30 degree bedding plane	
			2	91.3' - Fracture, 30 deg, slickensided, undulating 91.8-91.9' - Fracture zone, 20 deg, slickensided, top is planar, bottom is undulating			
	R15NQ 5 ft 100%	98	1			**Siltstone** At 91.8' - dark reddish brown, mottled blue green, very soft, fresh, seems massive but breaks have 15-30 breaks along same bedding orientation, trace fine sand to very fine sand	
			1	92.8' - Fracture, 15 deg, rough, undulating, thin pencil tip wide white (silica) infilling along surface			At 94.0': R-Scale = R4
95 177.7			0	94.2-94.5' - Fracture zone, 60 deg, rough, undulating, slight white infilling			
	95.5						
			0	95.5-100.5' - Microfractures			R16: 13:50-14:24
			0			96.7' - blue green clay clast	

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-28	SHEET 6 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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	R16NQ 5 ft 100%	100	0				At 98.3': R-Scale = R3-R4
			0				
100 172.7			0				
	100.5						
			0			100.5-103.5' - dark reddish brown, very soft to soft	R17: 14:30-15:00
			0			101.9-102.9' - mottled blue-green-gray	At 102.2': R-Scale = R3-R4
	R17NQ 5 ft 100%	100	0			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			0				
	105.5						
			0			**Sandstone** 105.5-106.4' - dark reddish gray, soft to hard, fine sand, fresh, medium bedding at bottom	R18: 15:05-15:30
			0				At 106.5': R-Scale = R3-R4
	R18NQ 5 ft 100%	100	0			**Siltstone** 106.4-109.5' - dark reddish gray, mottled blue-green-gray, soft, fresh, fine grained	
			0			109.0-109.5' - fine sand	
110 162.7			0			**Sandstone** 109.5-110.5' - dark reddish gray, soft to hard, fine sand, fresh, no disturbed bedding	
	110.5						R19: 15:35-16:05
			0			**Siltstone** At 110.5' - dark reddish brown, mottled blue-green-gray, very soft to soft, fresh, fine grained, trace medium sand	
			0				
	R19NQ 5 ft 100%	100	0				
			0			113.9-115.5' - more fine sand at bottom, gradual fining upward	At 113.5': R-Scale = R3-R4
115 157.7			0				
	115.5						
			0	115.5-125.5' - Microfractures			R20: 16:05-16:45
			0				At 116.2': R-Scale = R3-R4
			0				

CH2MHILL

PROJECT NUMBER:	BORING 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 bgs

START : 5/30/06 10:05

END : 6/1/06 11:50

LOGGER : JF/JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	R20NQ 5 ft 100%	100	0				
			0				
120 152.7			0				
	120.5		0			120.5-121.0' - mottled purple	R21: 08:20-09:00 on 06/01/06
			0				At 121.1': R-Scale = R3-R4
	R21NQ 5 ft 100%	100	0			122.5-123.1' - pink-white clay pieces, gravel sized	
			0				
125 147.7			0				
	125.5		0				R22: 09:05-09:40
			0			126.7-127.0' - mottled purple	
	R22NQ 5 ft 100%	100	0			127.7-128.6' - mottled purple	At 127.1': R-Scale = R3-R4
			0				At 129.2': R-Scale = R3-R4
130 142.7			0				
	130.5		0			130.5-134.3' - small transition (0.2')	R23: 10:00-10:30
			0				
	R23NQ 5 ft 100%	100	0				At 132.8': R-Scale = R3-R4
			0				At 134.0': R-Scale = R3-R4
135 137.7			0			**Sandstone** 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
	135.5		0				R24: 10:35-10:45
			0			136.2-137.4' - weak red, mottled blue-green	

CH2MHILL

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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	R24NQ 5 ft 100%	100	0			137.4-150.7' - light gray to reddish gray, medium sand to coarse sand	
			0				
			0				At 139.2': R-Scale = R3-R4
140 132.7	140.5						
			0				R25: 10:50-11:05
			0				
	R25NQ 5 ft 100%	100	0				
			0				
			0				At 144.0': R-Scale = R4
145 127.7	145.5						
			0				R26: 11:10-11:20
			0				SC-4 collected 145.5-146.4'
			0			146.6-147.2' - light yellow-orange surface staining on core	
	R26NQ 5 ft 100%	100	0			147.9-148.0' - very faint 30 degree bedding plane	
			0			148.0-148.5' - coarse sand	At 148.6': R-Scale = R3-R4
150 122.7	150.5		0			148.6-150.5' - fine to medium grained gravel sized dark reddish brown siltstone clasts < 1% throughout core (147.45 to 150.5')	
			0			**Siltstone**	R27: 11:25-11:50
			0			150.7-155.5' - dark reddish brown, very soft, fresh, fine grained	
	R27NQ 5 ft 100%	100	0			152.0-154.2' - mottled blue-green, fine to medium gravel sized pink-white clay clasts	
			0				First water level = 21.2' bgs taken 6/13/06 at 09:57
			0				At 154.2': R-Scale = R3-R4
155 117.7	155.5						
							R-scale performed after drilling on stored samples
						Bottom of Boring at 155.5 ft bgs on 6/1/06 11:50	

PROJECT NUMBER:	BORING NUMBER:
338884	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
WATER LEVELS : 19.1 ft bgs
START : 5/10/06 09:15
END : 5/11/06 10:10
LOGGER : DT

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: 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		
	4.5						
5							
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						
	7.5	11.0	SS4SS	37-50/5 (50/5")	**Silty Sand (SM)** 7.5-8.4' - pale yellow, moist, very dense, fine to coarse grained, subangular, some clay		
	9.5						
10							
266.4	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 (50/3")	**Silty Sand (SM)** 12.5-12.8' - pale yellow, moist, very dense, fine to coarse grained, subangular, some clay		
	14.5						
15							
261.4	15.0	12.0	SS7SS	30-38-50/3 (88/9")	**Siltstone** 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 See the next sheet for the rock core log		
20							

PROJECT NUMBER:	BORING 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

START : 5/10/06 09:15

END : 5/11/06 10:10

LOGGER : DT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, 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 greenish gray, very soft to soft, slightly weathered, fresh, trace fine sand	Rock coring began at 11:10 on 5/10/06
			0	17.9' - Fracture, 25 deg, rough, stepped, tight fit		18.0-23.0' - pale brown	
20 256.4			1				R1: 12:10-12:24 and 12:25-12:43 on 05/10/06
	R1NQ 7.8 ft 92%	84	0	20.3' - Fracture, horizontal, rough, undulating, tight fit			
			0				
			0				
			0			**Sandstone** 23.0-26.4' - greenish gray, soft to hard, thick bedding, fine sand to medium sand, subangular, slightly weathered, fresh, fining upward sequence	
			0				SC-1 collected 23.5-24.4'
25 251.4	25.5						
			0				R2: 12:50-13:05 and 13:08-13:45
			1	26.7' - Fracture, 20 deg, rough, undulating, tight fit		**Conglomerate** 26.4-26.9' - bluish gray, very soft to soft, very thin bedding, fine sand to fine gravel, slightly weathered, part of above fining upward sequence	
			0			**Siltstone** At 26.9' - grayish red, soft 26.9-29.0' - slightly weathered 29.0-40.6' - fresh	
			1	29.0' - Fracture, 25 deg, smooth, undulating, loose fit			
30 246.4	R2NQ 10 ft 96%	94	0				
			1				
			1	32.1' - Fracture, horizontal, smooth, undulating, tight fit			
			1	32.6-32.9' - Fracture, 60 deg, smooth, undulating, loose fit			
			0				
35 241.4			0				
	35.5						
			1	35.5-45.5' - Microfractures		35.9-37.0' - white silt clasts	R3: 13:50-14:21 and 14:25-14:48
			0	36.4' - Fracture, 35 deg, rough, stepped, tight fit			

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-29 SHEET 3 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

START : 5/10/06 09:15

END : 5/11/06 10:10

LOGGER : DT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				
			0				
40 236.4	R3NQ 10 ft 100%	77	0				
			2	40.6' - Fracture, horizontal, smooth, planar, loose fit		40.6-43.7' - slightly weathered	
			2	41.2' - Fracture, 60 deg, smooth, planar, tight fit 41.7' - Fracture, 30 deg, smooth, planar, tight fit			
			2	42.1' - Fracture, 50 deg, rough, undulating, loose fit 42.7' - Fracture, 10 deg, smooth, planar, loose fit			Coring rate slows
			2	42.9' - Fracture, 50 deg, rough, undulating, tight fit		**Sandstone** 43.7-47.9' - light gray, banded greenish gray and brownish gray, soft, fine sand to medium sand, fresh, larger grained beds are lighter, finer grained beds are darker, bedding is undulatory	
45 231.4	45.5		0	43.5' - Fracture, horizontal, rough, undulating, loose fit 43.7' - Fracture, smooth, planar, loose fit			R4: 15:00-15:15 and 15:17-15:31
			2	45.6' - Fracture, horizontal, rough, undulating, loose fit 45.7' - Fracture, 60 deg, rough, undulating, loose fit			
			0				
			2	47.9' - Fracture, horizontal, rough, undulating, loose fit		**Siltstone** 47.9-48.8' - dark gray, soft, laminated bedding, fresh, flat lying, almost fissile and shale-like, upper surface eroded at contact with sandstone indicative of scour	
			1	48.1' - Fracture, horizontal, smooth, planar, tight fit 48.6' - Fracture, 10 deg, rough, undulating, loose fit			
50 226.4	R4NQ 10 ft 95%	89.5	0			**Sandstone** 48.8-55.5' - light gray, soft, massive bedding, fine sand to medium sand, fresh	
			0				
			0				
			0				
			0				
55 221.4	55.5		0				
			0	55.5-65.5' - Microfractures		**Siltstone** At 55.5' - grayish red, soft, laminated bedding, fresh, thin, coarser grained zones up to very fine sandstone (lighter colored-greenish gray and light gray), harder at bottom	R5: 15:35-16:00 and 16:02-16:30
			0				

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-29 SHEET 4 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
START : 5/10/06 09:15
END : 5/11/06 10:10
LOGGER : DT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				
			0				
60 216.4			1				
	R5NQ 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			
			0	62.9' - Fracture, horizontal, smooth, undulating, loose fit			
65 211.4			2	64.9' - Fracture, 60 deg, rough, undulating, tight fit			
	65.5						R6: 07:43-08:03 and 08:04-08:22 on 05/11/06
			0	65.3' - Fracture, horizontal, smooth, undulating, loose fit			
			1				
			0	67.5' - Fracture, 60 deg, rough, undulating, tight fit			
			0				
70 206.4			0			**Siltstone** 69.1-75.0' - dark bluish gray, soft, fresh, some laminated beds, some very fine sandstone, gradual change from reddish brown siltstone at 69.0' to 70.5', light olive brown and very dark red mottling	
	R6NQ 10 ft 99%	91	2	71.0' - Fracture, 10 deg, rough, undulating, tight fit			
			1	71.3' - Fracture, 10 deg, smooth, undulating, loose fit			
			1	72.1' - Fracture, 10 deg, rough, undulating, loose fit			
			0	73.4' - Fracture, 50 deg, rough, undulating, tight fit		73.8-74.1' - green mottling	
75 201.4			1			**Sandstone** 75.0-83.6' - light bluish gray, soft, fine sand, fresh, 1 to 3% medium grained sand in sandier beds, coarsens with depth 75.0-80.0' - interbedded siltstone and sandstone, becomes sandstone at bottom	
	75.5			75.3' - Fracture, 10 deg, smooth, undulating, loose fit			R7: 08:32-08:50 and 08:52-09:12
			0				
			0				

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

START : 5/10/06 09:15

END : 5/11/06 10:10

LOGGER : DT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (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			
			0				
80 196.4	R7NQ 10 ft 99%	93	0				
			1	81.0' - Fracture, 70 deg, rough, undulating, tight fit			
			1	81.6' - Fracture, horizontal, rough, undulating, loose fit			
			0				
			0			**Siltstone** At 83.6' - grayish red to grayish green, mottled grayish green and grayish red and banded, soft, laminated to medium bedding, fresh, becomes redder with depth, grades to sandstone	
85 191.4	85.5		0				R8: 09:20-09:41 and 09:45-10:03
			2	85.6' - Fracture, horizontal, rough, undulating, loose fit			
			0				
			1				
			0	88.4' - Fracture, horizontal, smooth, undulating, loose fit			
90 186.4	R8NQ 10 ft 100%	93	1			90.0-91.0' - interbedded with very fine sandstone stringers - light gray to grayish green	
			2	90.6' - Fracture, 10 deg, smooth, undulating, loose fit		**Sandstone** 91.0-95.1' - light gray, mottled grayish red, soft, medium to thick bedding, fine sand to medium sand, fresh, coarsens with depth	
			0	91.0' - Fracture, horizontal, smooth, planar, loose fit			SC-2 collected 91.9-92.7' 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
			1				
			0	93.1' - Fracture, 10 deg, rough, stepped, tight fit			
						94.3-95.1' - medium to coarse grained sand, rip-up clay clasts	
95 181.4	95.5		2	94.9' - Fracture, horizontal, smooth, undulating, loose fit		**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	

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-30 SHEET 1 OF 5

SOIL BORING 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

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

WATER LEVELS : 5.9 ft bgs
START : 5/8/06 09:30
END : 5/9/06 13:25
LOGGER : DT

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
269.2	0.0						
		18.0	SS1SS	2-3-5-5 (8)	**Fat Clay (CH)** 0.0-1.5' - strong brown and gray, mottled, moist, medium stiff, medium plasticity		
	2.0						
	2.5				**Fat Clay (CH)** 2.5-3.8' - dark reddish brown, moist, stiff, low plasticity		
		16.0	SS2SS	4-6-8-17 (14)			
	4.5						
5							
264.2	5.0				**Clay (CL)** 5.0-6.1' - dark reddish brown, moist, hard, low plasticity		
		13.0	SS3SS	12-17-22-31 (39)			
	7.0						
	7.5				**Clay (CL)** 7.5-8.2' - dark reddish brown, moist, hard, low plasticity		
		8.0	SS4SS	13-19-34-28 (53)			
	9.5						
10							
259.2	10.0				**Clay (CL)** 10.0-11.3' - reddish brown, moist, hard, low plasticity, black oxidized nodules		
		15.5	SS5SS	18-22-50/3.5 (72/9.5")			
	12.0						
	12.5				**Clay (CL)** 12.5-13.5' - dark reddish brown, moist, hard, low plasticity, slickensided		
		12.0	SS6SS	28-50 (50")			
	14.5						
15							
254.2	15.0	3.0	SS7SS		**Clay (CL)** 15.0-15.3' - dark reddish brown, moist, hard, low plasticity, slickensided		Soil sampling completed at 11:20 on 5/8/06
	15.3			50/3 (50/3")	Begin Rock Coring at 15.5 ft bgs See the next sheet for the rock core log		
20							

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-30	SHEET 2 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

WATER LEVELS : 5.9 ft bgs

START : 5/8/06 09:30

END : 5/9/06 13:25

LOGGER : DT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	15.5		1	15.9-16.2' - Fracture, 70 deg, smooth, undulating		**Siltstone** 15.5-17.0' - pale red, soft, highly weathered to completely weathered, weathered in part, fine grained, some sand	Rock coring began at 11:25 on 5/8/06
			2	16.6' - Fracture, horizontal, rough, undulating 16.9' - Fracture, horizontal, rough, undulating			R1: 12:53-13:10 and 13:12-13:37 on 05/08/06
			1	17.7' - Fracture, horizontal, rough, undulating		**Sandstone** 17.0-20.2' - soft, medium bedding, fine sand to medium sand, subrounded to subangular, highly weathered to completely weathered, fresh, some silt, fine grained	
			2				
				19.2' - Fracture, horizontal, rough, undulating 19.4' - Fracture, horizontal, rough, undulating			
20 249.2	R1NQ 10 ft 100%	0	1	19.7' - Fracture, 10 deg, rough, undulating			
			4	20.9' - Fracture, 55 deg, rough, undulating		**Siltstone** At 20.2' - pale red, mottled reddish black, very soft, highly weathered to completely weathered, crumbles, soil-like	
				21.0' - Fracture, horizontal, rough, undulating 21.3' - Fracture, 20 deg, rough, undulating			
			3	21.5' - Fracture, horizontal, rough, undulating 21.9' - Fracture, horizontal, rough, stepped			
			3	22.1' - Fracture, 20 deg, rough, undulating 22.3' - Fracture, slickensided, undulating		23.0-25.5' - mottled light greenish gray	
				22.7' - Fracture, 10 deg, rough, undulating			
			2	23.2' - Fracture, horizontal, rough, undulating 23.3' - Fracture, horizontal, rough, undulating			
				23.9' - Fracture, horizontal, rough, undulating			
25 244.2			0	24.3' - Fracture, horizontal, rough, undulating		24.5-25.5' - light greenish gray portions are harder than reddish matrix	
	25.5		0			25.5-28.5' - grayish red, mottled greenish gray, soft, grades to very fine grained sandstone, fresh surfaces are grayish red to blackish red	R2: 14:50-15:14 and 15:18-15:35
			0			25.5-30.5' - slightly weathered	
			2	27.6-27.8' - Fracture, 65 deg, rough, stepped			
				28.1-28.3' - Fracture, 70 deg, rough, stepped			
			3	28.6' - Fracture, horizontal, rough, undulating 28.9' - Fracture, horizontal, rough, undulating		28.5-28.9' - grayish red, very soft, clay-like soil zone 28.7-28.9' - clay seam	
30 239.2	R2NQ 10 ft 98%	90	1	29.6' - Fracture, horizontal, rough, undulating		28.9-47.0' - grayish red, mottled greenish gray, soft, grades to very fine grained sandstone, fresh surfaces are grayish red to blackish red	
			0			30.5-44.0' - fresh	
			1	32.0-32.2' - Fracture, 60 deg, rough, undulating			
			0				
			0				
35 234.2			0				
	35.5						

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

WATER LEVELS : 5.9 ft bgs

START : 5/8/06 09:30

END : 5/9/06 13:25

LOGGER : DT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				R3: 15:45-16:11 and 16:13-16:40
			0				
			0				
			1	38.6' - Fracture, 20 deg, rough, stepped			
40 229.2	R3NQ 10 ft 100%	95	0				
			2	41.0' - Fracture, horizontal, rough, undulating 41.2' - Fracture, 10 deg, rough, stepped			
			0				
			0				
			0			44.0-46.1' - slightly weathered	
45 224.2	45.5		1				
			2	45.3' - Fracture, 30 deg, rough, undulating 45.7-50.0' - Fracture, 75 deg, rough, stepped		46.1-47.0' - fresh	R4: 08:10-08:30 and 08:33-08:53 on 05/09/06
			0			**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	
			0				SC-1 collected 48.0-48.7'
			2	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			
50 219.2	R4NQ 10 ft 99%	93	0				
			0			**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	
			0			**Siltstone** 52.8-56.7' - dark gray, mottled light olive gray, soft, fresh, trace fine sand, grades toward light gray, coarsens with depth 54.4-56.7' - fine to medium gravel sized dusky red clasts	
			0				
			0				
55 214.2	55.5		0				

PROJECT NUMBER:	BORING 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

WATER LEVELS : 5.9 ft bgs

START : 5/8/06 09:30

END : 5/9/06 13:25

LOGGER : DT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			55.0-56.7' - becomes sandy	R5: 09:05-09:18 and 09:21-09:39
			0	57.0' - Fracture, 30 deg, red stains		**Sandstone** 56.7-60.1' - light gray, soft, thin to 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	
			0				
			0				
60 209.2	R5NQ 10 ft 100%	91	2	59.6' - Fracture, 70 deg, filled with calcite, tightly healed		59.6-60.1' - becomes coarser with depth	
			1	59.7-60.0' - Fracture, 75 deg, rough, undulating, tight fit 60.1' - Contact between siltstone and sandstone, 20 deg, rough, undulating, sharp, fractured		**Siltstone** 60.1-64.5' - light olive gray to brownish gray, soft, fresh	
			0	60.9-61.1' - Fracture, 70 deg, rough, stepped			
			0				
			0				
65 204.2	65.5		2	65.1' - Fracture, 50 deg, rough, undulating, loose fit		**Sandstone** 64.5-70.7' - light gray to gray, hard, fresh, silt to medium grained sand, brittle rock, fining upward sequence	R6: 09:50-10:05 and 10:08-10:40
			1	65.3' - Fracture, 20 deg, rough, undulating, loose fit		66.0-67.8' - brownish gray	
			1	65.8' - Fracture, 10 deg, rough, planar, tight fit 67.1' - Fracture, horizontal, rough, undulating, loose fit			
			0			67.8-70.7' - grayish red	SC-2 collected 68.8-69.6'
			0				
70 199.2	R6NQ 10 ft 98%	81.5	0				
			2	70.7' - Fracture, 5 deg, smooth, stepped, loose fit		**Siltstone** At 70.7' - light olive green and gray, soft, laminated bedding, bedding is contorted and possibly folded 70.7-72.8' - fresh	
			2	71.2' - Fracture, 15 deg, smooth, planar, tight fit 71.8' - Fracture, 20 deg, smooth, undulating			
			2	71.9-72.3' - Fracture, vertical, quartz-filled, terminates abruptly above and below at silty or softer zones that did not deform		72.8-73.6' - highly weathered	
			1	72.2' - Fracture, 20 deg, smooth, undulating 72.8' - Fracture, 20 deg, smooth, undulating		73.6-74.0' - fresh	
75 194.2	75.5		1	73.0-73.4' - Fracture zone, slickensided, undulating, all faces of rock fragments have well developed slickensides, indicates shear zone		**Siltstone** 74.0-89.0' - grayish red, mottled greenish gray, soft, fresh	

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

WATER LEVELS : 5.9 ft bgs

START : 5/8/06 09:30

END : 5/9/06 13:25

LOGGER : DT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, 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%	100	0				
			0				
			0				
			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	
85 184.2	85.5		0				
			1	85.5-86.4' - Fracture, 80 deg, rough, stepped, tight fit			First water level = 5.6' bgs taken 5/9/06 at 16:00; second water level = 15.5' bgs taken 5/10/06 at 17:19 R-scale not performed on rock core samples
	R8NQ 3.5 ft 90%	64	1	86.5-86.6' - Fracture, 40 deg, smooth, undulating, loose fit		86.5-89.0' - mottled greenish gray	
			0			88.0-89.0' - laminated bedding, contorted	
	89.0						
90 179.2						Bottom of Boring at 89.0 ft bgs on 5/9/06 13:25	
95 174.2							

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-31 SHEET 1 OF 8

SOIL BORING 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
DRILLING EQUIPMENT AND METHOD : CME-550, Tricone Bit, 24" Split Spoon, and 140 lb. Automatic Hammer
ORIENTATION : Vertical
WATER LEVELS : 16.8 ft bgs
START : 5/26/06 10:15
END : 5/31/06 15:52
LOGGER : JS/DT/LH

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
263.1	0.0				**Sandy Clay (CL)** 0.0-1.0' - brownish yellow, moist, medium stiff, low to medium plasticity		
		16.0	SS1SS	2-2-3-3 (5)	**Sandy Clay (CL)** 1.0-1.3' - yellowish red, mottled, moist, medium stiff, medium plasticity		
	2.0						PT-1 collected 2.0-4.0'
	2.5				**Sandy Clay (CL)** 2.0-3.5' - yellowish red, moist, very stiff, micaceous		
		20.0	SS2SS	3-4-13-18 (17)	**Clayey Sand (SC)** 3.5-4.3' - light greenish gray, low to medium plasticity, fine grained, micaceous		
	4.5				**Silty Sand (SM)** 4.25-4.5' - brown, micaceous		
5							
258.1	5.0				**Clay (CL)** 5.5-7.0' - dark reddish brown, stained black, moist, very stiff to hard, some pieces of siltstone		
		18.0	SS3SS	16-22-28-30 (50)			
	7.0						PT-2 collected 7.0-9.0' Offset: 4.0' N32E of BPA-31 Lab Results USCS: CL
	7.5				**Clay (CL)** 7.5-8.9' - dark reddish brown, stained black, moist, hard, platy, micaceous, some fine sand		
		17.0	SS4SS	18-22-26-42 (48)			
	9.5						
10							
253.1	10.0				**Clay (CL)** 10.0-11.1' - dark reddish brown, stained black, moist, very stiff, micaceous, some fine sand		
		13.0	SS5SS	10-11-19-50 (30)			
	12.0						
	12.5				**Clay (CL)** 12.5-13.6' - dark reddish brown, stained black, moist, hard, platy, micaceous, some fine sand		
		13.0	SS6SS	42-42-50/2 (92/8")			
	14.5						
15							Soil sampling completed at 11:50 on 5/26/06
248.1	15.0	1.0	SS7SS		**Clay (CL)**		
	15.1			50/1 (50/1")	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							

PROJECT NUMBER:	BORING 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

WATER LEVELS : 16.8 ft bgs

START : 5/26/06 10:15

END : 5/31/06 15:52

LOGGER : JS/DT/LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	15.1		0			**Siltstone** At 15.1' - reddish brown, mottled green, very soft 15.1-23.4' - moderately weathered	Rock coring began at 08:50 on 5/30/06 R1: 08:50-09:03 At 15.6': R-Scale = R2
	R1NQ 4.9 ft 102%	100*	0				
			0				
			0				
20	20.0		0				
243.1			0			20.4-23.4' - very fine sand/coarse silt and hardest portion but still very soft	R2: 09:11-09:24 At 20.8': R-Scale = R3-R4
	R2NQ 5 ft 99%	68*	1	21.4' - Fracture, 65 deg, smooth, undulating			
			0				At 22.8': R-Scale = R2
			3	23.4' - Fractures (6), horizontal, smooth, undulating		23.4-26.8' - highly weathered	
25	25.0		3				
238.1			2	25.4' - Fracture, horizontal, smooth, undulating 25.7' - Clay-like and very friable bedrock 26.0' - Fracture, 50 deg, smooth, undulating			R3: 09:30-09:43
			2				At 26.4': R-Scale = R3
	R3NQ 5 ft 99%	64	0	26.8' - Fracture, horizontal, rough, undulating		26.8-29.1' - dark reddish brown, soft, fresh, very fine sand and coarse silt increasing with depth, gradational contact	
			0				
			5	29.4-29.7' - Fractures, horizontal and 60 deg, smooth, undulating, black stains		**Sandstone** At 29.1' - dark reddish brown, soft, laminated to thin bedding, very fine sand, fresh, clay-like zones 30.0-33.3' - very dark gray to dark reddish gray, mottled red, very soft to soft, fine sand, few siltstone lenses, banded dark and light, grades to siltstone at bottom	
30	30.0						
233.1			1	30.2' - Fracture, horizontal, smooth, undulating			R4: 10:00-10:12
			0				At 30.9': R-Scale = R3
	R4NQ 5 ft 100%	88	0				
			1	33.5' - Fracture, horizontal, smooth, undulating, in very soft rock zone		**Siltstone** 33.3-34.2' - dark reddish gray, mottled green, gray, brown, very soft to soft, fresh	
			3	34.0' - Fracture, 50 deg, smooth, planar, 50 deg, smooth and planar, dark orange staining on surfaces			At 34.4': R-Scale = R5
35	35.0						

PROJECT NUMBER:	BORING NUMBER:	
338884	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

WATER LEVELS : 16.8 ft bgs

START : 5/26/06 10:15

END : 5/31/06 15:52

LOGGER : JS/DT/LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (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		**Sandstone** 34.2-36.6' - dark gray, mottled yellow, green, purple, soft, laminated to thin bedding, very fine sand to fine sand, fresh, dark red and brown banding, gradational contact at bottom	R5: 10:18-10:31
			4	34.7' - Fractures (2), 40 deg, smooth, undulating, multiple bedrock pieces 36.4' - Fracture, 10 deg, smooth, undulating			
	R5NQ 5 ft 100%	84	3	37.6' - Fracture, 20 deg, smooth, undulating, dark gray lens - shiny and greasy appearance, but not slickensided		**Siltstone** 36.4-37.9' - very dark gray to very dark greenish gray, very soft, laminated bedding, fresh, irregular bedding, very fine grained 36.6-36.8' - clay seam	SC-1 collected 36.8-37.6'
			0				
			0			**Sandstone** 37.9-40.0' - very dark gray, very soft to soft, fine sand, fresh, more silt in last 2 feet	At 39.25': R-Scale = R3-R4
40	40.0			39.7' - Fracture, 40 deg, partial fracture at 40 deg			
223.1			0	40.0-42.3' - Microfractures, capillary pattern		**Siltstone** 40.0-42.3' - dark brown and very dark gray, mottled yellow, dark brown, green, very soft to soft, fresh, fine grained	R6: 10:41-10:54 At 40.8': R-Scale = R2-R3
			3				
	R6NQ 5 ft 102%	98	1	42.0' - Fracture, 50 deg, smooth, undulating, 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				At 43.5': R-Scale = R3-R4
			1	44.0' - Fracture, 20 deg, smooth, rough			
45	45.0						
218.1			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, 5-15% very fine sand	R7: 11:00-11:10
			1				
	R7NQ 5 ft 99%	94	0	46.9' - Fracture, 60 deg, rough, undulating			
			0				At 48.0': R-Scale = R3-R4
			2	49.3' - Fracture, 10 deg, rough, undulating		48.5-49.5' - very thin black siltstone beds at 20 degrees, interbedded with above sandstone 49.5-49.8' - interbedded siltstone and sandstone laminae	
50	50.0						
213.1			1	50.2' - Fracture, 5 deg, rough, undulating		49.8-50.0' - very dark gray to very dark greenish gray, mottled brown (trace), very soft, very fine 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 subangular, poorly sorted, fresh	At 51.2': R-Scale = R3
	R8NQ 5 ft 96%	79	3	52.5' - Fracture, 5 deg, rough, undulating, tightly healed		**Siltstone** At 50.2' - dusky red, mottled greenish gray, soft, thin to medium bedding, 20% medium to coarse sand sized clasts 50.2-56.4' - fresh	
			1	52.6' - Fracture, 45 deg, smooth, undulating, hard white infilling, unaltered joint 52.9' - Fracture, 5 deg, rough, undulating, unaltered			
			2	53.2' - Fracture, 45 deg, smooth, undulating, unaltered white, hard infilling			
55	55.0						

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-31 SHEET 4 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

WATER LEVELS : 16.8 ft bgs

START : 5/26/06 10:15

END : 5/31/06 15:52

LOGGER : JS/DT/LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND 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, clay-like material/siltstone, very soft		56.4-56.5' - moderately weathered 56.5-58.4' - very soft to soft, laminated bedding, moderately weathered	At 56.4-58.2': R-Scale = R1
	R9NQ 5 ft 100%	68	10+	56.6' - Fracture, 5 deg, rough, undulating, clay-like material/siltstone, very soft		56.4-56.6' - clay-like material/siltstone, very soft	
			5	56.7' - Fracture, 40 deg, rough, undulating, clay, very soft 57.1-57.5' - Fracture zone, rough, undulating, vertical and horizontal fractures		56.9-56.9' - clay seam, very soft, friable 57.1' - clay seam, soft	
			2	57.8' - Fracture, horizontal, rough, undulating, horizontal		58.4-60.0' - soft, moderately weathered	
60	60.0			58.0' - Fracture, 10 deg, rough, stepped			
203.1			10+	58.0' - Fracture, horizontal, rough, undulating 58.5' - Fracture, 5 deg, rough, undulating		**Siltstone** At 60.0' - very dark gray, mottled green	R10: 13:22-13:42 At 60.0-60.6': PP: 1.5 tsf and 1.25 tsf
			1	58.5' - Fracture, horizontal, rough, undulating 58.8' - Fracture, 60 deg, rough, undulating 59.6' - Fracture, 10 deg, rough, undulating		60.0-60.6' - clay seam with bedrock fragments	
	R10NQ 5 ft 97%	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 fine grained	At 61.6': R-Scale = R3
			9	60.9' - Fracture, 5 deg, rough, stepped 61.4' - Fracture, 30 deg, rough, planar 63.0' - Fracture, horizontal, smooth, undulating, 0.02' relief, bedrock fragments		60.6-61.0' - moderately weathered 61.0-65.0' - fresh	
			1	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 grained	
65	65.0			63.6' - Fractures (2), horizontal and 5 deg, smooth, undulating, several breaks along bedding planes, tight fit			
198.1			1	64.0' - Fracture, rough, undulating, bedrock pieces		62.95-63.1' - very soft	R11: Started at 14:00 At 65.6': R-Scale = R3
			1	65.4' - Fracture, smooth, undulating, small bedrock fragments			
	R11NQ 5 ft 94%	85	1	66.1' - Fracture, horizontal, smooth, stepped, thin white infilling			
			4	67.1' - Fracture, 20 deg, <0.5 mm white infilling 67.8' - Fracture, horizontal, smooth, undulating			
			0	69.0' - Fracture, horizontal, smooth, planar		68.7-70.0' - medium to coarse sand clasts, rounded	
70	70.0						
193.1			10+				R12: No time recorded At 70.4': R-Scale = R3
			6	70.9' - Fracture zone, horizontal and 10 deg, smooth, undulating			
	R12NQ 5 ft 100%	79	0	71.1' - Fracture, horizontal, smooth, undulating, 0.02' relief 71.5' - Fracture, 20 deg, purple/green stains, healed fracture		72.1-75.0' - soft, 50% coarse silt/very fine sand, 50% silt/clay	SC-2 collected 72.0-73.0'
			0	71.6' - Fracture, horizontal, more than one piece			
			2	72.0' - Fracture, horizontal, smooth, undulating, 0.02' relief 74.1' - Fracture, 50 deg, rough, undulating, thin white infilling			
75	75.0						At 74.5': R-Scale = R3

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-31	SHEET 5 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

WATER LEVELS : 16.8 ft bgs

START : 5/26/06 10:15

END : 5/31/06 15:52

LOGGER : JS/DT/LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0	75.0' - Fracture, 10 deg, smooth, planar 75.2' - Fracture, 10 deg, smooth, undulating 75.5' - Fracture, 10 deg, smooth, planar, <0.0002' white infilling 75.6' - Fracture, horizontal, rough, undulating, 0.01' relief 75.9' - Fracture, horizontal, smooth, undulating, smooth and planar 76.4' - Fracture, 70 deg, rough, undulating 76.6' - Fracture, horizontal and 40 deg, smooth, undulating 77.2' - Fracture, horizontal, smooth, undulating 77.5' - Fracture, horizontal, undulating, bedrock fragments		**Siltstone** 75.0-78.4' - very dark gray to very dark greenish gray, mottled dark red, yellow, green, black, very soft, laminated bedding, fresh, very fine grained 75.9-77.5' - soft with very fine sand 77.9-78.0' - clay seam, 0.1' thick	R13: Started at 15:03
	R13NQ 5 ft 94%	44	0				
			0				
			0				
			0				
80 183.1	80.0			80.0' - Microfractures		**Siltstone** At 78.4' - dusky red to dark reddish brown, very soft to soft, fresh, some very fine sand in areas, fine grained, mottled faint yellow, green and black-purple	R14: 08:42-09:02 on 5/3/06
			0				
			0				
	R14NQ 5 ft 100%	100	0				At 81.75': R-Scale = R3-R4
			0				
			0				
85 178.1	85.0					84.6-85.0' - very thin sandy siltstone seams 85.0-88.8' - mottled trace greenish gray, grades to 60% very fine sand and 40% silt	R15: 09:06-09:28
			2				
			0				At 86.3': R-Scale = R3-R4
	R15NQ 5 ft 96%	91	0				
			0				
			2			88.8-89.8' - grades to 60% silt and 40% very fine sand	At 89.0': R-Scale = R5
90 173.1	90.0			90.1' - Fracture zone, horizontal and vertical, smooth, undulating			R16: 09:36-09:58 and 10:03-10:24
			10+				
			0				
	R16NQ 5 ft 96%	88	0				
			0			**Sandstone** 92.6-93.6' - dark gray to white, fresh, banded, possibly partially metamorphosed	At 93.0': R-Scale = R4
			0			**Siltstone** 93.6-97.2' - dark reddish gray, mottled greenish gray, very soft to soft, fresh	
95	95.0						

PROJECT NUMBER:	BORING 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
WATER LEVELS : 16.8 ft bgs
START : 5/26/06 10:15
END : 5/31/06 15:52
LOGGER : JS/DT/LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				R17: 10:34-10:52
			0				At 96.4': R-Scale = R3-R4
	R17NQ 5 ft 100%	99	0			**Sandstone** 97.2-97.7' - fresh, very fine to coarse grained, mostly fine	
			0	98.2' - Fracture, smooth, undulating, vertical and horizontal fractures		**Siltstone** 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				
100	100.0						
163.1			0				R18: 11:00-11:17
			0				At 100.8': R-Scale = R3
	R18NQ 5 ft 102%	100	0				
			0				SC-3 collected 103.0-104.0'
			0				
105	105.0						
158.1			0			**Sandstone** 104.6-106.8' - pale red and very dark gray, soft, angular, poorly sorted, fresh	R19: 11:22-11:35
			2				At 105.8': R-Scale = R3
	R19NQ 5 ft 96%	94	0	107.0' - Fracture, horizontal, rough, undulating		**Siltstone** 106.8-107.1' - dark reddish gray, very soft, fresh	At 107.6': R-Scale = R3
			0			**Sandstone** 107.1-109.2' - pale red and very dark gray, soft, angular, poorly sorted, fresh	
			1			**Siltstone** At 109.2' - dark reddish gray, mottled greenish gray, soft, fresh, trace medium to very fine sand	
110	110.0			109.7' - Fracture, rough, planar			
153.1			0				R20: 11:44-12:03
			0				
	R20NQ 5 ft 100%	94	2	112.0' - Fracture, 45 deg, smooth, undulating, greenish gray material in fracture			
			0				
			0				At 114.1': R-Scale = R3
115	115.0						

PROJECT NUMBER:	BORING 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

WATER LEVELS : 16.8 ft bgs

START : 5/26/06 10:15

END : 5/31/06 15:52

LOGGER : JS/DT/LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				R21: 12:09-12:34
			0				
	R21NQ 5 ft 104%	100	0	117.0' - Fracture, evidence of microfractures throughout core, tightly healed			At 117.1': R-Scale = R3
			0				
			0				
120	120.0						
143.1			0			120.0-125.0' - dark reddish brown, soft to hard, thick beds	R22: 13:44-14:06
			0				
	R22NQ 5 ft 98%	98	0				
			0				At 123.5': R-Scale = R3-R4
			0				
125	125.0						
138.1			0			125.0-130.0' - dusky red 125.0-127.1' - little very fine to fine sand	R23: 14:13-14:38
			0				At 125.8': R-Scale = R3-R4
	R23NQ 5 ft 97%	97	0			**Sandstone** 127.1-127.4' - fresh, 60% very fine to fine sand, 40% silt	
			0			**Siltstone** 127.4-128.7' - dusky red, mottled greenish gray, soft to hard, fresh, little very fine to fine sand	
			0			**Sandstone** 128.7-129.4' - pink and reddish brown, hard, fresh	
130	130.0						
133.1			0			**Siltstone** 129.4-132.0' - dusky red, mottled greenish gray, soft to hard, fresh, little very fine to fine sand 130.0-132.0' - becomes coarser with depth	R24: 14:44-15:08
			0				
	R24NQ 5 ft 104%	100	0			**Sandstone** 132.0-145.0' - gray and white, fresh, very fine to medium sand 133.3-133.5' - silty seam (40% silt) 134.0-134.6' - silty seam (40% silt)	
			0				
			1				At 133.6': R-Scale = R3-R4
135	135.0						

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

WATER LEVELS : 16.8 ft bgs

START : 5/26/06 10:15

END : 5/31/06 15:52

LOGGER : JS/DT/LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			1			134.6-139.5' - gray to white, very fine sand to coarse sand	R25: 15:15-15:27
			0	135.9' - Fracture, rough, undulating			
			0	136.7' - Fracture, rough, undulating			
	R25NQ 5 ft 99%	99	0				At 137.3': R-Scale = R3
			0				
			0				SC-4 collected 139.0-140.0'
140	140.0					139.7-144.0' - gravel sized siltstone clasts in sandstone	
123.1			0				R26: 15:35-15:52
			0				At 141.6': R-Scale = R3
	R26NQ 5 ft 100%	100	0				At 143.6': R-Scale = R3-R4 First water level = 16.8' bgs taken 5/31/06 at 16:55; second water level = 10.6' bgs taken 6/20/06 at 07:55
			0				
			0			144.0-145.0' - becomes silty in layers	R-scale performed after drilling on stored samples
145	145.0						
118.1						Bottom of Boring at 145.0 ft bgs on 5/31/06 15:52	
150							
113.1							
155							

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
DRILLING EQUIPMENT AND METHOD : 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 BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
268.9	0.0				**Silty Sand (SM)** 0.0-0.4' - gray, wet, very soft, low to medium plasticity, 30-40% fine to medium sand, roots		
	2.0	19.0	SS1SS	1-3-3-6 (6)	**Lean Clay (CL)** 0.4-1.0' - pale yellow, moist, medium stiff, low to medium plasticity, slow dilatancy, 20% fine to medium sand, scattered rootlets, fine organics		
	2.5				**Fat Clay (CH)** 1.0-1.6' - yellow, moist, medium to high plasticity, no dilatancy, heavy orange staining, 20% fine to medium sand		
	4.5	14.0	SS2SS	2-3-5-5 (8)	**Fat Clay (CH)** 2.5-3.7' - yellow, 15-20 % fine to medium sand; darker orange staining		
5							
263.9	5.0				**Fat Clay (CH)** 5.0-5.5' - pinkish gray, heavily mottled tan and yellow, moist, stiff, medium plasticity, 5-10% fine sand; orange staining		
	7.0	14.0	SS3SS	7-8-26-44 (34)	**Sandy Silt (ML)** 5.5-5.6' - white, moist, very stiff, low to medium plasticity, very fine to fine sand, 40-45% fines		
	7.5				**Clay (CL)** 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	8.0	SS4SS	46-49-50/5 (99/11")	**Lean Clay (CL)** 7.5-8.0' - pale brown, mottled gray and brown, moist, hard, medium plasticity		Soil sampling completed at 12:10 on 5/8/06
10							
258.9	10.0				**Sandy Silt (ML)** 8.0-8.2' - light gray, dry to moist, hard, low plasticity, 25% very fine to fine sand		
	10.1	1.0	SS5SS	50/1 (50/1")	**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							
253.9							
20							

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-32 SHEET 2 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 bgs

START : 5/8/06 11:00

END : 5/9/06 14:07

LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	10.1		0			**Sandstone** At 10.1' - light brownish gray, heavily mottled, very soft, fine sand, highly weathered 10.7-15.0' - medium sand, scattered thin clay seams at high angle, pockets of clay, black, yellow and red staining	Rock coring began at 13:00 on 5/8/06 R1: 13:45-13:51 At 10.6': R-Scale = R3
	R1NQ 4.9 ft 106%	0	1	11.0' - Fracture, horizontal, smooth, undulating			
			2	12.1' - Fracture, horizontal, smooth, undulating 12.5' - Fracture, horizontal, smooth, undulating			At 12.1-18.3': R-Scale = R1
			1				
			4	14.2' - Fracture, horizontal, smooth, undulating 14.4' - Fracture, horizontal, smooth, undulating			
15	15.0			14.8' - Fracture, horizontal, smooth, undulating			
253.9			5	15.0-15.8' - Fractures, horizontal, smooth, undulating		15.0-21.0' - becomes coarser with depth - medium to coarse grained.	R2: 14:05-14:11
			3	16.1-16.5' - Fractures, horizontal, smooth, undulating			
	R2NQ 5 ft 100%	0	3	17.1' - Fracture, horizontal, smooth, undulating 17.6' - Fracture, horizontal, smooth, undulating			
			3	17.9' - Fracture, horizontal, smooth, undulating 18.4' - Fracture, horizontal, smooth, undulating 18.5' - Fracture, horizontal, smooth, undulating			
			3	18.8' - Fracture, horizontal, smooth, undulating 19.0' - Fracture, horizontal, smooth, undulating 19.2' - Fracture, horizontal, smooth, undulating			
20	20.0						At 19.6': R-Scale = R3-R4
248.9			2	19.9' - Fracture, 15 deg, rough, undulating 20.3' - Fracture, horizontal, rough, stepped			R3: 14:35-15:00 At 20.5': R-Scale = R3
			0	21.0' - Fracture, horizontal, rough, planar		**Siltstone** At 21.0' - weak red, heavily mottled, very soft, fine grained 21.0-25.0' - highly weathered	
	R3NQ 5 ft 100%	0	3			22.1-22.5' - clay seam	
			1	23.3' - Fracture, 50 deg, rough, planar		22.9-23.1' - clay seam	
			2			24.4-24.7' - clay seam	
25	25.0						
243.9			0			25.0-30.0' - dusky red, green mottling, soft	R4: 15:05-15:19
			1	26.1' - Fracture, 60 deg, smooth, undulating		25.0-32.8' - fresh	
	R4NQ 5 ft 100%	100	0				At 27.2': R-Scale = R3-R4
			0				At 28.6': R-Scale = R3-R4
			0				
30	30.0						

PROJECT NUMBER:	BORING 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

WATER LEVELS : 19.0 ft bgs

START : 5/8/06 11:00

END : 5/9/06 14:07

LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (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			
	R5NQ 5 ft 99%	90	2	32.4' - Fracture, 10 deg, smooth, undulating			
				32.8' - Fracture, horizontal, smooth, undulating		**Sandstone** At 32.8' - light gray, soft, medium sand to coarse sand, fresh	
			0				
			0				At 34.0': R-Scale = R3
35	35.0					34.5-36.2' - fine rounded gravel	
233.9			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				
			0				At 38.4': R-Scale = R3-R4
			1				
40	40.0			39.5' - Fracture, 20 deg, smooth, undulating			
228.9			1			**Siltstone** At 40.0' - dark reddish brown, very soft to soft, fresh, fine grained 40.9-42.4' - soft, whitish inclusions	R7: Finished at 08:45 on 5/9/06
			0	40.6' - Fracture, horizontal, rough, undulating			
	R7NQ 5 ft 100%	86	4	42.4-42.7' - Fracture zone, horizontal and vertical, rough, undulating		42.7-44.1' - green mottling 42.7-42.8' - clay seam	At 43.0': R-Scale = R3
			4				
			1	43.8-44.1' - Fracture zone, horizontal and vertical, smooth, undulating, multiple fractures with rock fragments		44.1-45.0' - soft, some very fine to fine sand	
45	45.0						
223.9			0			45.0-48.0' - dark reddish brown, green mottling, fine grained	R8: 08:50 - 09:10
			0				
	R8NQ 4.2 ft 100%	100	0				At 47.3': R-Scale = R3-R4
			0			**Sandstone** 48.0-48.8' - pinkish gray, fresh, soft, fine grained, contact at 50 degrees	
	49.2						
	R9NQ 0.8 ft 100%	100	0				R9: 09:12-09:16
50	50.0						

PROJECT NUMBER:	BORING 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 LEVELS : 19.0 ft bgs

START : 5/8/06 11:00

END : 5/9/06 14:07

LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			**Siltstone** At 48.8' - dark reddish brown, trace green mottling, very soft to soft, fresh, fine grained, scattered white and gray inclusions 50.0-55.0' - coarse sand to fine gravel sized	R10: 09:20-09:40
			0				
	R10NQ 5 ft 99%	99	0				At 52.0': R-Scale = R3
			0				
			2	54.0' - Fracture, horizontal, smooth, undulating 54.6' - Fracture, horizontal, smooth, undulating			
55 213.9	55.0						R11: 09:50-10:06
			0				
			0				
	R11NQ 5 ft 100%	100	0				
			0				At 58.4': R-Scale = R3
			0				
60 208.9	60.0						R12: 10:20-10:36
			0				
			1				At 60.9': R-Scale = R3-R4
	R12NQ 5 ft 96%	96	0	61.7' - Fracture, 70 deg, smooth, undulating			
			1	63.5' - Fracture, 70 deg, smooth, undulating			
			0				
65 203.9	65.0						R13: 10:43-11:00
			0				
			0				At 66.3': R-Scale = R3
	R13NQ 5 ft 98%	98	0				
			0				
			0				
70	70.0						

PROJECT NUMBER:	BORING 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 bgs

START : 5/8/06 11:00

END : 5/9/06 14:07

LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				R14: 11:05-11:30
			0				
	R14NQ 5 ft 98%	98	0				At 72.6': R-Scale = R3
			0				
			0			73.7' - dark reddish brown, scattered coarse sand, rounded	
75 193.9	75.0						
			0			75.0-78.1' - dark reddish gray, heavy blue, green, and purple mottling	R15: 11:35-11:56 At 75.3': R-Scale = R3-R4
			4	76.1-76.3' - Fractures, 40 deg, smooth, undulating			
	R15NQ 5 ft 98%	98	1	77.1' - Fracture, horizontal, smooth to rough and undulating			SC-2 collected 77.1 - 78.5
			1	78.1' - Contact between siltstone and sandstone, 30 deg		**Sandstone** 78.1-81.7' - gray, soft, fine sand, fresh, fine black and gray banding	
			0	78.5' - Fracture, 50 deg, smooth, undulating		78.8-81.7' - light gray, soft to hard, medium sand to coarse gravel	
80 188.9	80.0						
			0				R16: 13:20-13:40
			0				
			0				At 81.55': R-Scale = R3-R4
	R16NQ 5 ft 99%	97	10+	82.1-82.2' - Fracture zone, horizontal, contact between matrices		**Siltstone** 81.7-87.8' - dark gray, heavy mottling, very soft to soft, fresh, very fine to fine sand throughout	
			0				
			0				At 83.9': R-Scale = R3
85 183.9	85.0						
			0			85.0-87.8' - soft to hard, harder with depth	R17: 13:50-14:07
			0				
	R17NQ 5 ft 102%	74	1				At 86.8': R-Scale = R3-R4 First water level = 19.0' bgs taken 5/9/06 at 16:15; second water level = 10.5' bgs taken 5/10/06 at 17:21 R-scale performed after drilling on stored samples
			7	87.8' - Fracture, 30 deg, smooth, undulating 88.2-89.9' - Fractures, 70 deg and horizontal, smooth to rough and undulating		**Sandstone** 87.8-90.0' - dark gray, hard, fine sand to medium sand, fresh	
			3				
90	90.0						
						Bottom of Boring at 90.0 ft bgs on 5/9/06 14:07	

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-33 SHEET 1 OF 9

SOIL BORING 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
DRILLING EQUIPMENT AND METHOD : CME-550, Tricone Bit, 24" Split Spoon, 140 lb. Automatic Hammer
ORIENTATION : Vertical
WATER LEVELS : 14.9 ft bgs
START : 5/12/06 10:00
END : 5/25/06 17:20
LOGGER : DT/JS

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
270.4	0.0	16.0	SS1SS	2-2-3-5 (5)	**Silty Sand (SM)** 0.0-1.0' - brown, moist, loose, fine grained, feldspar, trace organics		
	2.0				**Clay (CL)** 1.0-1.3' - yellow, moist, medium stiff, medium plasticity, trace fine sand, organics		
	2.5	24.0	ST2ST				ST-2 collected 2.5-4.5'
	4.5						PT-1 collected 4.0-6.3'
5							
265.4	5.0	14.0	SS3SS	15-16-23-41 (39)	**Clay (CL)** 5.0-6.2' - dark reddish brown, moist, hard, low to medium plasticity		
	7.0				**Silty Sand (SM)** 6.2-6.9' - very pale brown, dry to moist, hard, saprolite		
	7.5	3.0	SS4SS	50/3 (50/3")	**Silty Sand (SM)** 7.5-7.8' - very pale brown, dry to moist, hard, saprolite		
	9.5						Soil sampling completed at 11:15 on 5/12/06
10							
260.4	10.0	3.5	SS5SS	50/3.5 (50/3.5")	**Silty Sand (SM)** 10.0-10.3' - very pale brown, dry to moist, hard, saprolite		
	10.3				Begin Rock Coring at 10.3 ft bgs See the next sheet for the rock core log		
15							
255.4							
20							

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-33	SHEET 2 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

WATER LEVELS : 14.9 ft bgs

START : 5/12/06 10:00

END : 5/25/06 17:20

LOGGER : DT/JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	10.3		0			**Sandstone** 10.3-12.6' - light yellowish brown, soft, fine sand to medium sand, subangular, highly weathered	Rock coring began at 14:16 on 5/12/06 R1: 14:16-14:35 and 14:40 - 14:56 on 5/12/06
			3	11.2' - Fracture, horizontal, rough, undulating, loose fit 11.3' - Fracture, horizontal, rough, undulating, loose fit			
			1	11.7' - Fracture, horizontal, rough, undulating, loose fit		**Siltstone** 12.6-18.9' - dark reddish brown, soft to very soft, highly weathered, some fine sand	
			1	12.5' - Fracture, 25 deg, rough, undulating, loose fit 13.1' - Fracture, horizontal, smooth, undulating, loose fit			
15 255.4	R1NQ 9.7 ft 101%	0	1	14.7' - Fracture, 10 deg, rough, stepped, tight fit			
			0				
			0				
			1	17.8' - Fracture, horizontal, smooth, undulating, loose fit			
			1	18.9' - Fracture, horizontal, rough, stepped, tight fit		**Sandstone** At 18.9' - dark brown, soft, fine sand to coarse sand, subangular, highly weathered	Boring abandoned on 5/15/06 for geophysical work.
20 250.4	20.0		1	19.6' - Fracture, 10 deg, rough, undulating, loose fit		20.0-21.8' - dark grayish brown	R2: 09:10-09:15 on 5/22/06; moved about 2' S of original location and started at 20' At 20.0-22.4': R-Scale = R1-R2
			2	20.1' - Fracture, horizontal, rough, planar 20.4' - Fracture, horizontal, rough, planar		21.2-21.7' - mottled dark purple	
			2	21.6' - Fracture, horizontal, rough, undulating, heavily stained		21.8-25.8' - light yellowish brown	
	R2NQ 5 ft 82%	0	2	21.8' - Fracture, horizontal, rough, undulating 22.0' - Fracture, horizontal, smooth, undulating			
			1	22.5' - Fracture, horizontal, smooth, undulating			At 23.2': R-Scale = R2
				23.5' - Fractures (2), horizontal and 70 deg, smooth, undulating 24.1' - Fracture, horizontal, smooth, undulating		23.5-23.9' - heavy pink and red mottling through soil mass, very soft, poorly sorted, fine to coarse sand	
25 245.4	25.0						
			10+	25.0-25.8' - Fracture zone			R3: 09:20-09:35
			1	25.8' - Fracture, 30 deg, smooth, undulating		25.8-26.8' - light brownish gray, mottled pink and red, clay in matrix 25.8-26.2' - very soft, very fine sand to fine sand, clay in matrix	
	R3NQ 5 ft 90%	0	2	26.8' - Fracture, horizontal, smooth, stepped 27.0' - Fracture, horizontal, smooth, undulating, black stains		**Clay Seam (CL)** 26.8-28.3' - grayish brown, mottled greenish white, black, yellow, red, very stiff, highly weathered, fine grained	At 26.8-28.8': R-Scale = R0 At 26.8-28.3': PP: 3.5-4.5+ tsf
			10+	27.2' - Fracture, horizontal, smooth, undulating, black stains 28.3-28.4' - Fracture zone, horizontal		**Siltstone** At 28.3' - reddish brown, mottled black, yellow, white and purple, highly weathered, fine grained	
			0	28.6' - Fracture, horizontal, smooth, undulating, black stains			
30 240.4	30.0			30.0-30.6' - Fracture zone, numerous fractures			R4: 10:03-10:21

PROJECT NUMBER:	BORING 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

WATER LEVELS : 14.9 ft bgs

START : 5/12/06 10:00

END : 5/25/06 17:20

LOGGER : DT/JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (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		28.3-28.5' - very soft, clay to weathered bedrock	At 30.6-31.0': PP: 4.5+ tsf
			10+	30.8' - Fracture, horizontal and 10 deg, smooth, undulating		28.5-30.0' - very soft to soft	
	R4NQ 5 ft 107%	48	2	31.5' - Fracture, horizontal, smooth, planar, contact with clay seam		30.0-32.6' - mottled greenish gray, purple and yellow, very soft, clay seams, clay-like	At 31.5-31.9': PP: 1.5 tsf
			1	33.2' - Fracture, horizontal and vertical, smooth, undulating, 0.15' clay infilling		**Sandstone** At 32.6' - very dark gray, mottled greenish gray and yellow, very soft, very fine sand, some silt, laminated to medium bedding	
			0			32.6-32.6' - highly weathered	
35	35.0					32.6-35.0' - dark brown, trace greenish gray mottles, very soft to soft, very fine to fine grained, coarser than above	R5: 10:35-10:44
235.4			2	35.5' - Fracture, horizontal, smooth, undulating, brown and yellow stains		32.6-39.4' - slightly weathered	
			0	35.7' - Fracture, 20 deg, smooth, undulating, brown and yellow stains		35.0-35.7' - very dark gray, mottled brown and black, very soft, very fine grained, some silt in matrix	
	R5NQ 5 ft 102%	92	0			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		38.7-39.5' - weak red, red, black, white, and gray grains, soft, medium sand to coarse sand, dark gray clay seams throughout, irregularly shaped, more abundant with depth	
			2	38.9' - Fracture, horizontal, rough, undulating			
40	40.0					39.4-47.4' - fresh	R6: 10:53-11:00
230.4			0			39.5-39.6' - clay seam, joints on either side, undulating, dark gray with no bedding, firm	SC-1 collected 40.0 - 41.1
			0			39.6-40.0' - light gray, soft to hard, fine sand to coarse sand, poorly sorted	
	R6NQ 5 ft 100%	100	0			40.0-43.3' - gray, multicolored grains, white, green, gray, some black, orange, soft to hard, fine sand to medium sand, coarsens with depth and then begins fining with depth at 42.2'	
			1	43.0' - Fracture, 65 deg, smooth, undulating, 0.01' relief			
			0			42.8-43.0' - mottled red	At 44.3': R-Scale = R3-R4
45	45.0					43.3-44.0' - light gray and pale red, mottled dark red, hard, fine sand	R7: 11:05-11:23
225.4			0			44.0-45.0' - mottled red, fine sand to coarse sand, poorly sorted, thin, discontinuous, black threadlike lenses, more abundant with depth, coarser in last 0.2' (30% coarse sand)	
			10+	46.3-46.6' - Fracture zone, horizontal and 80 deg, some orange and yellow stains		45.0-47.4' - light brownish gray, gray, white, yellow, and orange grains, soft, medium sand to coarse sand, poorly sorted, trace clay clasts, some finer zones	
	R7NQ 5 ft 100%	70*	10+	47.3' - Fracture, horizontal, smooth, undulating, 0.01' relief		46.6-46.7' - fine grained zone	
			1	47.6' - Fracture, 5 deg, smooth, undulating, 0.01' relief			
				47.9' - Fracture, horizontal, smooth, undulating, 0.01' relief			At 48.8': R-Scale = R2
			2	48.3' - Fracture, horizontal, smooth, undulating, 0.01' relief			
50	50.0						
220.4							R8: 11:34-11:57

PROJECT NUMBER:	BORING NUMBER:	
338884	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

WATER LEVELS : 14.9 ft bgs

START : 5/12/06 10:00

END : 5/25/06 17:20

LOGGER : DT/JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			10+	50.5-50.8' - Fracture zone, horizontal, smooth, undulating, 0.01' relief		**Siltstone** 47.4-48.0' - dark gray, mottled gray, yellow, purple, very soft, moderately weathered, very fine grained, clay seams 47.4-47.6' - clay seam, dark gray 47.7-47.8' - clay seam, dark gray 48.0-48.3' - clay seam, laminated alternating siltstone and clay seams, contacts are horizontal, smooth, undulating	
			0				
	R8NQ 5 ft 93%	88	1	52.6' - Fracture, horizontal, smooth, undulating, 0.01' relief			At 52.1': R-Scale = R2-R3
			0				
			0			**Siltstone** 48.0-50.3' - dusky red, mottled gray and greenish gray, very soft 48.0-48.3' - moderately weathered 48.3-49.2' - fresh 49.0-49.1' - 0.02' thick clay seam and 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, laminated bedding, fresh, becomes coarser	
55	55.0						
215.4			0				R9: 13:50-14:01
			0				At 56.3': R-Scale = R3
	R9NQ 5 ft 102%	100	1	57.6' - Fracture, horizontal, smooth, undulating			
			0			**Claystone** 50.3-50.9' - dark reddish gray, mottled yellowish brown, very soft, fresh, very fine grained, gradational contacts	
			0			**Siltstone** At 50.9' - dark reddish brown, mottled greenish gray and yellow, very soft to soft, fresh, fine grained 53.1-55.0' - soft, coarser grained silt, 5-10% white medium to coarse grained sand 56.9-57.4' - transition zone from siltstone to underlying sandstone; interbedded 57.3-57.4' - fine black bedding at end of transition zone	
60	60.0						
210.4			0				R10: Finished at 14:40
			0				At 60.4': R-Scale = R3-R4
	R10NQ 5 ft 98%	92	2	62.3-62.5' - Fractures (2), horizontal and 60 deg, smooth, undulating, thin quartz infilling (~0.0002' thick)			
			0				At 63.1': R-Scale = R3-R4
			0	63.6' - Contact between siltstone and sandstone, horizontal, smooth, undulating, in clay seam at contact, sharp		**Sandstone** At 57.4' - gray to light greenish gray, soft to hard, fine sand to medium sand, poorly sorted, fresh 57.6-58.3' - pale red lens 60.0-63.6' - medium sand, trace coarse sand sized clay clasts, well sorted 63.6-63.7' - clay seam, green gray, sand wraps around clay	
65	65.0			63.7' - Fracture, 30 deg, smooth, undulating, small slickenside piece (1/2 sized)			
205.4			0				R11: 14:45-15:05
			0				At 65.7': R-Scale = R3
	R11NQ 5 ft 102%	98	10+	67.6-67.9' - Fracture zone		**Siltstone** 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		**Siltstone** 65.0-73.4' - dark reddish brown, mottled greenish gray and black, soft, fresh, fine grained	At 68.2': R-Scale = R4
			0				
70	70.0						
200.4							R12: Finished at 15:37

PROJECT NUMBER:	BORING 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

WATER LEVELS : 14.9 ft bgs

START : 5/12/06 10:00

END : 5/25/06 17:20

LOGGER : DT/JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			68.1-68.9' - scattered whitish sand, 15% coarse sand sized to fine gravel, harder than matrix	At 70.6': R-Scale = R3
			0			71.6-73.4' - grades into sandstone	
	R12NQ 5 ft 102%	100	0				
			0			**Sandstone** 73.4-84.3' - dark brown, soft to hard, very thin to medium bedding, very fine sand, fresh	
			0				At 74.1': R-Scale = R3-R4
75	75.0					73.4-74.4' - gray and dark gray beds	
195.4			0			73.4-75.0' - fine sand to medium sand, well sorted, becomes coarser with depth	R13: 08:20-08:45 on 5/24/06
			0			75.0-75.8' - gray to greenish gray	At 75.8': R-Scale = R3-R4
						75.0-78.2' - fine sand to medium sand	
	R13NQ 5 ft 98%	98	0			75.3-75.5' - very thin bedding, dark gray and black bedding	
						75.8-76.7' - very thin bedding, dark gray and black bedding	
			0			76.8-77.2' - mottled and banded dark reddish brown, iron rich zones	
			0			77.5-77.6' - banded dark gray and black	
80	80.0					78.0-78.1' - mottled and banded dark reddish brown, iron rich zones	
190.4			0			78.2-80.0' - soft to hard, grading coarser with depth, becoming medium grained by ~79.0' with 20% coarse grains, siliceous sands, bedding at 10-20 degrees	R14: 08:53-09:04
			0				At 81.3': R-Scale = R3
	R14NQ 5 ft 103%	100	0			80.0-84.3' - medium sand to coarse 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 minerals increase, dark red staining	
85	85.0						
185.4			0			**Siltstone** 84.3-87.5' - very dark gray to very dark greenish gray, mottled dark red rusty, banded light gray, dark gray, threadlike black bands, soft, fresh, fine grained, some very fine sand, abundant coarse silt	R15: 09:10-09:19
			0				At 86.5': R-Scale = R3
	R15NQ 5 ft 98%	98	0			85.1-87.5' - soft to hard, laminated bedding, very fine sand to fine sand, interbedded siltstones and sandstones	SC-2 collected 87.8-88.8'
			0			85.4-86.0' - very dark gray and weak red	
			0			87.0-87.7' - dark red stained beds	
90	90.0					87.1-87.5' - lighter gray beds	
180.4							R16: 09:25-09:45

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-33	SHEET 6 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

WATER LEVELS : 14.9 ft bgs

START : 5/12/06 10:00

END : 5/25/06 17:20

LOGGER : DT/JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			**Sandstone** 87.5-91.7' - light gray, white, gray, and black, soft to hard, poorly sorted, fresh, fine to medium sand, becomes coarser and harder with depth, contact is sharp on 30 degree angle	At 90.5': R-Scale = R3
			6	91.0-91.3' - Fracture zone, 70 deg, rough, undulating, 1 main fracture with several broken pieces			
	R16NQ 5 ft 98%	70	0	91.7' - Contact between siltstone and sandstone, 30 deg, smooth, undulating, 0.02' thick discolored zone at contact in siltstone (gray), very soft		87.8' - 1/4 claystone clast 88.2' - dark red stained beds 88.6' - dark red stained beds 89.3' - dark red stained beds 90.0-91.7' - medium sand to coarse sand, 10-20% several 1/8 to 1/4 gray siltstone rip up clasts	
			1	91.7-105.1' - Microfractures throughout in capillary pattern			
			6	93.8' - Fracture, horizontal, smooth, undulating 94.1-94.4' - Fractures (5), horizontal, smooth, undulating			
95 175.4	95.0			94.6' - Fracture, horizontal, smooth, undulating		**Siltstone** 91.7-105.1' - dark reddish brown, trace green and black mottling, soft, fresh, fine grained	R17: Finished at 11:10
			0	95.0-100.0' - Microfractures		94.7-96.3' - dark gray mottling 95.8-96.2' - very soft to soft	
			0			96.3-98.7' - dark purple mottling, 5-10% green mottling	At 96.7': R-Scale = R3
	R17NQ 5 ft 98%	88	0				
			0				
			1	99.4' - Fracture, 20 deg, smooth, undulating		98.7-100.0' - heavily mottled green, becomes coarser, coarse silt, 40% very fine sand	At 98.9': R-Scale = R3-R4
100 170.4	100.0			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 covering the core surface	
			10+	100.7-101.1' - Fracture zone, bedrock fragments		100.7-101.1' - very soft to soft, broken up zone of siltstone; bedrock fragments	
	R18NQ 5 ft 100%	86	1			101.1-103.4' - heavily mottled dark red, gray, dark purple, and green, very soft to soft, very fine grained	
			0	102.9' - Fracture, 10 deg, smooth, undulating, fossil bed organics			
			0	103.4' - Contact between siltstone and sandstone, horizontal, strong contact		103.4-105.1' - mottled light gray, tan, dark gray, green, soft to hard, coarser, 40% coarse silt and very fine sand	At 103.7': R-Scale = R3-R4
105 165.4	105.0						R19: 11:05-11:25
			2			**Siltstone** 105.1-106.9' - very dark gray to very dark greenish gray, mottled brown, dark yellow, dark red, mottling in irregular bands and streaks, most at 150 degrees, very soft to soft, fresh, mottling/banding irregular, bedding on 150 degrees, very fine grained with very fine sandy zone 105.2-105.7' - irregular shaped zone 106.6-106.8' - dark red/purple lenses	
			10+	105.8' - Fracture, 30 deg, slickensided, undulating, gray contact 106.0' - Fractures (2), 20 deg, rough, undulating, gray material, 0.02' apart, lower surface, smooth, undulating, almost slickensided, possible fossilized organics			
	R19NQ 5 ft 97%	90	1	106.3-106.5' - Fracture zone, horizontal and 20 deg, smooth and slickensided			
			0	106.6' - Fracture, horizontal, smooth, undulating			At 108.4': R-Scale = R3-R4
			0	106.9' - Contact between siltstones, horizontal, sharp		**Siltstone** 106.9-112.1' - dark reddish gray, mottled dark yellow, light gray, very soft to soft, fresh, horizontal bedding	
110 160.4	110.0			107.0' - Fracture, horizontal, smooth, undulating			

PROJECT NUMBER:	BORING NUMBER:	
338884	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 EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

ORIENTATION : Vertical

WATER LEVELS : 14.9 ft bgs

START : 5/12/06 10:00

END : 5/25/06 17:20

LOGGER : DT/JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (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 mottling, soft to hard, up to 50% very fine to fine sand, fine grained	R20: Finished coring at 12:00
			0			110.0-110.5' - mottled yellow and black, 50% very fine sand	At 111.4': R-Scale = R3
	R20NQ 5 ft 100%	100	0			110.5-112.1' - very dusky red, dark gray, purple, and dark yellow mottling, trace coarse silt/very fine sand, coarsens with depth, up to 30-35%	
			0			**Siltstone**	At 113.1': R-Scale = R3-R4
115	115.0		0			112.1-112.8' - very dark gray, faintly mottled dark red, fresh, some laminated beds of very fine gray siltstone, some very fine sand beds, interbedded	
155.4			0			**Sandstone**	R21: No time recorded
			1	116.6' - Contact between siltstone and sandstone, 10 deg, smooth, undulating		112.8-116.6' - black, mottled red, soft to hard, very fine sand to coarse sand, well sorted, fresh, coarsens with depth, becomes harder with depth	At 115.8': R-Scale = R3-R4
	R21NQ 5 ft 107%	100	0			112.8-115.0' - grades from siltstone to sandstone	SC-3 collected 117.3-118.4'
			0			113.2-113.3' - medium to coarse grained sand bed 114.9' - fine grained siltstone lens 115.0-116.6' - heavily mottled red	
			1			115.3' - reddish gray, medium sand, coarsens with depth, medium to coarse grained	At 119.0': R-Scale = R3
120	120.0						
150.4			1	120.0-122.8' - Microfractures		**Siltstone** 116.6-117.7' - very dark gray, mottled black, soft, fresh	R22: Finished at 14:20
			0	120.8' - Fracture, 40 deg, slickensided, planar, not entire surface is slickensided, partial fractures at same angle opening up below this fracture		**Siltstone** At 117.7' - dark reddish gray, mottled red, soft, fresh	
	R22NQ 5 ft 103%	100	0			118.8' - white speckles, very fine grained, 30% very fine sand	At 122.2': R-Scale = R3
			0			120.0-122.8' - dusky red, dark red mottling 122.8-123.1' - grades to sandstone	
			0			**Sandstone** At 123.1' - very dusky red, 10% black mottling, soft to hard, fine sand, well sorted, fresh, 0.05' thick medium grained zones, very thin claystone bedding, discontinuous	
125	125.0		0	124.4' - Fracture, 20 deg, smooth, undulating, in gray seam			At 124.6': R-Scale = R3-R4
145.4			6	125.5' - Fractures (2), 70 deg and 80 deg, rough, undulating, little brown-orange stains			R23: 08:20-08:43 on 5/25/06
			2	126.0' - Fracture, 50 deg, rough, undulating		125.0-126.2' - dark brown, dark brownish-purple mottling in bands, very thin to thin bedding, fine sand to medium sand, angular	SC-4 collected 126.4-127.3'
	R23NQ 5 ft 102%	50	1	127.3' - Fracture, 20 deg, smooth, undulating		**Siltstone**	
			10+	128.0' - Fracture, 20 deg, smooth to slickensided, undulating, tight fit		126.2-129.3' - very dark gray, mottled dark red, light gray, black, soft, very fine grained, up to 50% very fine sand/coarse silt	
			4	128.4-128.6' - Fracture zone, horizontal and 70 deg, smooth, planar to undulating, little brown staining on some surfaces, healed fracture		126.2-129.0' - fresh 129.0-129.3' - highly weathered	
130	130.0			about 1 long at 70 deg angle just above			At 129.3-130.0': R-Scale = R0
140.4				fractured zone, uneven whitish-yellow infilling			At 129.4': PP: 3.0 tsf

PROJECT NUMBER:	BORING NUMBER:	
338884	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

WATER LEVELS : 14.9 ft bgs

START : 5/12/06 10:00

END : 5/25/06 17:20

LOGGER : DT/JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (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		**Clay Seam (CL)** 129.3-130.0' - very soft, highly weathered, coarse sand sized bedrock pieces are flakes and small blocks, most upper slickensided and shiny on surfaces	R24: 08:55-09:25
			2	129.0-129.3' - Fractures (4), 20 deg, surface at 129.0 is slickensided and planar, remainder are shiny, some slickensided, bedrock flakes and small block-like pieces, gray clay seam between two surfaces		**Siltstone** 130.0-130.4' - very dark gray, mottled red, gray, yellow, and black, fresh, gradually transitions to dark reddish brown siltstone	
	R24NQ 5 ft 100%	80	4	130.0-130.3' - Fractures (3), horizontal, smooth, undulating, 0.02' relief			At 132.8': R-Scale = R3
			1	130.3' - Fracture, 40 deg, smooth to slickensided, undulating, 0.01' relief		**Siltstone** At 130.4' - dark reddish brown, mottled yellow and green, very soft to soft, fresh	
			0	130.7' - Fracture, horizontal, smooth, undulating, 0.02' relief			
135	135.0						
135.4			1	131.7-132.1' - Fractures (5), horizontal, smooth, undulating		133.5-135.0' - trace green mottling, fine grained, harder with depth, trace coarse sand in last 0.3' at 135.0'	R25: 09:30-09:52
			7	135.9' - Fracture, horizontal, smooth, undulating		135.0-138.0' - scattered green mottling	
	R25NQ 5 ft 102%	88	2	137.2-137.7' - Fractures (7), horizontal, smooth, undulating			At 136.8': R-Scale = R3-R4
			2				
			0	139.0' - Fractures (2), horizontal, smooth, undulating		139.0-140.0' - heavy dark yellow mottling, 5-10% rounded coarse sand	
140	140.0						
130.4			6	140.0-140.6' - Fractures (6), horizontal, smooth to rough, undulating		140.0-141.0' - green mottles with black thread like centers	R26: 10:08-10:30
			2	141.0' - Fracture, horizontal, smooth, undulating		141.0-142.6' - green, black, purple and yellow mottling, soft, gray claystone clast at fracture at 141.7, coarsens with depth	
	R26NQ 5 ft 95%	68	0	141.7' - Fracture, 60 deg, rough, undulating			At 141.9': R-Scale = R3-R4
			6	143.3-143.5' - Fractures (3), horizontal, smooth, undulating, small bedrock fragments		142.6-143.2' - little mottling, soft, 50% coarse silt, very fine sand, harder than above	
			3	143.7' - Fracture, horizontal, smooth, undulating		143.2-143.6' - reddish brown, little mottling	
145	145.0			143.9' - Fracture, 5 deg, rough, undulating, bedrock fragments		143.6-150.0' - heavy dark purple, green, dark yellow, and green mottles	
125.4			0	144.6-145.0' - Fractures (3), horizontal, smooth, undulating, some bedrock fragments			R27: 10:39-11:06
			2				At 146.5': R-Scale = R4
	R27NQ 5 ft 88%	75	10+	146.9' - Fracture, 20 deg, smooth, undulating			
			4	147.5-147.6' - Fracture zone, horizontal, smooth and slickensided, undulating		147.6-147.8' - clay seam, gray with bedrock fragments	
			0	147.8-148.1' - Fracture zone, horizontal and 50 deg, smooth, undulating, partially slickensided, bedrock fragments		147.8-150.0' - less mottling, faint yellow, green, and black mottling, a few coarse sand grains, medium sand, very little coarse silt/fine sand	
150	150.0			148.7' - Fracture, horizontal, smooth, undulating			At 149.4': R-scale = R3
120.4							R28: 16:15-16:35

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-33 SHEET 9 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

WATER LEVELS : 14.9 ft bgs

START : 5/12/06 10:00

END : 5/25/06 17:20

LOGGER : DT/JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0	148.8' - Fracture, horizontal, smooth, undulating			
			0				
	R28NQ 5 ft 93%	94	0				
			0			153.5-153.8' - soft, fine grained with trace medium sand throughout, some zones with more very fine sand/coarse silt	At 153.7': R-Scale = R3-R4
			0				
155	155.0						
115.4			1	155.6' - Fracture, 10 deg, rough, undulating, tight fit		155.0-157.0' - zones of very fine sand/coarse silt, grades in and out of these zones, several inches thick	R29: 16:45-17:07
			10+			156.2-156.3' - clay seam, bedrock fragments and clay mixed together	
	R29NQ 5 ft 102%	99	0			**Siltstone** 157.0-160.0' - very dark gray, laminated bedding, fresh, gradual darkening to this depth, faint banding of black, light gray, some very fine sand, coarse silt	SC-5 collected 158.55 - 159.5'
			0				At 158.0': R-Scale = R3-R4 First water level = 14.9' bgs taken 5/31/06 at 15:00
			0				R-scale performed after drilling on stored samples
160	160.0						
110.4						Bottom of Boring at 160.0 ft bgs on 5/25/06 17:20	
165							
105.4							
170							
100.4							

PROJECT NUMBER:	BORING 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 LEVELS : 5.8 ft bgs
START : 5/11/06 11:20
END : 5/12/06 16:56
LOGGER : JS

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: PP (TSF)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
267.1	0.0	19.0	SS1SS	3-2-2-3 (4)	**Clay (CL)** 0.0-1.6' - brown, moist, soft, low to medium plasticity, slow to rapid dilatancy, 15-20% fine sand 0.7-1.6' - becomes brownish yellow, mottled orange			
	2.0							
	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 medium plasticity, scattered white lenses of more plastic clay, bedrock pieces			
	7.0							
	7.5	5.0	SS4SS	50/5.5 (50/5.5")	**Clay (CL)** 7.5-7.9' - reddish brown, moist, hard, low to medium plasticity, scattered white lenses of more plastic clay, 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, moist, hard, low to medium plasticity, bedrock pieces			
	12.0							
	12.5	2.0	SS6SS	50/2 (50/2")	**Clay (CL)** 12.5-12.7' - reddish brown, mottled white, moist, hard, low to medium plasticity, bedrock pieces Begin Rock Coring at 12.7 ft bgs See the next sheet for the rock core log			Soil sampling completed at 12:45 on 5/11/06
	12.7							
15								
252.1								
20								

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-34	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 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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	12.7		1			**Siltstone** At 12.7' - dark reddish brown, very soft, fine grained	Rock coring began at 13:00 on 5/11/06
	R1NQ 2.8 ft 100%	89	1	13.5' - Fracture, 10 deg, smooth, undulating, tight fit 13.8' - Fracture, 11 deg, smooth, undulating, tight fit		12.7-26.1' - slightly weathered to moderately weathered 13.8-15.5' - mottled greenish gray, harder than above	R1: No time recorded on 05/11/06
15 252.1			0				
	15.5		0			15.5-29.1' - very soft to soft, scattered fine sand	R2: 13:25-13:39
	R2NQ 5 ft 98%	98	0				
			0				
			0				
20 247.1			0				
	20.5		3	20.6' - Fracture, horizontal, smooth, undulating 20.8' - Fracture, 1 deg, smooth, undulating		21.0-21.3' - clay seam	R3: 13:45-13:58
	R3NQ 5 ft 94%	64	3	21.5' - Fracture, 20 deg, smooth, planar, tight fit, green clay 21.8' - Fracture, 20 deg, smooth, stepped			
			0	21.9' - Fracture, horizontal, smooth, undulating			
			1	23.9-24.0' - Fracture, 70 deg, smooth to rough, undulating, black stains			
25 242.1			0				
	25.5		2				R4: 14:10-14:28
			2	26.1' - Fractures (2), horizontal and 70 deg, smooth, undulating 26.5-28.5' - Fracture zone, horizontal, smooth, undulating, clay seams		26.1-29.1' - highly weathered 26.7-28.5' - clay seams, abundant green and white mottling	
	R4NQ 5 ft 100%	12	4	26.9' - Fracture, horizontal, smooth, undulating 27.7' - Fracture, horizontal, smooth, undulating 27.8' - Fracture, horizontal, smooth, undulating 27.9' - Fracture, horizontal, smooth, undulating			
			3	28.2' - Fracture, horizontal, smooth, undulating 28.5' - Fracture, horizontal, smooth, undulating			
			10+	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	
30 237.1	30.5		0			**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
			0				

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-34 SHEET 3 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 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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	R5NQ 5 ft 95%	95	0				
			0				
35 232.1			0				SC-2 collected 33.9-34.9'
	35.5						R6: 16:07-16:19
			0				
			0			36.7-38.1' - gray, mottled pink and greenish gray, fine sand to medium sand	
	R6NQ 5 ft 96%	96	0				
			0			**Siltstone** At 38.1' - dark reddish brown, mottled greenish gray, soft, fresh, fine grained, scattered white, angular, medium sand	
40 227.1			0				
	40.5					40.5-42.8' - gradational contact with sandstone, coarsening with depth	R7: 16:27-16:45
			0				
			0				
	R7NQ 5 ft 104%	100	0			**Sandstone** 42.8-43.4' - dark reddish brown, soft to hard, thin bedding, very fine sand to fine sand, fresh	R8: 16:54-16:56
			0			**Siltstone** 43.4-44.0' - very dark gray, very soft, thin bedding, fresh, fine grained	First water level = 5.8' bgs taken 5/11/06 at 17:38; second water level = 14.2' bgs taken 5/12/06 at 15:35
45 222.1			0				
	45.5					**Sandstone** At 44.0' - dark reddish brown, soft, thin to medium bedding, very fine sand to fine sand, fresh	
	R8NQ 1.5 ft 113%	98	0				R-scale not performed on rock core samples
	47.0		1	46.9' - Fracture, 70 deg, rough, undulating, loose fit		44.7-45.5' - gray, red and black mottling, hard, medium sand to coarse 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	
50 217.1						Bottom of Boring at 47.0 ft bgs on 5/11/06 16:56	

PROJECT NUMBER:	BORING 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
WATER LEVELS : 4.5 ft bgs
START : 5/22/06 12:20
END : 5/23/06 13:55
LOGGER : JF

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	PP (TSF)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
267.6	0.0				**Fat Clay (CH)** 0.0-1.0' - yellowish-red, moist, medium stiff, medium to high plasticity, trace root material			
		12.0	SS1SS	2-3-4-5 (7)			0.75	
	2.0							Recirculating drilling mud
	2.5				**Fat Clay (CH)** 2.5-2.8' - dark reddish brown, mottled orange, moist, medium stiff, fine to medium grained, medium to high plasticity			
		13.0	SS2SS	4-4-6-8 (10)			0.5	
	4.5				**Silty Sand (SM)** 2.8-3.6' - strong brown, mottled orange, moist, medium stiff, fine to medium grained			
5								
262.6	5.0				**Silty Sand (SM)** 5.0-5.3' - strong brown, medium stiff, loose, saturated			
		15.0	SS3SS	6-10-17-28 (27)	**Fat Clay (CH)** 5.3-6.3' - light greenish gray, mottled red brown, moist, medium stiff		2.5	PT-1 collected 6.0-8.0' Offset: 3.3' S43W of BPA-35 Lab Results USCS: CL
	7.0							
	7.5				**Fat Clay (CH)** 7.5-8.2' - light greenish gray, mottled red brown, moist, medium stiff			
		12.0	SS4SS	18-50 (50")	**Silt (ML)** 8.2-8.5' - brown, mottled greenish gray, dry to moist, medium dense		4.0	
	9.5							
10								
257.6	10.0				**Silt (ML)** 10.0-10.7' - brown, mottled greenish gray, dry to moist, medium dense			
		16.0	SS5SS	9-11-20-31 (31)	**Fat Clay (CH)** 10.7-11.3' - light greenish-gray, mottled dark orange and black, moist, stiff, high plasticity, trace of very fine sand		4.0	
	12.0							PT-2 collected 11.0-13.0'
	12.5				**Sandy-Silt (ML)** 12.5-13.0' - dark reddish brown, moist, hard, fine grained, low to non plasticity, platy, micaceous, some black staining along surfaces			
		4.0	SS6SS	50/4 (50/4")				
	14.5							
15								
252.6	15.0				**Sandy-Silt (ML)** 15.0-15.5' - dark reddish brown, mottled light green gray, moist, hard, fine grained, low to non plasticity, micaceous, some black staining along surfaces			
		6.0	SS7SS	35-50/5 (50/5")				
	17.0							
	17.5	2.0	SS8SS	50/2 (50/2")	**Sandy-Silt (ML)** 17.5-17.7' - dark reddish brown, moist, hard, fine to medium grained, low to non plasticity, platy, micaceous, some black staining along surfaces			
	17.7							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:	BORING 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 bgs

START : 5/22/06 12:20

END : 5/23/06 13:55

LOGGER : JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
247.6	20.0		1	20.2' - Fracture, <5 deg, rough, undulating		**Siltstone** 20.0-21.4' - dark reddish brown, very soft, moderately weathered 20.7-21.4' - some fine sand and mottling	Rock coring began at 15:50 on 5/22/06 R1: 15:50-16:15 on 05/22/06 At 21.3': R-Scale = R5
			1	21.4' - Contact between siltstone and sandstone, 20 deg, rough, undulating		**Sandstone** At 21.4' - reddish brown, very soft, very thin to medium bedding, fine sand 21.4-24.9' - moderately weathered 22.5-25.0' - pale brown to brown, soft, fine sand to medium sand 23.9' - black oxidized horizons 24.0-24.9' - mottled orange, black oxidized horizons	
			1				
			1	22.8' - Fracture, <5 deg, rough, undulating			
			0				
	R1NQ 8.2 ft 95%	95					At 23.7': R-Scale = R1-R2
			1				
25 242.6				24.9' - Fracture, <5 deg, rough, undulating		24.9-25.0' - slightly weathered	
			1			**Siltstone** 25.0-25.3' - dark reddish brown, slightly weathered 25.2' - very soft, soil-like characteristics	
			1	25.7' - Fracture, <5 deg, rough, undulating			
			0				At 26.1': R-Scale = R1
			0			**Sandstone** At 25.3' - pale brown to brown, very soft, fine sand to medium sand, slightly weathered, soil-like characteristics	
	28.2						
			1	28.4' - Fracture, <5 deg, rough, undulating, orange stains			R2: 16:30-17:00
				29.0' - Contact between sandstones		29.0-31.1' - greenish gray, soft, fine sand to medium sand	
30 237.6			0				
			1				
			0	31.2' - Fracture, <5 deg, rough, undulating, orange stains			
			0				
	R2NQ 10 ft 100%	100					At 33.6': R-Scale = R1
			0				SC-1 collected 34.4-35.3'
			1	34.4' - Fracture, 10 deg, rough, undulating, orange stains			
35 232.6			0				
			0			36.0-36.2' - laminated bedding, reddish brown staining 36.4-36.5' - laminated bedding, reddish brown staining 37.3-37.7' - 10 degree laminated bedding	At 35.9': R-Scale = R1-R2
			0				
	38.2						
			0				R3: 08:10-08:45 on 05/23/06
			1	39.1' - Contact between siltstone and sandstone, <5 deg, rough, undulating			
40							

PROJECT NUMBER:	BORING 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

WATER LEVELS : 4.5 ft bgs

START : 5/22/06 12:20

END : 5/23/06 13:55

LOGGER : JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
227.6							
			1	40.4' - Fracture, <5 deg, rough, undulating		**Siltstone** 39.1-41.4' - very dark gray to black, very soft, slightly weathered, bedding 20-25 degrees alternating very dark gray to black 41.2' - some fine grained sand	At 40.8': R-Scale = R1
			0	41.4' - Contact between siltstone and sandstone, 25 deg, rough, undulating		**Sandstone** 41.4-41.5' - gray, soft, fine sand to medium sand, fresh, small black oxidation cracks (<0.03')	
	R3NQ 10 ft 100%	93	0				
			0				
			1	44.6' - Fracture, 25 deg, rough, undulating 44.8' - Fracture, 25 deg, rough, undulating 45.0' - Fracture, <5 deg, rough, undulating 45.3' - Fracture, 10 deg, rough, undulating		**Siltstone** 44.5-45.2' - gray, very soft, fresh, trace to little fine sand	
45 222.6			2			**Sandstone** At 45.2' - gray, soft, thin to medium bedding, fine sand to coarse sand, fresh, small black oxidation cracks (<0.03')	At 45.1': R-Scale = R1
			0				
			0				
	48.2						
			0			48.0-49.0' - medium sand to coarse sand	R4: 08:50-09:30
			0			49.0-50.8' - fine sand to medium sand	
50 217.6			1				
			0	51.0' - Fracture, 60 deg, rough, undulating		50.3-51.2' - gray, oxidized cracks (relic) 50.8-53.0' - medium sand to coarse sand	
	R4NQ 9.3 ft 100%	100	0				At 51.9': R-Scale = R4
			1	53.0' - Contact between siltstone and sandstone, 40 deg, rough, undulating		**Siltstone** At 53.0' - dark reddish brown, very soft, fresh, very fine to fine grained 53.5-54.9' - mottled blue-green, small purple inclusions	
			1				
55 212.6			0	54.9' - Fracture, <5 deg, rough, undulating		54.9-57.5' - trace blue-green mottling, gravel sized pink inclusions	
			0				At 56.1': R-Scale = R3-R4
	57.5						
			1			57.5-67.5' - mottled blue-green	R5: 09:55-10:55
			0				At 59.0': R-Scale = R2-R3
60							

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-35	SHEET 4 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 bgs

START : 5/22/06 12:20

END : 5/23/06 13:55

LOGGER : JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
207.6			0				
			0			60.4-61.4' - some fine sand (micaceous)	At 61.0': R-Scale = R3-R4
			0			61.5-61.9' - small (0.02') hard, white-pink rip up inclusions	
	R5NQ 10 ft 100%	100	0				
			0				
			0				
65 202.6			0			65.0-67.5' - 0.03-0.06' hard, white-pink rip up inclusions	
			0				At 66.5': R-Scale = R3-R4
			0				
67.5			0			67.5-68.0' - mottled blue-green, soft, some micaceous very fine sand	R6: 11:20-12:15
			0				
70 197.6			0				
			0				At 71.3': R-Scale = R3
	R6NQ 10 ft 100%	100	0				
			0				
			0				
75 192.6			1	74.7' - Fracture, <5 deg, smooth to rough, undulating			
			1	75.8' - Fracture, 60 deg, rough, undulating			At 76.1': R-Scale = R3
77.5			0				
			0			77.5-87.5' - soft	R7: 13:00-13:55
			1				
80				79.3' - Fracture, 60 deg, rough, undulating		At 79.3' - begins to coarsen with depth	

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-35 SHEET 5 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 bgs

START : 5/22/06 12:20

END : 5/23/06 13:55

LOGGER : JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
187.6	R7NQ 10 ft 100%	81	0			79.8-80.1' - small rip up clasts	At 79.8': R-Scale = R3-R4
			0				
			0			81.4-81.6' - blue-green mottling	
			0				At 82.0': R-Scale = R2-R3 First water level = 4.5' bgs taken 5/23/06 at 18:00; second water level = 18.9' bgs taken 5/24/06 at 08:30
			0				SC-2 collected 84.6-85.6'
85			0				
182.6			0				R-scale performed after drilling on stored samples
			0				
	87.5						
						Bottom of Boring at 87.5 ft bgs on 5/23/06 13:55	
90							
177.6							
95							
172.6							
100							

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 : Vertical
WATER LEVELS : 13.9 ft bgs
START : 6/19/06 15:55
END : 6/21/06 10:33
LOGGER : JV/JS

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	PP (TSF)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
269.8	0.0				**Topsoil** 0.0-0.3'			
	2.0	13.0	SS1SS	3-4-4-5 (8)	**Silt (ML)** 0.3-1.1' - yellow brown, reddish mottling, moist, medium plasticity, 30% clay, <5% very fine sand, root fragments			
	2.5				**Fat Clay (CH)** 2.5-2.8' - reddish orange, moist, stiff, high plasticity			
	4.5	8.0	SS2SS	23-50/4 (50/4")	**Silt (ML)** 2.8-3.2' - light brown, moist, very stiff, nonplastic, weathered rock fragments, <10% very fine sand		2.5	PT-1 collected 3.0-5.0'
5								
264.8	5.0				**Clay (CL)** 5.0-7.0' - dark reddish brown, green mottling, stiff to very stiff, medium plasticity, thinly laminated, staining, trace very fine sand		4.5+	
	7.0	12.0	SS3SS	14-50 (50")				
	7.5				**Clay (CL)** 7.5-9.5' - dark reddish brown, heavily mottled green, medium stiff to very stiff, medium plasticity, thinly laminated, staining, micaceous		4.5+	
	9.5	18.0	SS4SS	9-23-50 (73)				
10								
259.8	10.0				**Clay (CL)** 10.0-10.4' - dark reddish brown, heavily mottled green, medium stiff to very stiff, low plasticity, thinly laminated, staining, micaceous			Too friable for PP
	12.0	5.0	SS5SS	50 (50")				
	12.5				**Silt (ML)** 12.5-12.9' - yellow brown, moist, very stiff, trace clay, 40% very fine sand			Too friable for PP
	14.5	5.0	SS6SS	50/5 (50/5")				
15								
254.8	15.0	3.0	SS7SS		**Silt (ML)** 15.0-15.3' - yellow brown, mottled white, red brown, and green, moist, dense, fine grained, trace clay, white feldspar, quartz, mica, 60% sand,			Soil sampling completed at 08:40 on 6/20/06
	15.3			50/3 (50/3")				
	16.0				Begin Rock Coring at 16.0 ft bgs See the next sheet for the rock core log			
20								

PROJECT NUMBER:	BORING 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

WATER LEVELS : 13.9 ft bgs

START : 6/19/06 15:55

END : 6/21/06 10:33

LOGGER : JV/JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	16.0		-			**No Recovery** 16.0-18.0'	Rock coring began at 09:40 on 6/20/06 R1:09:40-09:48 on 06/20/06 16.0-18.0' Blown out of the hole; Not recovered.
			-				
	R1NQ 5 ft 56%	0	0			**Sandstone** At 18.0' - tan, black and red grains, very soft, fine sand to medium sand, highly weathered, staining, poorly indurated, very friable	At 17.1': R-Scale = R1
20 249.8			1	19.7' - Fracture, 60 deg, smooth, undulating, 1/16" clay infilling, black stains		19.7' - clay infilling, highly plastic, not enough for PP 19.9-20.3' - heavy staining	SC-1 collected 20.2-20.9'
	21.0		0				
			1			21.0-26.0' - black mottling, silty, poorly indurated, very friable	R2: 10:05-10:19
			2	21.9' - Fracture, 40 deg, smooth, planar, black stains 22.3' - Fracture, 40 deg, smooth, planar, black stains		22.4-22.5' - black band at 30 degrees	At 22.5': R-Scale = R0-R1
	R2NQ 5 ft 54%	0	1	22.6' - Fracture, horizontal and 5 deg, smooth, undulating 23.1' - Fracture, 30 deg, smooth, undulating			
25 244.8							
	26.0						
			3	26.1' - Fracture, horizontal, smooth		26.0-26.8' - brown, green and dark reddish brown mottling, very fine sand to fine sand, trace medium sand, silty, staining	R3: 10:45-11:04
			1	26.8' - Fracture, horizontal, smooth, black stains 26.9' - Fracture, 15 deg, smooth, undulating, black stains		26.4-26.5' - pink stained band at 30 degrees	At 27.1': R-Scale = R1
	R3NQ 5 ft 100%	0	2	27.9' - Fracture, <5 deg, slickensided, planar, black stains 28.1' - Fracture, horizontal, smooth, undulating, 1/16" clay infilling		**Siltstone** At 26.8' - dark reddish brown, heavily mottled green with staining, highly weathered, trace very fine sand, micaceous	
			10+	28.7' - Fracture, 5 deg, smooth, planar, 1/16" clay infilling		28.5-28.7' - banded 0.03' red banding	
30 239.8						29.1-29.3' - red brown fat clay infilling	
			2	29.1-29.4' - Fracture zone, clay and rock fragments		**Sandstone**	
	31.0			29.5' - Fracture, 15 deg, smooth, undulating, 1/16" clay infilling		30.1-31.0' - dark greenish gray, hard, very fine sand, highly weathered	R4: 11:20-11:40
			2	29.7' - Fracture, 30 deg, smooth, planar, black stains		30.5' - fine sand, fine sand with some medium sand, light greenish gray, bedding at 30 degrees, staining	
			4	29.9' - Fracture, horizontal, smooth, undulating, 1/16" clay infilling		**Siltstone**	At 32.3-33.9': R-Scale = R0
	R4NQ 5 ft 98%	26	10+	30.1' - Fracture, 50 deg, smooth, undulating 30.5' - Fracture, 65 deg, smooth, undulating 31.6' - Fracture, 15 deg, smooth, undulating 31.7' - Fracture, 20 deg, smooth, undulating		At 31.0' - reddish brown, mottled greenish gray and black in bands, very soft, fine grained, 30 degree bedding	At 32.6-34.8': PP: 4.0 tsf
			10+	32.1' - Fracture, 5 deg, smooth, undulating, 1/8" clay infilling		31.0-34.7' - highly weathered 32.6-34.8' - fat clay, greenish gray, rock fragments	SC-2 collected 33.9-34.4'
35 234.8				32.3' - Fracture, horizontal, smooth, undulating 32.5' - Fracture, horizontal, smooth, undulating		34.7-40.9' - fresh	
			1	35.2' - Fracture, horizontal and 65 deg, smooth, undulating			At 35.35': R-Scale = R3-R4
	36.0						

PROJECT NUMBER:	BORING 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

WATER LEVELS : 13.9 ft bgs

START : 6/19/06 15:55

END : 6/21/06 10:33

LOGGER : JV/JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (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 very fine sand	R5: 13:22-13:42
			0			36.0-38.7' - mottled green, some dark purple mottling, very soft to soft	
	R5NQ 5 ft 98%	98	0				At 38.3': R-Scale = R2
			1			38.7-39.9' - very dark gray, mottled muted green and yellow, trace dark red mottling with purple and yellow around the red mottling, 30% coarse silt, fine grained	
40 229.8			0	39.9' - Fracture, horizontal, smooth, undulating		39.9-40.9' - brown, mottled rust colored, heavy at 40.1-40.2', soft, 10% medium grained sand, becomes harder with depth	
	41.0					40.7-40.8' - very fine sand	R6: 13:53-14:05
			0			**Sandstone**	
			0	42.5' - Contact between siltstone and sandstone, 20 deg, sharp		At 40.9' - dark gray to brown, white, gray, and pink grains, some rust colored mottling, fine sand to medium sand, fresh, grains up to 0.0002' diameter	
	R6NQ 5 ft 99%	99	0				At 43.1': R-Scale = R1-R2
			0			41.1-41.4' - rust colored mottling	
45 224.8			0			41.4-42.4' - becomes gray to greenish gray, fine to medium grained to 0.0003' gray, white, pink gravel	
	46.0					**Siltstone**	
			0			42.4-42.5' - dark reddish gray, mottled red and gray, very soft, fresh, irregularly shaped at top contact	R7: 14:20-14:31
			0			**Sandstone**	
			0			42.5-47.2' - gray, hard, fine sand to coarse sand, fresh, gray siltstone lenses, irregular	
	R7NQ 5 ft 100%	100	0				At 47.7': R-Scale = R3-R4
			1	49.0' - Fracture, 80 deg, rough, undulating		45.5-46.8' - trace black mottling, soft to hard, fine sand to medium sand	
50 219.8			0			45.7-45.8' - very fine sand to fine sand	
	51.0					46.8-47.2' - medium sand to coarse sand	
			0			**Siltstone**	SC-3 collected 49.9-51.0
			0			47.2-47.6' - very dark greenish gray, fine black mottling, very soft, fresh, irregularly shaped, very fine grained, pink sandstone pockets, mixed with sand at upper contact, abrupt lower contact	R8: Began at 14:40
			0			**Sandstone**	At 52.3': R-Scale = R1
	R8NQ 5 ft 100%	100	0			At 47.6' - light gray, heavy pink mottling, soft, fresh, possibly some silt, some orange staining, gray zones in 0.6' after siltstone lens	
			1	54.1' - Contact between siltstone and sandstone, 10 deg, smooth, undulating, gray silt/clay coating in contact		At 51.0' - medium grained	
55 214.8			0	54.1-55.1' - Microfractures		52.9-54.1' - a few light gray bands, thin thready dark gray lenses in last 1', soft to hard	At 54.7': R-Scale = R3-R4
	56.0						

PROJECT NUMBER:	BORING 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

WATER LEVELS : 13.9 ft bgs

START : 6/19/06 15:55

END : 6/21/06 10:33

LOGGER : JV/JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0	56.0-58.6' - Fractures along bedding in siltstone		**Siltstone** At 54.1' - dark reddish brown, heavily mottled gray and mottled greenish gray, very soft to soft, fresh, rust colored staining, up to 30% sand 55.1-56.0' - very fine sand lenses, rust colored staining 56.0-58.6' - banded laminae beds, beds are on 170 degrees feathery appearing dark gray, brown, rust colored staining, fine grained, very soft to soft	R9: 15:01-15:26 SC-4 collected 56.4-57.1'
			0				
	R9NQ 5 ft 101%	100	0				
			0				
60 209.8			0			57.2-57.6' - very dark gray with no banding, very soft, slickensides 58.6-61.8' - scattered green and purple mottling, soft, fine grained, 30-35% very fine sand, 10% white medium sand grains 61.8-62.9' - 15-20% medium sand, very fine sand	
	61.0						R10: 15:43-16:05
			0	61.4' - Fracture, 30 deg, hairline fracture with green mottling			
			0				
	R10NQ 5 ft 99%	99	0			62.9-64.2' - increasing sand content, 40-50% very fine sand, trace white medium sand, soft, green, gray, and brown mottling	At 63.4': R-Scale = R2-R3
			0				
65 204.8			1	65.4' - Fracture, 70 deg, rough, undulating		**Sandstone** At 64.2' - reddish gray to pale red, soft to hard, fine sand to medium sand, fresh, trace gray siltstone clasts to 0.0006-0.0009', trace coarse sand, sharp contact at 170 degrees 64.7' - gray, fine grained lens 65.1' - becomes white to light gray, white, gray, and pink grains 65.1-65.5' - medium to coarse grained to 0.0009' 65.7-65.8' - gray siltstone lens, irregularly shaped, soft 65.5-66.0' - medium grained to 0.0006'	
	66.0						R11: 16:21-16:36
			0				
			0				At 67.2': R-Scale = R2
	R11NQ 5 ft 102%	100	0				
			1	69.5' - Fracture, 50 deg, rough, undulating			
70 199.8			0			66.0-69.6' - light gray, white, pink, orange, and gray grains, fine to medium grained, vanes in zones, no clean bedding, trace coarse sand to 4 mm, hard 67.6-58.6' - grading from grayer material into reddish brown siltstone, mottled dark reddish brown and gray, few green mottles, fine grained with 10% very fine sand/coarse silt, trace medium white sand grains, soft 67.8-68.7' - dark reddish gray to dusky red, mottled, very fine sand to fine sand, 30% silt, soft to hard, transition occurs over 0.1', interbedded between 2 materials 68.7-69.6' - medium to coarse grained to 0.0009', hard	
	71.0						R12: 08:23-08:43 on 6/21/06
			0				
			0				
	R12NQ 5 ft 96%	96	0				
			0				At 74.1': R-Scale = R3-R4
75 194.8			0				
	76.0						

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-36	SHEET 5 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

WATER LEVELS : 13.9 ft bgs

START : 6/19/06 15:55

END : 6/21/06 10:33

LOGGER : JV/JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			69.6-69.8' - grades from sandstone and siltstone, irregular contact, interbedded, siltstone is very dark gray	R13: 09:10-09:30
			0			**Siltstone**	
	R13NQ 5 ft 102%	100	0			At 69.8' - dark reddish brown, heavy green mottling, very soft to soft, fresh, fine grained	
			0			70.6' - irregular sandstone lens, fine to medium sand	
80 189.8			0			71.0-76.0' - very fine sand	At 79.2': R-Scale = R4
			0			72.1' - mottling decreases	
	81.0					72.8' - increased very fine sand content, <0.0003' white feldspar grains abundant, black mottling	
			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	
			0			76.0-77.5' - trace very fine white feldspar grains	
	R14NQ 5 ft 96%	96	0			77.5' - increase in very fine sand, decrease to trace green mottling	
			0			77.9-78.2' - very fine to fine sand sized feldspar clasts abundant	At 83.5': R-Scale = R5
85 184.8			0			78.2-78.5' - greenish gray mottled zone	
	86.0					78.6-78.9' - very fine sand	
			2	86.6' - Fracture, <5 deg, slickensided, planar		79.5-70.8' - very fine sandy zone, white and pink	R15: 10:10-10:33
			0			80.2-80.4' - very fine feldspar sand zone, less sand than 79.5-79.8'	At 87.7': R-Scale = R3
	R15NQ 5 ft 96%	96	0			80.5-80.9' - sandy zone, very fine feldspar white, pink, graded zone	SC-5 collected 89.8-90.6'
			0			81.0-86.0' - very soft to soft, stained, very fine sand and siltstone clasts	First water level = 13.9' bgs taken 6/21/06 at 19:00; second water level = 15.6' bgs taken 6/22/06 at 16:30
90 179.8			0			82.6' - pitted where siltstone clasts were ripped out, decreased mottling	
	91.0					84.7' - increase in staining and black mottling, becomes soft	R-scale performed after drilling on stored samples
						86.0-91.0' - very soft, fine grained	
						86.5-86.6' - clay seam	
						86.9-87.9' - greenish gray and black mottling	
						87.4' - soft, trace very fine sand	
						89.4-90.3' - 20-30% very fine white and pink feldspathic sand, soft	
						89.7-90.4' - greenish gray mottling	
						Bottom of Boring at 91.0 ft bgs on 6/21/06 10:33	
95 174.8							

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-37 SHEET 1 OF 3

SOIL BORING 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
DRILLING EQUIPMENT AND METHOD : CME-550, 3-7/8 Tricone Bit, 24" Split Spoon, and 140 lb. Automatic Hammer
ORIENTATION : Vertical
WATER LEVELS : 1.4 ft bgs
START : 5/10/06 09:40
END : 5/10/06 14:55
LOGGER : JS

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
266.5	0.0						Surface is brushy, log debris
		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		
	2.0						
	2.5						
		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		
	4.5						
5							
261.5	5.0				**Clayey Sand (SC)** 5.0-6.3' - pink, moist, medium dense, fine to medium grained, multi-colored staining around grains		
		15.0	SS3SS	18-24-32-27 (56)			
	7.0						
	7.5				**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
		15.0	SS4SS	16-17-23-50/5 (40)			
	9.5						Soil sampling completed at 10:50 on 5/10/06
10							
256.5	10.0	3.0	SS5SS		**Clay (CL)** 10.0-10.3' - dark reddish gray, mottled black and gray, moist, hard, medium plasticity, slow dilatancy, hard bedrock pieces in last 1		
	10.3			50/3 (50/3")	Begin Rock Coring at 10.3 ft bgs See the next sheet for the rock core log		
15							
251.5							
20							

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-37 SHEET 2 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
WATER LEVELS : 1.4 ft bgs
START : 5/10/06 09:40
END : 5/10/06 14:55
LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, 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
			1				
	R1NQ 4.7 ft 89%	0	1	11.8' - Fracture, horizontal, smooth, undulating, loose fit		11.8-15.7' - varying amounts of very fine to fine sand	
			0	12.8' - Fracture, horizontal, smooth, undulating, tight fit			
			1				
15	15.0			14.2' - Fracture, horizontal, smooth, stepped, tight fit			
251.5			0				R2: 11:30-11:55
			2	16.5-17.7' - Fractures (4), (1) 50 deg, (3) 70 deg, smooth, undulating, dark gray staining, tight fit		**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				
			0			17.7-19.5' - becomes lighter colored	
			10+	19.1' - Fracture, 60 deg			Drillers Remark: very fast drilling at ~19'
20	20.0					**Siltstone** At 19.3' - dusky red, black mottling, 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 20.0-23.1' - soft, fresh, some black inclusions, very fine to fine sand	
246.5			2	20.5' - Fractures (2), 40 deg, smooth, undulating, gray-black stains, tight fit			R3: 12:32-12:50
			1	21.5' - Fracture, 10 deg, smooth, undulating, loose fit			
	R3NQ 5 ft 100%	100	0				SC-1 collected 23.2-24.5'
			1	23.2' - Fracture, horizontal, smooth, stepped, loose fit		23.1-23.2' - greenish gray, siltstone lens 23.1-29.0' - slightly weathered	
			0			23.2' - dark reddish brown, green mottling, some black inclusions, fine grained	
25	25.0						
241.5			1	25.5' - Fracture, 30 deg, smooth, stepped, tight fit			R4: 12:55-13:20
			1	26.3' - Fracture, horizontal, smooth, undulating, tight fit			
	R4NQ 5 ft 98%	90	2	27.1' - Fracture, horizontal, smooth, undulating, loose fit 27.5' - Fracture, 70 deg, smooth, undulating, tight fit			
			1				
			1	28.6' - Fracture, horizontal, smooth, undulating, slickensided pockets 29.0' - Fracture, horizontal, smooth, undulating, loose fit		29.0' - becomes soft 29.0-30.0' - fresh	
30	30.0						
236.5							

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:
338884	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

WATER LEVELS : 1.4 ft bgs

START : 5/10/06 09:40

END : 5/10/06 14:55

LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (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			
	R5NQ 5 ft 90%	59	0			31.6-35.0' - green mottling, soft, fresh, 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 35.9' - sand lens	R6: 14:00-14:15
			0				
	R6NQ 5 ft 94%	94	0			37.0-37.2' - grades to sandstone	
			0			**Sandstone** At 37.2' - gray, soft, fresh, fine to medium sand, multi-colored grains, well to moderately sorted	
			0				
40	40.0						
226.5			0			**Siltstone** 40.0-44.5' - dusky red, green mottling, very soft to soft, fresh, fine grained with abundant very fine to fine sand	R7: 14:25-14:45
			0				
	R7NQ 5 ft 102%	96	0				
			0			43.2-44.9' - grades to sandstone, very fine to fine grained	R8: 14:50-14:55
			0				First water level = 1.4' bgs taken 5/10/06 at 17:27; second water level = 2.2' bgs taken 5/11/06 at 14:48
45	45.0						
221.5	R8NQ 1 ft 150%	100	0	44.8' - Fracture, horizontal, rough, undulating, loose fit		**Sandstone** At 44.5' - gray, soft to hard, thin bedding, fresh, fine to medium grained 45.0-46.0' - gray, soft, very thin bedding, poorly sorted, orange staining in bands, fine to coarse grained, coarse gravel scattered throughout	R-scale not performed on rock core samples
	46.0					Bottom of Boring at 46.0 ft bgs on 5/10/06 14:55	
50							
216.5							

PROJECT NUMBER:	BORING NUMBER:
338884	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
WATER LEVELS : 5.2 ft bgs
START : 5/19/06 08:40
END : 5/19/06 14:20
LOGGER : DT/JF

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
264.5	0.0				**Fat Clay (CH)**		
		19.0	SS1SS	2-3-4-7 (7)	0.0-1.6' - yellowish red, mottled, moist, medium stiff, medium to high plasticity, organics (roots)		
	2.0						
	2.5				**Fat Clay (CH)**		
		9.0	SS2SS	5-8-9-12 (17)	2.5-3.3' - dark reddish brown, some mottling, moist, very stiff, medium to high plasticity, micaceous		
	4.5						
5							
259.5	5.0				**Fat Clay (CH)**		
		17.0	SS3SS	10-12-50/5 (62/11")	5.0-6.3' - dark reddish brown, some mottling, moist, very stiff, medium to high plasticity, micaceous		
	6.5				**Clay (CL)**		
					6.3-6.4' - dark reddish brown, moist, hard, medium to high plasticity, micaceous		
	7.5	5.0	SS4SS		**Clay (CL)**		
	8.0			50/5 (50/5")	7.5-8.0' - dark reddish brown, moist, hard, low to medium plasticity, platy		PT-1 collected 8.0-9.5' Offset: 0.2' S38W to BPA-38 Lab Results USCS: CL w/Sand
10							
254.5	10.0	4.5	SS5SS		**Sandy Silt (ML)**		
	10.5			50/4.5 (50/4.5")	10.0-10.5' - dark reddish brown, dry to moist, hard, micaceous, fine grained trace clay		
	12.5				**Clay (CL)**		
		10.0	SS6SS	28-50/4 (50/4")	12.5-13.4' - dark reddish brown, mottled, moist, hard, medium plasticity, micaceous		
	13.5						
15							
249.5	15.0	4.0	SS7SS		**Sandy Silt (ML)**		
	15.5			50/4 (50/4")	15.0-15.5' - dark reddish brown, moist, hard, micaceous, some clay, platy, fine grained, some black staining along platy surfaces		
	17.5				**Clay (CL)**		
		9.0	SS8SS	33-50/3 (50/3")	17.5-18.3' - dark reddish brown, mottled, moist, hard, low plasticity, platy, micaceous, some black staining along platy surfaces		
	18.5						
20							

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

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

ORIENTATION : Vertical

WATER LEVELS : 5.2 ft bgs

START : 5/19/06 08:40

END : 5/19/06 14:20

LOGGER : DT/JF

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
244.5	20.0						
		12.0	SS9SS	12-50 (50")	**Clay (CL)** 20.0-21.0' - dark reddish brown, mottled, moist, hard, low plasticity, platy, micaceous, some black staining along platy surfaces		
	22.0						Soil sampling completed at 09:20 on 5/19/06
	22.5	1.0	SS10SS	50/2 (50/2")	**Siltstone** 22.5-22.6' - dark reddish brown, soft, micaceous, some fine sand		
	22.6				Begin Rock Coring at 22.6 ft bgs See the next sheet for the rock core log		
25 239.5							
30 234.5							
35 229.5							
40							

PROJECT NUMBER:	BORING 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 ft bgs

START : 5/19/06 08:40

END : 5/19/06 14:20

LOGGER : DT/JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	22.6		0			**Siltstone** 22.6-25.5' - dark reddish brown, very soft to soft, some fine sand 22.6-23.0' - highly weathered 23.0-25.5' - fresh 24.2-25.5' - interbedded siltstone and sandstone, light brownish gray, very soft	Rock coring began at 12:20 on 5/19/06
	R1NQ 2.9 ft 97%	90	0				R1: 12:20-12:35 on 05/19/06
25 239.5			1	25.0' - Fracture, <5 deg, rough, undulating			
	25.5					**Sandstone** At 25.5' - light brownish gray, soft, very thin to medium bedding, fine sand, fresh, micaceous 26.0-26.3' - medium sand to coarse sand 26.3-26.7' - fine sand to medium sand 26.7-27.5' - medium sand to coarse sand 27.5-28.8' - fine sand to coarse sand	R2: 12:45-13:30
			0				
			0				
			0				
			4	28.5-28.8' - Fracture, <5 deg, rough and undulating to smooth and planar			
30 234.5	R2NQ 10 ft 99%	94	0			**Siltstone** At 28.8' - dark reddish brown, very soft, fresh, micaceous, trace blue-green mottling, laminated to very thin bedding	SC-1 collected 26.1-27.2'
			0				
			0				
			2	33.1' - Fracture, 45 deg, rough, undulating, parallel to 33.35'		33.0-33.2' - fine sand lens	
			0	33.4' - Fracture, 45 deg, rough, undulating, parallel to 33.1'			
35 229.5			1			34.7-34.9' - fine sand lens	
	35.5			35.4' - Fracture, <5 deg, rough, undulating		35.5-38.4' - fine gravel, thinly laminated and fine grained sand lenses	R3: 13:40-14:20
			0				
			4	36.8' - Fracture, 10 deg, rough, undulating 36.8' - Fracture, <5 deg, rough, undulating 37.2' - Fracture, 30 deg, smooth, undulating			
			0				
			0			**Sandstone** 38.4-40.0' - light gray, soft, fine sand to medium sand, fresh, quartzitic	
40 224.5	R3NQ 10 ft 100%	87	1	40.0' - Fracture, <5 deg, rough, undulating		**Siltstone** 40.0-41.4' - dark reddish brown/blue green, very soft, fresh, fine grained, fine sand at bottom	
			1				
			10+	41.4' - Fracture, <5 deg, rough, undulating 41.8' - Fracture, <5 deg, rough, undulating 41.8' - Fracture, <5 deg, rough, undulating			

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-38 SHEET 4 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 ft bgs

START : 5/19/06 08:40

END : 5/19/06 14:20

LOGGER : DT/JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0	41.9' - Fracture, <5 deg, rough, undulating 42.1-42.3' - Fracture zone, fractured rock fragments 42.4' - Fracture, 20 deg, rough, undulating		**Siltstone** 41.4-45.5' - bluish gray, very soft to soft, fresh, some fine sand throughout core	First water level = 5.2' bgs taken 5/22/06 at 11:25; second water level = 4.4' bgs taken 5/23/06 at 18:00
			1	44.2' - Fracture, <5 deg, rough, undulating			R-scale not performed on rock core samples
45 219.5	45.5		0			45.5' - becomes dark reddish brown Bottom of Boring at 45.5 ft bgs on 5/19/06 14:20	
50 214.5							
55 209.5							
60 204.5							

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-39 SHEET 1 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
WATER LEVELS : 14.5 ft bgs
START : 5/3/06 09:34
END : 5/4/06 18:34
LOGGER : JS/JF

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
265.8	0.0				**Silty Sand (SM)** 0.0-0.6' - brown, moist, loose, fine to medium grained, low plasticity, rootlets, 25% fines		
	2.0	15.0	SS1SS	2-2-4-5 (6)	**Lean Clay (CL)** 0.6-1.3' - yellowish red, heavily mottled orange, moist, medium stiff, medium plasticity, no dilatancy, 15% fine to medium sand		
	2.5				**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		Drilling from 0-2.5' water bubbling up around rig due to sand at surface
	4.5	17.0	SS2SS	3-5-7-16 (12)	**Fat Clay (CH)** 3.1-3.7' - white, dark brown, and dark yellowish red, moist, stiff, medium to high plasticity, laminated bedding, mica particles, some fine sand		
5							
260.8	5.0				**Silty Sand (SM)** 3.7-3.9' - brown, moist, medium dense, low plasticity, 25% very fine to medium sand		
	7.0	19.0	SS3SS	17-19-35-50/4 (54)	**Silty Sand (SM)** 5.0-5.8' - reddish yellow, moist, high, fine to medium grained, low plasticity, 25% fines		
	7.5				**Sandy Clay (CL)** 5.8-6.1' - brown, some mottling, moist, very stiff, low plasticity, 35% fine to medium sand		
	9.5	5.0	SS4SS	50/5.5 (50/5.5")	**Fat Clay (CH)** 6.2-6.5' - greenish gray, moist, stiff, very fine to fine grained, high plasticity, no dilatancy, 10% fine sand		Similar to sandstone in BPA-25 near surface
					Silty Sand (SM) 6.5-6.7' - pale red, moist, very dense, low plasticity, 15-20% fine to medium grained sand		
10							
255.8	10.0				**Silty Sand (SM)** 7.5-8.0' - light gray, moist, very dense, fine to course grained, low plasticity		
	12.0	5.0	SS5SS	50/5.5 (50/5.5")	**Silty Sand (SM)** 10.0-10.4' - light gray, moist, very dense, fine to course grained, low plasticity		
	12.5				**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		
	14.5	7.0	SS6SS	25-50/5.5 (50/5.5")			
15							
250.8	15.0				**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	17.0	SS7SS	38-37-26-42 (63)			
	17.5				**Lean Clay (CL)** 17.5-17.9' - reddish brown, moist, hard, low to medium plasticity, slow dilatancy		
	19.5	5.0	SS8SS	50/5 (50/5")			
20							

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
WATER LEVELS : 14.5 ft bgs
START : 5/3/06 09:34
END : 5/4/06 18:34
LOGGER : JS/JF

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
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		
	22.5						Soil sampling completed at 12:42 on 5/3/06
		3.0	SS10SS	50/3 (50/3")	**Lean Clay (CL)** 22.5-22.8' - reddish brown, moist, hard, low to medium plasticity, slow dilatancy, greenish white and black pockets of fat clay, high plasticity		
	22.8				Begin Rock Coring at 22.8 ft bgs See the next sheet for the rock core log		
25 240.8							
30 235.8							
35 230.8							
40							

PROJECT NUMBER:	BORING 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 : 14.5 ft bgs

START : 5/3/06 09:34

END : 5/4/06 18:34

LOGGER : JS/JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	22.8		1			**Siltstone** At 22.8' - dark reddish brown, soft, fine grained, some fine sand 22.9-24.5' - highly weathered	Rock coring began at 15:30 on 5/3/06 R1: 15:30-16:00 on 05/03/06 Surface rock washed/eroded out
	R1HQ 2.8 ft 119%	36	0				
25 240.8			1			24.5-38.2' - slightly weathered to moderately weathered	
	25.6			25.4' - Fracture, <5 deg, smooth, undulating		25.6-30.6' - blue-green mottling	R2: Began at 16:15
			0				
			1				
	R2HQ 5 ft 92%	64	2	27.6' - Fracture, 50 deg, rough, undulating 28.2-28.6' - Fractures (2), 75 deg, rough, undulating			SC-1 collected 27.75-28.85'
			0				
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 soft	R3: 17:30-17:53
			0				
			4	32.1' - Fracture, horizontal, smooth, undulating, loose fit		31.5' - soft, fine gravel sized inclusions, hard	
	R3HQ 5 ft 103%	66	10+	32.3' - Fracture, 70 deg, smooth, undulating 32.6-33.9' - Fracture zone, horizontal and vertical, smooth, undulating, clay seams			
			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
35 230.8			0				
	35.6					35.6-38.2' - greenish white mottling, very soft to soft	R4: 18:08-18:38
			1	36.0' - Fracture, horizontal, smooth, undulating			
			2	37.2' - Fractures (2), 70 deg, rough, undulating, tight fit			
	R4HQ 5 ft 98%	68	1	37.8' - Fracture, 20 deg, smooth, undulating		**Clay (CL)** 38.2-39.6' - very soft, highly weathered	
			10+	39.1-39.6' - Fracture zone, some clay			
40 225.8			1	40.0' - Fracture, 5 deg, smooth, undulating		**Siltstone** 39.6-42.5' - dark reddish brown, large green mottling, soft, fresh, very fine to fine, becomes sand lens at 40.7-40.9', scattered medium sand, gradational contact at 40.6-42.5'	
	40.6						R5: 18:49-19:05
			0				
			0				

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-39	SHEET 4 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 : 14.5 ft bgs

START : 5/3/06 09:34

END : 5/4/06 18:34

LOGGER : JS/JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	R5HQ 5 ft 102%	100	0			**Sandstone** At 42.5' - gray, dark red mottling, fine sand to medium sand, fresh, some bands of darker gray and dark red, inclusions	
			0				
45 220.8			0			42.5-44.3' - fine sand	
	45.6					44.3-45.6' - medium sand	
			0				R6: 07:40-08:00 on 05/04/06
			0				
	R6HQ 5 ft 100%	100	0				
			0			46.5-48.6' - red-orange staining at bottom	
50 215.8			0				
	50.6						
			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	
			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					55.3-56.5' - multicolored, light gray, medium sand to coarse sand	R8: 08:40-09:10
			1	56.5' - Fracture, <5 deg, rough, undulating		**Siltstone** 56.5-56.8' - dark bluish gray, fresh, soft, fine grained	
			2	56.6-60.5' - Microfractures		**Sandstone** 56.8-59.5' - dark bluish gray, fine sand, fresh	
	R8HQ 5 ft 100%	90	0	56.6' - Fracture, 10 deg, rough, undulating, partially slickensided 56.8' - Fracture, 40 deg, rough, undulating		57.95-58.6' - gray, fine sand to medium sand	
			0			58.6-59.5' - blue gray, fine sand, banded	
60 205.8			0			**Siltstone** 59.5-62.5' - dark bluish gray, soft, fresh, banded	SC-2 collected 59.6-60.6'
	60.6					60.6-62.5' - dark greenish gray, some dark red mottling, very soft	
			2	60.7' - Fracture, 30 deg, rough, undulating			R9: 09:20-09:55
			4	61.4' - Fracture, 30 deg, rough, undulating 61.8' - Fracture, 15 deg, rough, undulating 62.0' - Fracture, <5 deg, rough, undulating 62.2' - Fracture, <5 deg, rough, undulating			

PROJECT NUMBER:	BORING NUMBER:	
338884	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 LEVELS : 14.5 ft bgs

START : 5/3/06 09:34

END : 5/4/06 18:34

LOGGER : JS/JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	R9HQ 5 ft 100%	83	0	62.3' - Fracture, <5 deg, rough to smooth, undulating		**Sandstone** At 62.5' - very dusky red, blue green mottling, soft, laminated to thick bedding, fine sand, fresh	
			0	62.5-68.2' - Microfractures			
65 200.8			0				
	65.6						R10: 10:00-10:30
			0			66.0-68.2' - dark reddish brown, soft, fine sand	
			0				
	R10HQ 5 ft 100%	100	0			68.2-69.0' - reddish brown, fine sand to medium sand	
			0			69.0-70.5' - gray, medium sand to coarse sand	
70 195.8			0				
	70.6					70.6-73.4' - pinkish gray, soft to hard, medium sand	R11: 10:35-10:55
			0				
			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	
			0			73.4-75.6' - pinkish gray, soft to hard, medium sand to coarse sand	
75 190.8			0				
	75.6					75.6-77.4' - pinkish gray, soft to hard, medium sand to coarse sand	R12: 11:00-11:20
			0				
			1	76.9' - Fracture, 60 deg, rough, undulating, tight fit			
	R12HQ 5 ft 100%	100	1			77.4-80.6' - dark gray, soft to hard, medium sand to coarse sand	
			0				
80 185.8			0				
	80.6					80.6-81.2' - dark blue gray, fine sand	R13: 11:20-12:05
			1	81.0' - Fracture, <5 deg, rough and undulating to smooth and planar		**Siltstone** 81.2-82.0' - dark blue gray, fresh, fine grained	
			0				

PROJECT NUMBER:	BORING 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

WATER LEVELS : 14.5 ft bgs

START : 5/3/06 09:34

END : 5/4/06 18:34

LOGGER : JS/JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	R13HQ 5 ft 100%	100	0			**Sandstone** At 82.0' - light blue gray, thin to massive bedding, fine sand, fresh	
			0			82.4-84.2' - multicolored, fine sand	
			0			84.2-85.6' - dark reddish brown, fine sand	
85 180.8	85.6						
			0			85.6-90.6' - dark reddish brown, blue green mottling, soft to hard, fine sand	R14: 12:45-13:20
			0				
	R14HQ 5 ft 100%	100	0				Had some water loss while coring
			0				
90 175.8	90.6		0				
			0			90.5-95.6' - bluish-gray, soft to hard, medium sand, coarsens with depth to 98.0'	R15: 13:30-13:50
			2	91.6-92.0' - Fracture 92.1-92.7' - Fracture, 70 deg and 75 deg, rough, undulating			
	R15HQ 5 ft 100%	100	0				
			0				
95 170.8	95.6		0				SC-3 collected 94.6-95.6'
			0				R16: 13:55-14:10
			0				
	R16HQ 5 ft 100%	100	1	97.7-98.0' - Fracture, 60 deg and 65 deg, rough, undulating		98.0-100.6' - bluish-gray, soft to hard, medium sand, finer with depth to 100.6'	JAS Amended on 5/5/06: lost water at ~98-118' bgs.
			1	98.8-99.2' - Fracture, 60 deg and 65 deg, rough and undulating to rough and planar			
100 165.8	100.6		0				
			0			100.6-109.0' - bluish-gray, soft to hard, medium sand to coarse sand	R17: 14:15-14:30
			0				

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-39	SHEET 7 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 : 14.5 ft bgs

START : 5/3/06 09:34

END : 5/4/06 18:34

LOGGER : JS/JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	R17HQ 5 ft 100%	100	0				
			0				
105 160.8			0				
	105.6		10+	105.6-107.0' - Fracture zone, 70 deg, rough, undulating			R18: 14:35-15:00
			10+				
	R18HQ 5 ft 100%	72	0			107.3-108.0' - blue gray, red brown 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 sand	
110 155.8			0				
	110.6		0				R19: 15:06-15:33
			0			**Siltstone** 111.4-117.4' - very dusky red to dark reddish brown, blue-green mottling, soft, fresh 112.4-113.0' - purple inclusions, very small, (0.0003' diameter) 112.9-116.8' - white inclusions, very small (0.0003') - large (0.01')	
	R19HQ 5 ft 100%	100	0				
			0				
115 150.8			0				
	115.6		0				R20: 15:50-16:15
			0				
	R20HQ 5 ft 100%	100	0			**Sandstone** 117.4-120.6' - very dusky red, blue green mottling, soft, very fine sand to fine sand, fresh	
			0				
120 145.8			1	119.9' - Fracture, <5 deg, rough, undulating			
	120.6		0			**Siltstone** At 120.6' - dark reddish brown, trace blue-green mottling, soft, fresh, some very fine to fine sand	R21: 16:25-16:55
			0				

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-39	SHEET 8 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 : 14.5 ft bgs

START : 5/3/06 09:34

END : 5/4/06 18:34

LOGGER : JS/JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	R21HQ 5 ft 100%	100	0				
			0				SC-4 collected 124.4-125.4'
125 140.8			0				
	125.6						
			0			125.6-130.6' - dark reddish brown, trace blue-green mottling, soft, some very fine to fine sand, small white inclusions 128.0-129.5'	R22: 17:05-17:35
			0				
	R22HQ 5 ft 100%	100	0				
			0				
130 135.8			0				
	130.6						
			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
135 130.8			1				First water level = 14.5' bgs taken 5/5/06 at 11:49; second water level = 19.0' bgs taken 5/8/06 at 17:05
	135.6						
			0			**Sandstone** 135.6-138.6' - very dusky red, soft to hard, fresh, fine sand	R-scale not performed on rock core samples
	R24HQ 3 ft 100%	100	0				
			0				
	138.6						
140 125.8						Bottom of Boring at 138.6 ft bgs on 5/4/06 18:34	

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-40 SHEET 1 OF 3

SOIL BORING LOG

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

WATER LEVELS : 7.9 ft bgs

START : 6/26/06 16:20

END : 6/27/06 14:10

LOGGER : LH/EM/DT

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	PP (TSF)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
259.2	0.0				**Top Soil** 0.0-0.2'			
	0.0	20.4	SS1SS	1-0-1-2 (1)	**Silt (MH)** 0.2-0.9' - pale olive, moist, medium dense, little very fine sand, trace to little clay, trace roots at top.		0.75	
	2.0				**Clay (CL)** 0.9-1.7' - olive yellow, moist, medium stiff			
	2.5	19.2	SS2SS	9-12-15-20 (27)	**Silt (ML)** 2.5-4.1' - reddish brown, with light greenish gray and reddish black mottling, dry to moist, stiff, trace clay, trace roots			PT-1 collected 3.0-5.0' Offset: 1.6' S40W of BPA-40 Lab Results USCS: Sandy CL
	4.5							
5								
254.2	5.0	15.6	SS3SS	14-16-21-50/3 (37)	**Silt (ML)** 5.0-6.3' - reddish brown, with light greenish gray and reddish black mottling, dry to moist, very stiff, trace fine to coarse sand			
	7.0							
	7.5	2.4	SS4SS	50/3 (50/3")	**Silt (ML)** 7.5-7.7' - reddish brown, dry to moist, very dense, trace to little fine grained sand			Soil sampling completed at 17:17 on 6/26/06
	7.7				Begin Rock Coring at 7.7 ft bgs See the next sheet for the rock core log			
10 249.2								
15 244.2								
20								

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-40 SHEET 2 OF 3

ROCK CORE LOG

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 ft bgs

START : 6/26/06 16:20

END : 6/27/06 14:10

LOGGER : LH/EM/DT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (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 to soft, bedding, moderately weathered, fine grained, 25% fine sand, micaceous	Rock coring began at 08:28 on 6/27/06
	R1NQ 3.7 ft 100%	95	1	9.2' - Fracture, 5 deg, smooth, undulating, stained, loose fit			R1: 08:28-09:25 on 06/27/06 At 8.5': R-Scale = R0-R1
10 249.2			0			**Sandstone** 9.2-9.6' - greenish gray, very soft to soft, fine sand to medium sand, moderately weathered, micaceous	
			2	10.6' - Fracture, 5 deg, rough, stepped, stained, tight fit		**Siltstone** 9.6-12.6' - dark reddish brown, very soft to soft, moderately weathered, fine grained, micaceous, 20% fine sand, bioturbated	
	11.4			10.6-11.4' - Fracture, vertical, black stains, tight fit			R2: 08:58-09:25
	R2NQ 4 ft 100%	83	1	11.4-11.9' - Fracture, vertical and 80 deg, rough, undulating, black stains, tight fit			At 12.3': R-Scale = R1-R2
			2	12.6' - Fracture, 20 deg, smooth, planar, black stains, tight fit		12.6-12.9' - very soft, moderately weathered	
			0	12.9' - Fracture, 25 deg, smooth, undulating, black stains, loose fit		12.9-17.0' - soft, slightly weathered, bioturbated	
15 244.2			1	14.6' - Fracture, 5 deg, rough, undulating, loose fit			
	15.4						R3: 09:40-10:00
			0				
			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			2	19.7' - Fracture, 10 deg, smooth, undulating, loose fit		**Siltstone** 19.7-22.3' - dark reddish brown, slightly weathered, fine grained, micaceous, 15% fine sand, soft	
	20.4			19.8' - Fracture, 5 deg, smooth, undulating, loose fit			R4: 10:10-10:21
			0				At 21.2': R-Scale = R2
			0				
	R4NQ 5.7 ft 100%	100	0			**Sandstone** At 22.3' - greenish gray, slightly weathered, micaceous, 20% silt, soft, fine sand	
			2	23.4-24.1' - Fracture, 75 deg, rough, undulating, calcitic infilling, tight fit			At 24.0': R-Scale = R1
25 234.2			NA	24.1-24.7' - Fracture, 70 deg, rough, undulating, calcitic infilling, tight fit			
	26.1		NA			25.5-25.6' - coarse gravel, quartz, feldspar	
			1			26.0-26.8' - light bluish gray, fine sand to medium sand, quartz mica, 5% medium gravel	R5: No time recorded
				26.8' - Fracture, 5 deg, rough, undulating, tight fit			At 27.3': R-Scale = R2

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-40	SHEET 3 OF 3

ROCK CORE LOG

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 ft bgs

START : 6/26/06 16:20

END : 6/27/06 14:10

LOGGER : LH/EM/DT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, 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		26.8-27.9' - very dark greenish gray, fine sand, 25% silt quartz, mica	
			1			**Siltstone** 27.9-28.9' - bluish gray, slightly weathered, fine grained, 10% fine sand	
			1	28.9' - Fracture, 20 deg, rough, undulating, loose fit			
30 229.2			1	29.9-30.1' - Fracture, 50 deg, rough, undulating, tight fit		**Sandstone** 28.9-34.9' - bluish gray, fine to coarse sand	
	30.7		1	30.3' - Fracture, 20 deg, rough, stepped, tight fit		28.9-30.7' - slightly weathered to moderately weathered	R6: No time recorded
			0			30.7-34.9' - slightly weathered	
			0				SC-1 collected 30.8-32.2'
	R6NQ 5 ft 92%	84	1				At 33.1': R-Scale = R1-R2
			1	33.4-33.7' - Fracture, 75 deg, rough, undulating, tight fit		33.9-34.5' - Conglomeratic in part	
			1	33.8' - Fracture, 5 deg, rough, undulating, loose fit			
35 224.2			1	34.9' - Fracture, 10 deg, smooth, undulating, tight fit		**Siltstone** At 34.9' - dark greenish gray, fresh, fine grained, mica, mottled, soft	
	35.7						R7: No time recorded
			0			**Siltstone** At 36.2' - dark reddish brown, fresh, mica, fine, massive, some brown mottling, soft	
			0				At 36.6': R-Scale = R2
	R7NQ 5 ft 100%	100	0				
			0				
40 219.2			0				
	40.7						
			0			40.7-42.7' - large (1-2) bluish gray coloration along small fractures	R8: 13:15-13:35
			0				At 42.4': R-Scale = R3
			0				First water level = 7.9' bgs taken 6/27/06 at 16:40; second water level = 0.2' bgs taken 6/28/06 at 18:23
	R8NQ 5 ft 95%	95	0				R-scale performed after drilling on stored samples
			0				
45 214.2			0				
	45.7						
						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

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

ORIENTATION : Vertical

WATER LEVELS : 26.4 ft bgs

START : 6/15/06 12:47

END : 6/17/06 14:46

LOGGER : LH

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
264.6	0.0				**Top Soil** 0.0-0.5'		
		24.0	SS1SS	2-3-4-5 (7)	**Clay & Fine Sand (CL&SP-SM)** 0.5-1.4' - reddish brown and light brown, moist, medium stiff, loose, trace roots, fill		
	2.0				**Fine Sand (SP-SM)** 1.4-2.0' - light brown, moist, loose, fill		
	2.5	18.0	SS2SS	28-50/5 (50/5")	**Clay (CL)** 2.5-4.0' - reddish brown, greenish gray mottling, moist, hard, laminated bedding, friable		
	4.5						
5							
259.6	5.0	3.0	SS3SS	50/3 (50/3")	**Clay (CL)** 5.0-5.3' - greenish gray mottling, moist, hard, laminated bedding, friable		Soil sampling completed at 13:20 on 6/15/06
	5.3						
	5.7				Begin Rock Coring at 5.7 ft bgs See the next sheet for the rock core log		
10							
254.6							
15							
249.6							
20							

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-41 SHEET 2 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

WATER LEVELS : 26.4 ft bgs

START : 6/15/06 12:47

END : 6/17/06 14:46

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	5.7		3			**Sandstone** 5.7-14.2' - reddish brown, white, and dark reddish gray, reddish black mottling, soft to hard, laminated to medium bedding, very fine sand to coarse sand, angular to subrounded, moderately weathered, becomes coarser with depth to 7.9' then gets finer and becomes coarser with depth to 9.2', well to poorly sorted 6.2' - clay seams, 0.05' thick, laminated beds, very soft, siltstone beds alternating with clay throughout, fracture at bottom 6.5-6.7' - clay seams, 0.15' thick, laminated beds, very soft, siltstone beds alternating with clay throughout, fracture in middle 9.2-12.0' - coarsens with depth	Rock coring began at 08:30 on 6/16/06 R1: 08:30-08:40 on 06/16/06 At 5.7-6.5': R-Scale = R1 At 6.2-6.7': R-Scale = R0 At 6.7-8.3': R-Scale = R1
	R1NQ 3.5 ft 97%	77*	3	6.8' - Fracture, horizontal, rough, planar			
			2	7.2' - Fracture, horizontal, rough, planar 7.6' - Fracture, horizontal, rough, planar			
			0	8.2' - Fracture, horizontal, rough, planar 8.3' - Fracture, horizontal, rough, planar			At 8.7': R-Scale = R3
	9.2						
10 254.6			1	9.4' - Fracture, horizontal, rough, undulating			R2: 08:44-08:52
			0				
	R2NQ 5 ft 89%	82*	1				At 11.1': R-Scale = R4
			2	12.0' - Fracture, horizontal, rough, undulating 12.5' - Fracture, 45 deg, rough, undulating		12.0-14.2' - mottled reddish black, olive, greenish gray, soft to hard, bedding, coarse sand, angular to subrounded, poorly sorted, banded lighter & darker 13.5-13.7' - clay seam, very soft, friable material	At 12.0-12.4': R-Scale = R1
			1	12.7-12.9' - Fracture, horizontal, rough, undulating, fracture (top) and clay seam, laminated beds			At 13.3': R-Scale = R3-R4
	14.2						
15 249.6			1	14.8' - Fracture, horizontal, smooth, planar		**Siltstone** 14.2-15.8' - dark reddish brown, mottled greenish gray, white, and reddish black, soft, very thin to thin bedding, moderately weathered	R3: 08:56-09:08 SC-1 collected 14.2-14.8' At 15.4': R-Scale = R3-R4
			1	15.2' - Fracture, horizontal, smooth, planar			
	R3NQ 5 ft 102%	100*	1	16.1' - Fracture, horizontal, rough, stepped, top of clay seam, soft, friable material		**Sandstone** 15.8-16.0' - dark reddish brown, mottled greenish gray, white, and reddish black, laminated to bedding, fine sand, well rounded to subrounded, well sorted, moderately weathered	
			0				At 18.1': R-Scale = R3-R4
			0			**Siltstone** 16.0-16.1' - dark reddish brown, mottled greenish gray, white, and reddish black, very soft to soft, laminated bedding, moderately weathered	
	19.2						R4: 09:13-09:34 At 19.5': R-Scale = R3-R4
20 244.6			0			**Sandstone** 16.1-17.1' - dark reddish brown, mottled greenish gray, white, and reddish black, very thin to thin bedding, very fine sand to fine sand, well rounded to subrounded, well sorted, moderately weathered 16.1-16.2' - clay seam, soft, friable material 16.7-17.0' - coarse grained sand seam	
			0				
	R4NQ 5 ft 104%	100	0				At 22.0': R-Scale = R3
			0				
			0				
	24.2						
25 239.6			0			**Siltstone** At 17.1' - dark reddish brown, mottled greenish gray, white, and reddish black, soft, laminated bedding 17.1-17.4' - moderately weathered	R5: 09:39-09:48 At 24.8': R-Scale = R3-R4

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-41 SHEET 3 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

WATER LEVELS : 26.4 ft bgs

START : 6/15/06 12:47

END : 6/17/06 14:46

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			17.3-17.4' - clay seam, soft, friable material 17.4-21.7' - fresh	
	R5NQ 5 ft 94%	94	0			**Sandstone** 21.7-22.1' - soft, very thin to thin bedding, well rounded to subrounded, well sorted, fresh, very fine to fine grained	At 27.4': R-Scale = R3-R4
			0				
			0			**Siltstone** 22.1-29.4' - dark reddish brown, mottled greenish gray, white, and reddish black, soft, laminated bedding, fresh 24.2-29.2' - trace medium to coarse sand 26.2-26.4' - 30-40% sand	R6: 09:51-10:09 At 30.3': R-Scale = R4
29.2							
30 234.6			0				
	R6NQ 5 ft 102%	100	0			**Sandstone** At 29.4' - dark reddish brown, white, dark reddish gray, and gray, medium to thick bedding, very fine sand to fine sand, well rounded, well sorted, fresh	At 32.5': R-Scale = R3-R4
			0				
34.2							At 33.8': R-Scale = R4
35 229.6			0			33.9-34.1' - trace medium sand 34.2-39.2' - dark gray, greenish gray, and white, medium to thick bedding, fine sand to coarse sand, angular to subrounded, poorly sorted	R7: 10:13-10:21
			0				
	R7NQ 5 ft 103%	100	0				At 36.5': R-Scale = R4
			0			37.8' - trace gravel sized clasts of silt	
			0				
39.2							At 38.8': R-Scale = R3-R4
40 224.6			0			**Conglomerate** 39.2-40.0' - dark gray, greenish gray, and white, soft to hard, thin bedding, fresh	R8: 10:36-10:46
			4	40.5-40.8' - Fracture zone, horizontal, rough, undulating		**Sandstone** 40.0-40.5' - dark gray, greenish gray, and white, laminated to very thin bedding, fine sand to coarse sand, angular to subrounded, poorly sorted, fresh	
	R8NQ 5 ft 98%	92	0				At 41.7': R-Scale = R3-R4
			2	42.5-42.6' - Fractures (2), horizontal, rough, undulating, microfractures with greenish gray infilling throughout siltstone		**Siltstone** At 40.5' - dark reddish brown, mottled greenish gray, white, and reddish black, very soft to soft, laminated bedding, fresh 44.2-49.2' - no mottling	
			0				R9: 10:51-11:05
44.2							
45 219.6			0				

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-41	SHEET 4 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

WATER LEVELS : 26.4 ft bgs

START : 6/15/06 12:47

END : 6/17/06 14:46

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	R9NQ 5 ft 94%	94	0				At 45.5': R-Scale = R3-R4
			0				
			0				
			0				
	49.2						
			0			49.2-54.2' - no reddish black mottling	R10: 11:13-11:28
50 214.6			0				
			0				At 50.5': R-Scale = R3-R4
	R10NQ 5 ft 100%	100	0			51.7-53.6' - white clasts (<0.05' thick)	
			0			52.0-52.4' - very soft, almost clay	SC-2 collected 52.4-53.4'
			0				
	54.2						At 53.8': R-Scale = R3-R4
			0			**Sandstone**	R11: 11:40-12:00
55 209.6			0			At 54.2' - dark reddish brown, mottled greenish gray and reddish black, very thin to medium bedding, very fine sand to fine sand, subrounded, well sorted, fresh	
			0				At 55.9': R-Scale = R3-R4
	R11NQ 5 ft 103%	100	0			56.8-56.9' - white clasts (0.01'thick)	
			1			57.2-59.2' - white clasts (<0.03' thick)	
			0	58.2' - Fracture (2), horizontal and vertical, rough, undulating, vertical (0.03' long)			
	59.2						At 58.8': R-Scale = R3-R4
			0			59.2-64.2' - soft, 70% very fine sand, very silty layers(40-60%)	R12: 12:51-13:04
60 204.6			0			59.2-59.4' - white clasts	
			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	
			0			61.9-62.0' - white clasts	
			0			62.1-62.5' - fine sand	At 62.5': R-Scale = R4
	64.2						
			0			**Siltstone**	R13: 13:09-13:25
65 199.6						64.2-64.8' - dark reddish gray, mottled greenish gray and reddish black, very soft, laminated bedding, fresh	

PROJECT NUMBER:	BORING 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

WATER LEVELS : 26.4 ft bgs

START : 6/15/06 12:47

END : 6/17/06 14:46

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			**Sandstone & Siltstone**	At 65.5': R-Scale = R3-R4
	R13NQ 5 ft 104%	100	0			64.8-71.5' - white, dark reddish gray, and very dark greenish gray, soft, laminated bedding, very fine sand, subrounded, well sorted, fresh, becomes more siltstone with depth.	
			0			66.6-71.5' - white and dark greenish gray mottling	
			0			66.9-71.5' - dark reddish brown & white, mottled greenish gray and reddish black	At 68.7': R-Scale = R4
	69.2					69.2-71.5' - trace medium grained sand	R14: 13:43-13:55
70			0				
194.6			0				
							At 71.0': R-Scale = R4
	R14NQ 5 ft 100%	100	1	71.5' - Contact between siltstone and sandstone, horizontal, rough, planar		**Siltstone**	
			0			At 71.5' - dark reddish brown, mottled greenish gray, white, and reddish black, very soft to soft, laminated bedding, mottling as large as 0.05' thick.	
			0			71.5-74.5' - fresh	At 73.5': R-Scale = R3-R4
	74.2					74.2-76.5' - clay seams	At 74.2-76.5': R-Scale = R0 - R1
75			10+	74.5-76.5' - Fracture zone, horizontal, rough, undulating, 0.01-0.1' thick clay infilling, undulating to planar, friable material		74.5-76.5' - moderately weathered	R15: 14:03-14:25
189.6			10+				
	R15NQ 5 ft 104%	62*	10+			76.5-89.2' - fresh	
			0				At 77.5': R-Scale = R3-R4
			0				At 78.5': R-Scale = R3
	79.2					79.2-84.2' - dark reddish brown, mottled greenish gray and reddish black, soft	R16: 14:48-15:06
80			0				
184.6			1	80.9' - Fracture, horizontal, rough, undulating			At 80.1': R-Scale = R3
	R16NQ 5 ft 102%	100	0				At 81.8': R-Scale = R3-R4
			0				SC-3 collected 82.3-83.2'
			0				
	84.2					84.2-89.2' - 40% very fine to fine grained sand	R17: 15:24-15:34
85			0				
179.6							

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-41 SHEET 6 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

WATER LEVELS : 26.4 ft bgs

START : 6/15/06 12:47

END : 6/17/06 14:46

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (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				
			0				At 87.8': R-Scale = R3
			0				
	89.2						
90 174.6			0			**Sandstone** 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 siltstone and sandstone	R18: 15:43-15:55
			2				At 89.8': R-Scale = R3-R4
							At 89.9': R-Scale = R3-R4
	R18NQ 5 ft 102%	66*	3	91.1' - Fracture, horizontal, rough, planar 91.2' - Fracture, horizontal, rough, planar 91.5' - Fracture, horizontal, rough, planar 91.5-92.3' - Fracture zone, horizontal, rough, planar, clay seams (0.01-0.04' thick)		**Siltstone** At 90.7' - white clasts 90.7-91.5' - fresh 91.5-92.3' - moderately weathered 92.3-99.2' - fresh	At 91.4-91.9': R-Scale = R1
			2				
			2				At 93.5': R-Scale = R3-R4
	94.2			94.0' - Fractures (2), horizontal, smooth, planar 94.0' - Fracture, horizontal, smooth, planar			R19: 16:01-16:12
95 169.6			0				
			0				
	R19NQ 5 ft 100%	100	0				At 96.7': R-Scale = R3-R4
			0			97.4' - large reddish black mottles 10.03' thick, >0.2'long	
			0				At 98.6': R-Scale = R3-R4
	99.2						
100 164.6			0			**Sandstone** 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% silt becomes coarser with depth.	R20: 08:22-08:32 on 06/17/06
			0				
	R20NQ 5 ft 100%	100	0	101.5' - Microfractures with greenish gray infilling			At 101.5': R-Scale = R3-R4
			0	102.8' - Microfractures with greenish gray infilling			
			0				At 103.5': R-Scale = R3-R4
	104.2						
105 159.6			2	104.4' - Fracture, horizontal, rough, undulating 104.5' - Fracture, horizontal, rough, undulating		104.2-104.4' - trace medium grained sand	R21: 08:39-08:54

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-41 SHEET 7 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

WATER LEVELS : 26.4 ft bgs

START : 6/15/06 12:47

END : 6/17/06 14:46

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			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, friable material, siltstone laminated beds intermingled	At 105.5': R-Scale = R3-R4
	R21NQ 5 ft 98%	64	4				
			3				
			0				At 108.5': R-Scale = R3-R4
	109.2						R22: 09:19-09:31
110 154.6			2	109.4' - Fracture, horizontal and 10 deg, rough, undulating 109.8' - Fracture, horizontal, rough, undulating		110.3-110.7' - 30-40% very fine to fine sand	
			1				At 110.6': R-Scale = R3-R4
	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 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 112.0' - 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'		111.1-112.7' - moderately weathered	
			6			112.7-119.5' - fresh	At 112.6': R-Scale = R3
			0			113.3-114.2' - trace medium grained sand	
	114.2					114.2-119.2' - slightly coarsening with depth, trace medium sand	R23: 09:38-09:50
115 149.6			0				At 114.9': R-Scale = R3-R4
			0				
	R23NQ 5 ft 100%	100	0				
			0				At 117.5': R-Scale = R3-R4
			0				
	119.2						R24: 09:56-10:13
120 144.6			10+	119.5' - Contact between siltstones, horizontal, tightly healed, sharp		**Siltstone** 119.5-124.2' - dark greenish gray, olive, dark reddish brown mottling, soft, laminated bedding, moderately weathered, many clay seams, contact between siltstones very clear 119.7-119.9' - clay seams, every 0.05', <0.02' thick, very soft, friable material 120.3-120.3' - clayey /silt (alternating) seam unbroken 120.7-120.8' - clayey /silt (alternating) seam unbroken 120.9-121.0' - clayey /silt (alternating) seam broken 121.6-121.7' - clayey /silt (alternating) seam broken 121.8-121.9' - clayey /silt (alternating) seam unbroken	At 119.8': R-Scale = R3-R4
			5	119.7-119.7' - Fracture zone, horizontal and vertical, rough, undulating, undulating, planar 119.9' - Fracture, horizontal, smooth, undulating			At 120.8': R-Scale = R3 At 122.4': PP: 3.5 tsf (#2)
	R24NQ 5 ft 100%	51*	10+	120.2-124.9' - Fracture zone, horizontal and vertical, significant clay seams, horizontal, vertical, 45 deg, very soft clay			SC-4 collected 122.2-122.6'
			10+	121.3-121.5' - Fracture, 45 deg, slickensided, undulating, white spots inside fracture			
	124.2		10+				R25: 10:38-11:00
125 139.6			0				At 125.0': R-Scale = R3

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-41	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

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

ORIENTATION : Vertical

WATER LEVELS : 26.4 ft bgs

START : 6/15/06 12:47

END : 6/17/06 14:46

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			10+	125.4-126.0' - Fracture zone, horizontal, rough, planar, clay seams (0.01-0.02' thick), very soft, undulating		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	
	R25NQ 5 ft 98%	72	1	126.4' - Fracture, horizontal, rough, undulating			At 127.8': R-Scale = R3
			0				
			5	128.2-128.6' - Fracture zone, horizontal, smooth, planar, clay seams (0.01-0.03' thick), very soft		**Siltstone** At 124.2' - olive and dark reddish brown, dark greenish gray mottling, soft, laminated bedding, slightly weathered 125.4-126.0' - very soft	
	129.2						R26: 11:09-11:26
130 134.6			0				At 130.0': R-Scale = R3-R4
			0				
	R26NQ 5 ft 104%	96	2	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		131.4-131.8' - very soft	
			1	132.9' - Fracture, horizontal, rough, undulating			At 132.4': R-Scale = R3-R4
			1				At 133.5': R-Scale = R3-R4
	134.2			133.9-134.0' - Fracture, horizontal, smooth, planar, clay seams (0.01-0.02' thick), very soft with very soft siltstone alternating in laminated beds		133.9-134.0' - very soft	
135 129.6			0			**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%)	R27: 11:30-11:42
			0				
	R27NQ 5 ft 100%	100	0				At 136.4': R-Scale = R3-R4
			0			**Siltstone** 137.5-139.2' - olive gray and dark greenish gray, mottled dark reddish brown and greenish gray, soft, fresh	
			0				At 138.6': R-Scale = R3-R4
	139.2						R28: 11:48-12:01
140 124.6			1	139.9' - Fracture, horizontal, rough, planar		**Siltstone** 139.2-143.8' - dark reddish brown, reddish black mottling, very soft to soft, laminated bedding, fresh 139.2-139.6' - greenish gray mottling	SC-5 collected 139.9-140.8'
			1	140.8' - Fracture, horizontal, rough, planar			
	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
			1				
	144.2			143.8' - Contact between siltstone and sandstone, 30 deg, sharp contact		**Sandstone** At 143.8' - dark reddish gray and light reddish gray, soft to hard, laminated to medium bedding, fine sand, subangular, well sorted, fresh	R29: 13:00-13:20
145 119.6			0				At 145.0': R-Scale = R3-R4

PROJECT NUMBER:	BORING 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

WATER LEVELS : 26.4 ft bgs

START : 6/15/06 12:47

END : 6/17/06 14:46

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			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	
	R29NQ 5 ft 96%	96	0				At 147.0': R-Scale = R4
			0			**Conglomerate** 145.0-145.3' - dark reddish gray and light reddish gray, mottled reddish black and greenish gray, very thin bedding, subangular to subrounded, fresh, poorly sorted to well sorted	
			0				
149.2							
150 114.6			1			**Sandstone** 145.3-146.2' - 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	R30: 13:35-13:53
			0				
	R30NQ 5 ft 103%	94	0				At 151.0': R-Scale = R4
			3	152.7' - Contact between siltstone and sandstone, horizontal, rough, undulating 152.9' - Fracture, horizontal, rough, undulating 153.2-153.3' - Fracture zone, horizontal, rough, planar, clay seams (0.01-0.02' thick), very soft		**Conglomerate** 146.2-146.6' - dark reddish gray and light reddish gray, mottled reddish black and greenish gray, very thin bedding, subangular to subrounded, fresh, poorly sorted to well sorted	At 153.0': R-Scale = R4
			0				
154.2							
155 109.6			4	154.9-155.1' - Fracture zone, horizontal and 30 deg, smooth, planar, planar		**Sandstone** 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 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	R31: 14:04-14:20
			0				At 155.5': R-Scale = R3-R4
	R31NQ 5 ft 102%	100	0				
			1				
			0	158.1' - Fracture, horizontal, rough, planar 158.2' - Contact between siltstone and sandstone, horizontal, planar, partially convoluted			At 158.0': R-Scale = R4
159.2							
160 104.6			0			**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 coarsens with depth 156.9' - fines with depth	R32: 14:29-14:46
			0				
	R32NQ 5 ft 98%	98	0			**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 mottling	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 drilling on stored samples
			0				
			0				
164.2							
165 99.6						Bottom of Boring at 164.2 ft bgs on 6/17/06 14:46	

PROJECT NUMBER:	BORING 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
WATER LEVELS : 9.1 ft bgs
START : 7/10/06 08:30
END : 7/11/06 09:52
LOGGER : JS/JF

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
264.3	0.0				**Top Soil** 0.0-0.2' - Topsoil and fine to coarse angular gravel		
	2.0	10.0	SS1SS	2-3-7-10 (10)	**Clay (CL)** 0.2-0.8' - reddish brown, mottled white and black, moist, stiff, low to medium plasticity, 10-15% very fine to fine sand		
	2.5				**Clay (CL)** 2.5-3.5' - reddish brown, mottled yellow, black, whitish green, moist, very hard, low to medium plasticity, 10-15% very fine to fine sand		
	4.5	12.0	SS2SS	24-36-50/5 (86/11")			
5							
259.3	5.0				**Clay (CL)** 5.0-5.4' - reddish brown, mottled yellow, black, whitish green, moist, very hard, low to medium plasticity, 10-15% very fine to fine sand		
	7.0	5.0	SS3SS	50/5 (50/5")			Soil sampling completed at 09:25 on 7/10/06
	7.5	1.0	SS4SS		**Clay (CL)**		
	7.6			50/1.5 (50/1.5")	7.5-7.6' - reddish brown, mottled yellow, black, whitish green, moist, very hard, low to medium plasticity, 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							
254.3							
15							
249.3							
20							

PROJECT NUMBER:	BORING 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

WATER LEVELS : 9.1 ft bgs

START : 7/10/06 08:30

END : 7/11/06 09:52

LOGGER : JS/JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	7.6		0			**Siltstone** 7.6-9.5' - dark reddish brown, some blue gray mottling, very soft, highly weathered, fine grained 8.4' - clay seam	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' R2: 09:48-10:05
	R1NQ 2.4 ft 96%	0	2				
			0			**Clay Seam** 9.5-10.0' - highly weathered	
10	10.0					**No Recovery** 10.0-10.7'	
254.3			10+			**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	
				10.7' - Fracture zone, crumbled rock zone			
			2	11.2' - Fracture, <5 deg, rough, undulating			
				11.7' - Fracture, <5 deg, rough, undulating			
	R2NQ 5 ft 86%	0	1	12.3' - Fracture, <5 deg, rough, undulating			
			0				
			0				
15	15.0						
249.3			10+				R3: 10:07-10:20
			10+	16.4-16.5' - Fracture, 40 deg, rough, undulating, bottom of soil like section			
	R3NQ 5 ft 100%	0	10+				At 17.5-20.0': R-Scale = R0-R1
			2			18.1' - clay seam, 0.05' thick	
				18.6' - Fracture, <5 deg, smooth, undulating			
				18.8' - Fracture, <5 deg, smooth, undulating			
			10+	19.0' - Fracture, <5 deg, smooth, undulating			
20	20.0						
244.3			0			20.0-23.5' - moderately weathered	R4: 10:50-11:08
			0				At 20.0-23.5': R-Scale = R1-R2
	R4NQ 5 ft 100%	86	0				
						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	
			1	23.6' - Fracture, <5 deg, rough, undulating			
			1	24.5' - Fracture, <5 deg, rough, undulating			
25	25.0						
239.3			1	25.4' - Fracture, <5 deg, rough, undulating		25.0-51.4' - blue-green mottling, soft	R5: 11:18-11:45
			0				At 26.2': R-Scale = R3
	R5NQ						

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-42	SHEET 3 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

WATER LEVELS : 9.1 ft bgs

START : 7/10/06 08:30

END : 7/11/06 09:52

LOGGER : JS/JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	5 ft 86%	86	0				
			0				At 28.1': R-Scale = R3-R4
			0			29.0-29.8' - mottled purple and blue	
30	30.0						
234.3			1				R6: 12:55-13:02 and 12:55-13:02
			0				At 30.6': R-Scale = R3-R4
	R6NQ 5 ft 102%	98	0				
			0				At 33.5': R-Scale = R3
			0				
35	35.0						
229.3			0				R7: 14:02-14:18
			0			35.8-36.2' - fine sand sized clay clasts	
	R7NQ 5 ft 103%	100	0			36.9-37.8' - very soft to soft, very small white speckles and clay clasts	
			0			38.3-39.0' - white speckles, clay clasts (.04 - 1.2)	At 38.0': R-Scale = R3
			0				SC-2 collected 39.1-40.0'
40	40.0						
224.3			0			40.0-51.5' - fresh	R8: 14:26-14:48
			0			41.0-42.2' - 10% clay clasts (.04)	
	R8NQ 5 ft 100%	100	0				
			0				At 43.3': R-Scale = R3-R4
			0			44.0-45.0' - 10% clay clasts (.04)	
45	45.0						
219.3			0			45.0-50.0' - massive bedding 45.0-45.1' - mottled white	R9: 14:52-15:12
			0				
	R9NQ						At 46.9': R-Scale = R4

PROJECT NUMBER:	BORING 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

WATER LEVELS : 9.1 ft bgs

START : 7/10/06 08:30

END : 7/11/06 09:52

LOGGER : JS/JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	5 ft 100%	100	0				
			0				
			0				At 49.4': R-Scale = R3-R4
50 214.3	50.0					50.0-51.4' - very dusky red, very fine to fine sand	R10: 15:20-15:50
			0				
			0			51.4-51.5' - grades to sandstone	
	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, subangular 52.7-54.0' - light reddish gray, fine sand to coarse sand	
			0				At 54.0': R-Scale = R3-R4
55 209.3	55.0					54.6-55.5' - light reddish gray to reddish black, fine sand	R11: 15:55-16:25
			0			55.5-56.0' - fine sand to medium sand	
			0			56.0-56.8' - light gray, fine sand to medium sand	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)	
			0				At 58.2': R-Scale = R3
60 204.3	60.0					60.0-61.0' - dark reddish brown, blue-green mottling, clay clasts	R12: 16:35-16:57
			0				
			0				
	R12NQ 5 ft 100%	100	0				
			0				At 63.1': R-Scale = R3-R4
65 199.3	65.0						R13: 08:10-08:29 on 07/11/06
			0				SC-3 collected 65.0-65.9'
			0				At 66.5': R-Scale = R3-R4
	R13NQ						

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-42	SHEET 5 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

WATER LEVELS : 9.1 ft bgs

START : 7/10/06 08:30

END : 7/11/06 09:52

LOGGER : JS/JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	5 ft 104%	100	0				
			0			68.0' - blue-green mottling	
			0				At 68.7': R-Scale = R3-R4
70	70.0						
194.3							R14: 08:36-08:56
			0				
			0				
	R14NQ 5 ft 98%	98	0				
			0				
			0				At 73.7': R-Scale = R3-R4
75	75.0						
189.3						74.7-75.0' - small clay clasts (<.04)	At 74.7': R-Scale = R4
			0			75.0-80.0' - dusky red, heavily mottled olive, yellow, blue-green	R15: 09:00-09:18
			0			75.1-77.4' - 25% <0.2 white clasts	
	R15NQ 5 ft 100%	100	0			77.4-79.2' - trace very fine to fine sand	At 77.6': R-Scale = R3-R4
			0				
			0			79.2-80.0' - significantly less mottling	
80	80.0						
184.3			0			80.0-85.0' - dark reddish brown to very dusky red, trace blue-green mottling	R16: 09:23-09:52
			0				
	R16NQ 5 ft 100%	100	0				At 82.2': R-Scale = R3-R4
							At 84.4': R-Scale = R3-R4
			0				First water level = 9.1' bgs taken 7/11/06 at 12:00; second water level = 7.8' bgs taken 7/12/06 at 12:21
			0			83.5-85.0' - trace very fine to fine sand	
85	85.0						R-Scale performed after drilling on stored samples
179.3						Bottom of Boring at 85.0 ft bgs on 7/11/06 09:52	

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-43 SHEET 1 OF 8

SOIL BORING 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
DRILLING EQUIPMENT AND METHOD : CME-750, Tricone Bit, 24" Split Spoon, and 140 lb. Automatic Hammer
ORIENTATION : Vertical
WATER LEVELS : 18.6 ft bgs
START : 6/13/06 10:00
END : 6/19/06 13:10
LOGGER : JV

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	PP (TSF)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
269.7	0.0				**Topsoil** 0.0-0.3'			
	2.0	10.0	SS1SS	2-3-3-4 (6)	**Silty Sand (SM)** 0.3-1.0' - brownish yellow, mottled red to brown, moist to wet, medium dense, 60% sand			
					Fat Clay (CH) 1.0-1.3' - light gray, mottled reddish orange, moist, firm, high plasticity, root fragments			
	2.5				**Fat Clay (CH)** 2.5-2.9' - light brownish yellow, mottled orange and brown, wet, fine, high plasticity, 30% sand			
	4.5	22.0	SS2SS	13-22-24-38 (46)	**Clay (CL)** 2.9-3.4' - light gray, orange mottling, moist, very stiff, high plasticity, 30% sand		2.5	PT-1 collected 3.0-5.0'
5								
264.7	5.0				**Silty Sand (SM)** 3.4-4.3' - pale yellow, moist, dense to very dense, very fine, 50% sand			
	7.0	12.5	SS3SS	41-50/5 (50/5")	**Silty Sand (SM)** 5.0-6.0' - light gray, orange mottling, wet, dense, very fine, low to medium plasticity, 75% sand			Too friable for PP
	7.5							PT-2 collected 7.0-9.0' Offset: 2.4' S56E of BPA-43 Lab Results USCS: SP-SM
	9.5	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+	
10								
259.7	10.0				**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	4.0	SS5SS	50/4 (50/4")				
	12.5				**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
	14.5	4.0	SS6SS	50/4 (50/4")				
15								Soil sampling completed at 12:20 on 6/13/06
254.7	15.0	3.0	SS7SS		**Silt (ML)**			Too friable for PP
	15.3			50/3 (50/3")	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			
20								

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-43	SHEET 2 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 : 18.6 ft bgs

START : 6/13/06 10:00

END : 6/19/06 13:10

LOGGER : JV

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	15.3		1	15.6' - Fracture, 25 deg, smooth, undulating 15.9-16.5' - Fracture, 15 deg, staining, healed		**Siltstone** At 15.3' - dark reddish brown, mottled greenish-gray, very soft, some very fine to fine sand 15.3-26.9' - highly weathered to completely weathered 16.5-20.0' - mottled greenish-gray and black, black grains visible	Rock coring began at 13:50 on 6/13/06 R1: 14:30-14:46 on 06/13/06 At 15.5-18.5': R-Scale = R0-R1 SC-1 collected 16.3-17.2'
			1	16.7' - Fracture, <10 deg, smooth, undulating			
	R1NQ 4.7 ft 111%	0	0	17.8' - Fracture, <10 deg, black stains, tightly healed			
			0	17.9' - Fracture, <10 deg, black stains, tightly healed			
			3	19.0' - Fracture, <10 deg, smooth, undulating, stains			At 19.0': R-Scale = R1-R2
20 249.7	20.0		0	19.8' - Fracture, 25 deg, smooth, undulating, black stains 19.9' - Fracture, horizontal, smooth, undulating		19.5-20.0' - less sand	R2: 15:00-15:18
			1				At 21.5': R-Scale = R2
	R2NQ 5 ft 96%	0	4	22.0' - Fracture, <10 deg, smooth, undulating 22.2' - Fracture, 35 deg, smooth, undulating		22.1-22.2' - clay seam, medium to low plasticity, 0.05' thick	
			2	22.7' - Fracture, horizontal, smooth, undulating, black stains 22.9' - Fracture, 80 deg, smooth, undulating, black stains		23.4' - clay seam, 0.05' thick 23.5' - black staining	
			0	23.9' - Fracture, <5 deg, smooth, undulating		24.0' - pitted, possible solution cavities	
25 244.7	25.0						At 24.5': R-Scale = R2
			4	25.1' - Fracture, horizontal, smooth, undulating 25.5' - Fracture, 20 deg, smooth, undulating		25.0' - green mottling, pitted	R3: 15:36-16:00
			3	25.6' - Fracture, 5 deg, smooth, undulating, black stains 25.7' - Fracture, 5 deg, smooth, undulating, black stains		26.1-26.4' - clay and rock fragments, 0.35' thick, rock fragments	At 25.5-27.0': R-Scale = R0-R1
	R3NQ 5 ft 100%	62	1	26.4' - Fracture, 40 deg, smooth, undulating, black stains		26.9-28.3' - cavities (0.3'), sandy clasts, pinkish, harder 26.9-62.3' - fresh	At 27.5': R-Scale = R2
			1	26.6' - Fracture, horizontal, smooth, planar, black stains 27.3' - Fracture, 60 deg, smooth, undulating, black stains		28.3-30.0' - green mottling, soft, some medium to coarse sand, rounded to subangular, no cavities	
			0	28.2' - Fracture, 65 deg, smooth, undulating			At 29.0': R-Scale = R3
30 239.7	30.0						R4: 16:07-16:25
			0				At 30.5': R-Scale = R3
			0			31.0-31.1' - fine sandy lens 31.4-31.5' - sandy lens 31.6-31.7' - sandy lens	
	R4NQ 5 ft 102%	96	0			31.8-32.7' - dark reddish brown, soft, 50-60% very fine to fine sand, siltstone clasts (0.02' diameter)	
			1	33.6' - Fracture, 40 deg, smooth, undulating			At 33.5': R-Scale = R3-R4
35 234.7	35.0		1				

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-43	SHEET 3 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 : 18.6 ft bgs

START : 6/13/06 10:00

END : 6/19/06 13:10

LOGGER : JV

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			1	34.8' - Fracture, horizontal and 25 deg, smooth, undulating		34.7-34.8' - soft, very fine sand, sandy silt lens	R5: 08:30-08:48 on 06/15/06
			1	35.3' - Fracture, horizontal and 5 deg, smooth, undulating			At 36.0': R-Scale = R3
	R5NQ 5 ft 96%	88	0	36.6' - Fracture, 85 deg, smooth, undulating, 0.3' long, healed above 0.1', angle decreases to 70 deg		At 37.2' - clasts increase in size and frequency, 0.1-0.5' long	
			0				At 39.0': R-Scale = R2
			1				SC-2 collected 39.2-39.8'
40	40.0			39.7' - Fractures (2), 0-5 deg, 80 deg, smooth, undulating			
229.7			0			40.0-45.0' - green mottling, fine grained	R6: 08:58-09:18
			0				At 41.5': R-Scale = R3
	R6NQ 5 ft 98%	98	0				
			0				
			1	44.2' - Fracture, 40 deg, smooth, undulating			At 44.0': R-Scale = R3
45	45.0						
224.7			0			45.0-50.0' - green mottling, fine grained with very fine sand	R7: 09:45-10:06
			1				At 45.5': R-Scale = R3-R4
	R7NQ 5 ft 106%	100	0				
			0				At 48.0': R-Scale = R3
			0				
50	50.0						At 49.5': R-Scale = R3
219.7			0				R8: 10:25-10:45
			1	51.4' - Fracture, 55 deg, smooth, undulating		50.7-51.0' - soft, arkose silty sand clasts 0.03-0.1' long	
	R8NQ 5 ft 102%	82	0				
			0			52.7' - no apparent bedding, increase in very fine sand content	At 53.0': R-Scale = R3
			10+	54.2' - Fracture, 60 deg, smooth, undulating		53.6-54.5' - no apparent bedding, greenish-gray silty sand clast 0.04' long and sand stringers 0.01-0.03' wide	
55	55.0			54.5-54.8' - Fracture zone, smooth, undulating, <0.25' thick clay infilling			
214.7							

CH2MHILL

PROJECT NUMBER:	BORING 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 : 18.6 ft bgs

START : 6/13/06 10:00

END : 6/19/06 13:10

LOGGER : JV

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0	54.8' - Fracture, 5 deg, smooth, planar		54.6' - greenish-gray, sand stringer at 80 degrees, very fine silty sand 55.0-60.0' - fine grained	R9: 10:55-11:15
			0				At 56.0': R-Scale = R3
	R9NQ 5 ft 94%	90	0			56.6-57.0' - soft, greenish-gray, very fine sandy zone	
			0			57.6-60.0' - soft, interbedded greenish-gray, very fine sandy silt at 0-30 degrees 58.5-60.0' - rounded, clasts, 0.01' long	At 57.5': R-Scale = R3
			1				Not enough clay for PP
60 209.7	60.0			59.6' - Fracture, 5 deg and 50 deg, smooth, undulating, clay infilling		59.7-60.0' - clay and rock fragments; medium plasticity 60.0-62.3' - trace green mottling, fine grained, some very fine sand, increase sand from previous run, sandstone clasts up to 0.5' long, interbedded silty sand stringers	R10: No time recorded
			0				At 61.0': R-Scale = R3
	R10NQ 5 ft 103%	92	0			**Sandstone** 62.3-64.0' - dark gray, medium bedding, very fine sand, fresh, silty, 35 degree bedding angle 63.2-64.0' - green and red iron oxide banding	
			2	63.0' - Fracture, 70 deg, smooth, undulating			At 63.5': R-Scale = R3
			1			63.8' - iron oxide band, 0.05' thick along bedding plane	
65 204.7	65.0			64.5' - Fracture, horizontal and 5 deg, smooth, slickensides, undulating		**Siltstone** 64.0-65.5' - green and reddish brown mottling, very fine sand, fresh, fines, fissile zones of fines, interbedded with sandy zones, laminated, iron oxide banding, 0.5' thick	R11: 13:05-13:27
			0	65.5' - Contact between siltstone and sandstone, sharp, distinct			SC-3 collected 65.9-67.0'
			1				At 66.5': R-Scale = R3-R4
	R11NQ 5 ft 102%	100	0	66.8' - Fracture, 60 deg, smooth, undulating		**Sandstone** 65.5-74.5' - greenish gray, reddish brown mottling, soft, very fine sand, fresh, silty, iron staining, banded 66.7' - reddish brown siltstone clast 66.8' - 0.05' thick yellowish brown band, <5 degrees 69.0' - black mottling 69.6' - black mottling	
			0				
			0				
70 199.7	70.0					70.0' - banded, coarsens with depth, increased feldspar sand	R12: No time recorded
			0				At 71.0': R-Scale = R3
			0			71.4' - iron oxide staining, fine to medium sand bands 0.05' thick at 0-5 degrees	
	R12NQ 5 ft 88%	88	1	72.4' - Contact between sandstones, sharp 72.7' - Fracture, 75 deg, smooth, undulating		72.4-74.5' - gray, fine sand to medium sand, moderate induration 72.9-73.3' - fine grained dark greenish gray band, 0-5 degrees	
			0				
			1				At 74.0': R-Scale = R3-R4
75 194.7	75.0			74.2' - Fracture, 65 deg, undulating, partially tightly healed			

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-43	SHEET 5 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 : 18.6 ft bgs

START : 6/13/06 10:00

END : 6/19/06 13:10

LOGGER : JV

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			**Siltstone** 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	R13: 08:25-08:43
			1	76.4' - Fracture, 65 deg, smooth, undulating, cemented, silty			At 76.0': R-Scale = R3
	R13NQ 5 ft 106%	100	0			**Siltstone** 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	
			0				At 78.5': R-Scale = R3-R4
			1	79.0' - Fracture, 55 deg, smooth, undulating		**Sandstone** 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	
80 189.7	80.0						R14: 08:54-09:13
			0				
			0				
	R14NQ 5 ft 98%	98	0				At 82.0': R-Scale = R3-R4
			0				
			0			84.2' - banding at 30 degrees, 1/4 to 3/4 84.3' - very soft, fissile lithified clay, 1/8 thick	
85 184.7	85.0						R15: 09:20-09:50
			1	85.7' - Contact between siltstone and sandstone, sharp		84.3-85.2' - greenish gray, banded along bedding, laminated at 30 degrees starting at 84.65', trace black clasts <1/4	
			0	85.9' - Fracture, 40 deg, slickensided, planar, smooth			At 85.5': R-Scale = R3-R4
	R15NQ 5 ft 102%	60	5	87.0' - Contact between siltstone and sandstone, 20 deg, slickensided, planar, smooth, sharp		85.1-85.2' - fine sand to medium sand, laminated **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
			3	87.2' - Fracture, 20 deg, slickensided, undulating, smooth			SC-4 collected 88.2-88.9'
			1	87.3' - Fracture, 5 deg, slickensided, undulating, smooth 87.4' - Fracture, 5 deg, slickensided, undulating, smooth		**Sandstone** 86.0-87.0' - very dark gray, mottled greenish gray, white, and black, hard to thin, bedding, medium sand, fresh	
90 179.7	90.0						R16: 10:21-10:48
			0	87.8' - Fracture, 30 deg, slickensided, undulating, smooth 88.2' - Fracture, 50 deg, slickensided, undulating, smooth		**Siltstone** At 87.0' - greenish gray and reddish 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	
			0	89.0-89.1' - Fracture zone, 30 deg and 80 deg, slickensided, undulating, smooth			At 91.0': R-Scale = R3-R4
	R16NQ 5 ft 94%	94	0	89.2' - Fracture, 20 deg, smooth, undulating			At 92.5': R-Scale = R4
			0				
			0				
95 174.7	95.0						

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-43	SHEET 6 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 : 18.6 ft bgs

START : 6/13/06 10:00

END : 6/19/06 13:10

LOGGER : JV

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			1	95.5' - Fracture, 5 deg, smooth, undulating		**Sandstone** 89.8-90.0' - greenish gray, reddish brown mottling, hard, very thin bedding, very fine sand, fresh, gradational contact	R17: 11:10-11:31
			1	96.6' - Fracture, 15 deg, smooth, planar, pink encrusting, thin			At 96.0': R-Scale = R3-R4
	R17NQ 5 ft 103%	100	0			**Siltstone** At 90.0' - dark reddish brown, green mottling, very soft, fresh, some very fine sand 90.2-90.7' - siltstone clasts, 1/8 to 1/4 diameter, angular 90.5-91.0' - green mottling 93.5-94.1' - heavy green mottling	At 98.0': R-Scale = R3-R4
			0				
100			0				
169.7	100.0					**Sandstone** 94.1-94.3' - greenish gray, fresh, very fine sand, gradational contact	R18: 12:10-12:30
			1	100.2' - Fracture, 5 deg, smooth, undulating		**Siltstone** At 94.3' - dark reddish brown, green mottling, very soft, fresh 95.5' - black clasts, very soft,1/8 diameter 97.5-97.7' - Lighter brown zone with abundant dark red brown to black clasts 99.0-99.4' - heavy green mottling 99.4-99.6' - green, very fine sandy silt band, very soft, 30 degree bedding 99.6-99.7' - black band, very soft, 30 degree bedding	
			1	101.4' - Fracture, 65 deg, smooth, undulating			At 102.0': R-Scale = R3-R4
	R18NQ 5 ft 106%	90	0				
			1				
			0	103.9' - Fracture, 70 deg, smooth, undulating			At 104.0': R-Scale = R3-R4
105	105.0						
164.7			0			101.6-102.1' - increased very fine sand in sand stringers 0.05' thick 102.1' - laminated alternating siltstone and sandy siltstone, 30 degree bedding	R19: 12:29-13:10
			2	106.1' - Fracture, horizontal, slickensided, planar, smooth 106.2' - Fracture, 30 deg, slickensided, planar, smooth			At 106.0': R-Scale = R3-R4
	R19NQ 5 ft 92%	86	0			**Siltstone** At 102.7' - fresh, greenish gray silt band 103.1-103.7' - reddish brown and greenish gray, very soft, laminated bedding, banded 104.7' - sand lense, gradational contact, greenish gray, mottled reddish brown, soft	
			0				At 108.5': R-Scale = R3
			0				
110	110.0						
159.7			0			**Sandstone** 105.0-105.4' - gray, mottled black and reddish brown, soft to hard, very fine sand, fresh, minor staining	R20: 13:30-13:50
			0			**Siltstone** 105.4-116.3' - dark reddish brown, very soft, fresh, with green banding, little sand, banding along bedding at 30 degrees 106.3' - green mottling, banding disappears, trace very fine sand 108.8' - heavy green mottling, laminated banding 110.0-115.0' - dark reddish brown, soft, 20-30% very fine sand 110.9-111.5' - black mottling	
	R20NQ 5 ft 108%	100	0				
			0				At 113.5': R-Scale = R4
			0				
115	115.0						
154.7							

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-43	SHEET 7 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 : 18.6 ft bgs

START : 6/13/06 10:00

END : 6/19/06 13:10

LOGGER : JV

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			111.8-112.2' - sandy zone, very fine to fine 114.0' - thin (1/8) green sand, laminated, 60 degree bedding 114.7-115.0' - sand content increases to 50%	R21: 14:15-14:35
			0			**Sandstone** 116.3-118.4' - weak red, greenish gray mottling, hard, very fine sand to fine sand, fresh, medium bedding	
	R21NQ 5 ft 98%	98	0				
			1	118.4' - Contact between siltstone and sandstone, 30 deg, sharp		**Siltstone** 118.4-120.0' - greenish black, fresh, banded black and dark gray; very soft, 20-30% very fine sand, laminated bedding at 30 degrees	SC-5 collected 118.4-119.1'
			0	119.2' - Contact between siltstone and sandstone, sharp			At 119.5': R-Scale = R3-R4
120 149.7	120.0		0			**Sandstone** 120.0-121.1' - greenish gray, mottled white and greenish gray, soft, very fine sand to fine sand, fresh, red and green banding with silt, laminated to thin banding at 30 degrees	R22: 14:55-15:15
			1				
	R22NQ 5 ft 100%	100	0			**Siltstone** At 121.1' - very dark greenish gray, very soft, fresh, bed contact at 30 degrees 121.4' - reddish brown and yellowish brown 1/8 bands	At 122.0': R-Scale = R3
			0				
			0			**Siltstone** 121.8-125.2' - dark reddish brown, green mottling, very soft, fresh 124.2' - sandy zone, very fine sand at 30 degrees 0.05' wide 124.5' - sandy zone, very fine sand at 30 degrees 0.05' wide 125.0-125.2' - dusky red, mottled black and green, soft, 20-30% very fine sand, black mottling, stained	At 124.0': R-Scale = R3-R4
125 144.7	125.0		0				R23: No time recorded
			0				
	R23NQ 5 ft 98%	92	1	127.2' - Fracture, 65 deg, smooth, undulating		**Sandstone** 125.2-125.3' - dark greenish gray, fresh, very fine sandy lens	At 127.0': R-Scale = R3-R4
			0			**Siltstone** 125.3-130.0' - dusky red, mottled black and green, soft, fresh, 20-30% very fine sand, black mottling, stained 128.0-130.0' - increased sand content to 40% 129.8-130.0' - sandy zone	At 129.0': R-Scale = R3-R4
130 139.7	130.0		0				R24: 08:30-08:45
			0			**Sandstone** 130.0-135.9' - light greenish gray, hard, fine sand to medium sand, fresh 131.0-131.2' - dark reddish brown, fine grained silty lens, very soft to soft, very fine sand 131.4' - black sandy clast 1/4 diameter 131.6-133.2' - some staining 133.2-133.6' - 30 degree bedding, 0.04' thick greenish zone at bottom 134.0-134.6' - bedding at 30 degrees	At 131.0': R-Scale = R3-R4
	R24NQ 5 ft 103%	100	0				
			0				At 133.0': R-Scale = R4
			0				
135 134.7	135.0						

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-43 SHEET 8 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 : 18.6 ft bgs

START : 6/13/06 10:00

END : 6/19/06 13:10

LOGGER : JV

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION — DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	LITHOLOGY — ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	COMMENTS — SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
			1			135.1' - becomes finer with depth	R25: 09:08-09:23
			0	135.9' - Contact between siltstone and sandstone, 30 deg, sharp		**Siltstone** At 135.9' - dark reddish brown, mottled greenish gray and black, very soft, fresh, trace very fine sand, contact at 30 degrees	At 136.0': R-Scale = R4
	R25NQ 5 ft 94%	94	0				
			0			138.3-138.9' - small (1/8) white clasts	
			0			139.0' - sandy lens, red brown silt, medium grained gradational contact with siltstone	
140 129.7	140.0					140.0-145.0' - dusky red, mottled green and black, fine grained 140.5-140.6' - mottled greenish gray	R26: 09:34-10:04
			0				
			0				
	R26NQ 5 ft 105%	100	0			142.0-142.4' - heavily mottled green	
			0				At 143.0': R-Scale = R4
			0				
145 124.7	145.0					144.8' - greenish gray linear feature 0.6' long at a 55 degree angle 145.0-150.0' - weak red, trace very fine sand	R27: 12:35-13:18
			0				
			0			145.3-145.4' - some staining 146.2' - 0.15' long horizontal green stringer with some very fine sand and silt (<1/8' wide)	
	R27NQ 5 ft 103%	100	0			146.5' - heavy green mottling 147.5-148.8' - 1/16 diameter black clasts	At 147.3': R-Scale = R4 SC-6 collected 148.7-150.0' First water level = 18.6' bgs taken 6/20/06 at 08:52; second water level = 19.0' bgs taken 6/21/06 at 07:50 R-Scale performed after drilling on stored samples
			0				
			0				
150 119.7	150.0					149.6-150.0' - white fine to medium grained	
						Bottom of Boring at 150.0 ft bgs on 6/19/06 13:10	
155 114.7							

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
DRILLING EQUIPMENT AND METHOD : CME-750, Tricone Bit, 24" Split Spoon, and 140 lb. Automatic Hammer
ORIENTATION : Vertical
WATER LEVELS : 14.9 ft bgs
START : 6/28/06 08:46
END : 6/29/06 11:17
LOGGER : JS

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
266.3	0.0				**Topsoil** 0.0-0.1' - Topsoil, grass		
		18.0	SS1SS	2-2-2-3 (4)	**Silty Sand (SM)** 0.1-0.7' - brown, moist, very loose, low to medium plasticity, 30-40% fines, fine to medium sand, more fines with depth		
	2.0				**Fat Clay (CH)** 0.7-1.5' - yellow, moist, high plasticity, none dilatancy, firmer with depth, 20-25% fine sand with depth		
	2.5	19.0	SS2SS	5-9-11-13 (20)	**Clay With Sand (CL)** 2.5-2.9' - reddish brown, some whitish mottling (1 zone), moist, stiff, low to medium plasticity, slow to rapid dilatancy, 25% very fine to fine sand, micaceous		PT-1 collected 3.0-5.0'
5	5.0				**Sandy Lean Clay (CL)** 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% clay, up to 30% very fine to fine sand in clay; interfingered, gradational		
261.3		8.0	SS3SS	7-50/5.5 (50/5.5")	**Clay (CL)** 5.0-5.7' - reddish brown, thready greenish-white mottling, moist, stiff, low to medium plasticity, slow to rapid dilatancy, very hard in last 1, 15% very fine sand		
	7.0				**Clay (CL)** 7.5-7.9' - reddish brown, thready greenish-white mottling, moist, hard, low to medium plasticity, slow to rapid dilatancy, 15% very fine sand		
	7.5	5.0	SS4SS	50/3.5 (50/3.5")			
	9.5						Drillers Remark: Drilled to 11.0' bgs before beginning rock coring
10							
256.3	10.0	3.0	SS5SS		**Clay (CL)**		Soil sampling completed at 10:00 on 6/20/06
	10.2			50/2 (50/2")	10.0-10.2' - reddish brown, thready greenish-white mottling, moist, hard, low to medium plasticity, slow to rapid dilatancy, 15% very fine sand		
	11.0				Begin Rock Coring at 11.0 ft bgs See the next sheet for the rock core log		
15							
251.3							
20							

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 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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	11.0		0			**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
	R1NQ 5 ft 100%	86	0				
			1	13.4' - Fractures, 70 deg, undulating, several parallel healed fractures, visible			
			1				
15 251.3			10+	14.7' - Fracture, 30 deg, undulating, hairline fracture			At 14.9': R-Scale = R1-R2
	16.0					15.4-15.5' - clay seam 15.7-15.8' - clay seam, very soft, friable	
			1			**Sandstone** At 15.8' - light gray to very pale brown, mottled white, black, red, yellow, poorly sorted, fine sand to coarse sand 15.8-16.0' - moderately weathered 16.0-19.1' - light reddish brown, mottled white, black, red, pink, clear 16.0-19.2' - slightly weathered 16.4' - gray-brown silty lens 16.7' - very soft to soft, becomes finer grained, fine to medium grained sand; medium grained, 10% silt 17.9' - becomes heavily mottled with gray and brown; grayish brown, very soft, very fine to fine sand, 25% silt 18.7' - soft, medium to coarse grained	R2: 11:03-11:19 At 17.0': R-Scale = R2
	R2NQ 5 ft 100%	92	0	16.6' - Fracture, 60 deg, rough, undulating, black stains			
			0				
			10+	19.1-19.2' - Contact between siltstone and sandstone, at contact between matrices; clay seam			
20 246.3			0	19.3-19.8' - Fracture, vertical			At 19.5': R-Scale = R2
	21.0						
			10+				R3: 11:32-11:47 SC-2 collected 21.5-22.5'
			0			**Siltstone** At 19.2' - dark reddish brown, mottled green, purple, fine grained with little to no sand 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 sand/coarse silt in last 1 21.4-21.5' - clay seam, very soft 23.9-25.0' - reddish gray, heavily mottled green, yellow, and purple, moderately weathered, clay-like rock - very soft; would be very stiff on clay consistency table 23.9-25.0' - clay seam 25.0-26.0' - mottled purple and green, slightly weathered, 30% very fine sand/coarse silt, still very soft, but harder that 21.0-23.85 26.0-27.0' - mottled green, purple, yellow, and black, very soft to soft, slightly weathered, very fine to fine grained, harder with depth 27.0-31.0' - mottled purple, green, and black, slightly weathered	
	R3NQ 5 ft 104%	54	0				At 23.3': R-Scale = R2-R3
			10+				SC-1 collected 24.4-24.7'
25 241.3			10+	25.1' - Fracture, horizontal, smooth, undulating 25.3-25.4' - Fracture, very weak rock, bedrock flakes and pieces			
	26.0						
			4	25.5' - Fracture, 5 deg, smooth, undulating, black stains, tight fit 25.8' - Fracture, 5 deg, smooth, undulating, black stains, tight fit			R4: 12:22-12:44 At 26.0-26.3' R-Scale = R0-R1
			0	26.0-26.3' - Fractures (4), horizontal, smooth, undulating, some black staining			At 26.6': R-Scale = R3-R4
	R4NQ 5 ft 100%	96	0				
			0				
30 236.3			0				At 30.0' R-Scale = R3-R4
	31.0						

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-44 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

WATER LEVELS : 14.9 ft bgs

START : 6/28/06 08:46

END : 6/29/06 11:17

LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (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% very fine sand 31.0-46.0' - fresh	R5: 12:58-13:16
			0				
	R5NQ 5 ft 98%	98	0				At 32.9': R-Scale = R3
			0				SC-3 collected 34.2-35.3'
35 231.3			2			35.3-35.6' - fine to medium grained sand	
	36.0						
			2	36.1' - Fracture, horizontal, undulating, tightly healed			R6: 13:30-13:50
			1	36.3' - Fracture, 50 deg, undulating, tightly healed 37.2' - Fracture, horizontal, undulating, long, tightly healed		37.3-41.0' - very fine grained with no to very little sand	
	R6NQ 5 ft 100%	100	0	37.5-41.0' - Fractures, capillary microfractures			At 38.1': R-Scale = R3
			0				
40 226.3			0			39.7-41.0' - scattered medium sand-sized clasts, rounded, dark purple; 5%; harder than matrix	
	41.0						
			0				R7: 14:01-14:17
			10+	42.3' - Fracture, 50 deg, undulating, partial fracture, ~0.0002' wide		42.1' - mottled purple, dark yellow, and green, very soft, very fine grained with little sand	At 42.0': R-Scale = R3-R4
	R7NQ 5 ft 100%	80	3	42.4-42.8' - Fracture zone, rough, stepped, some very hard white infilling, green and purple staining			
			1	42.8-43.1' - Fracture zone (3), 60 deg and 80 deg, rough, undulating, some very hard white infilling, green and purple staining			
45 221.3			3	43.4' - Fracture, 70 deg 44.8' - Fracture, 40 deg, smooth, undulating, some white infilling, green and purple staining		45.2-45.3' - clay seam, softer rock lens	
	46.0						
			10+	45.4' - Fracture, horizontal, smooth, undulating, 0.03' relief, partially slickensided (~50% of surface); bedrock fragments		**Siltstone** 46.0-46.9' - dark gray, fresh, very fine grained, lighter and darker laminations	R8: 14:40-15:01
			0	46.0-46.9' - Fracture zone, horizontal, smooth, undulating, some slickensided surfaces, 0.1' thick gray clay seam		**Siltstone** 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
	R8NQ 5 ft 96%	80	0				
			1				
50 216.3			1			49.9-50.3' - green mottling, fine grained	At 49.6': R-Scale = R3-R4
	51.0						

PROJECT NUMBER:	BORING 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
WATER LEVELS : 14.9 ft bgs
START : 6/28/06 08:46
END : 6/29/06 11:17
LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND 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 sand to fine sand, fresh, 35% silt 51.1-51.6' - very dark gray, rust, white, gray, black mottling, interbedded contact over ~0.1'; fine grained to 0.0002'	R9: 15:13-15:21
			0				At 52.1': R-Scale = R3-R4
	R9NQ 5 ft 100%	100	0				
			0			**Siltstone** 51.6-51.8' - dark reddish brown, green mottling, soft, fresh, fine grained	At 54.5': R-Scale = R3-R4
55 211.3			1	55.2' - Contact between sandstones, smooth to rough, undulating		**Sandstone** 51.8-55.2' - gray, rust mottling, soft to hard, poorly sorted, fresh, abrupt contact at 20 degrees; multi-colored grains, 60% silica, 40% feldspar, fine to coarse grains	
	56.0						R10: 15:37-15:50
			0			**Siltstone** 55.2-58.1' - dark reddish brown, trace green mottling, soft, fresh, fine grained, 15% very fine sand	
			0				At 57.7': R-Scale = R3-R4
	R10NQ 5 ft 100%	100	0			56.0-58.1' - increasing sand content with depth	
			0			**Sandstone** 58.1-60.3' - dark reddish brown, little mottling, very fine sand to fine sand, fresh, up to 25% silt, coarser with depth	At 59.2': R-Scale = R3-R4
60 206.3			1	60.3' - Contact between siltstone and sandstone, horizontal, rough, undulating		59.8-60.3' - soft to hard, 35% medium grained sand	
	61.0						
	R11NQ 1 ft 100%	50	2	61.5' - Fracture, horizontal, smooth, stepped, 0.03' relief		**Siltstone** 60.3-74.0' - very dark gray to dark brown, mottled dark green and yellow, soft, fresh, very fine grained with trace to 10% medium sand grains, angular	R11: 08:08-08:29 on 06/29/06
	62.0						
			1	61.9' - Fracture, horizontal, smooth, stepped, 0.02' relief		61.0' - last 0.5' grayer	
			0	62.3' - Fracture, horizontal, smooth, undulating, 0.05' clay infilling		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 62.45-65.55'	At 63.6': R-Scale = R3-R4
	R12NQ 4 ft 98%	90	0				
65 201.3			0				SC-4 collected 64.7-65.9'
	66.0						
			10+	66.2' - Fracture, horizontal, smooth, undulating 66.5-66.6' - Fracture zone, horizontal and 20 deg, rough, undulating, bedrock fragments		66.0-67.6' - dark yellow and faint green mottling, soft	R13: 08:44-09:05
			2	67.3' - Fracture, horizontal, smooth, undulating 67.6' - Fracture, horizontal, smooth, undulating		67.6' - reddish brown, mottled green, purple and yellow, 25% very fine sand	
	R13NQ 5 ft 100%	84	0				At 68.3': R-Scale = R3-R4
			0			69.2-69.8' - trace to no sand	
70 196.3			0			69.8-71.0' - Trace medium white sand grains	
	71.0						

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-44 SHEET 5 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

WATER LEVELS : 14.9 ft bgs

START : 6/28/06 08:46

END : 6/29/06 11:17

LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			71.0-74.0' - very fine to fine sand content increasing with depth	R14: 09:25-09:45
			0				At 71.6': R-Scale = R3-R4
	R14NQ 5 ft 102%	95	0				
			0			**Sandstone** At 74.0' - brown, mottled green, soft, fresh, very fine to medium sand	
75 191.3							At 75.1': R-Scale = R3-R4
			2	75.7' - Fracture, horizontal, rough, undulating		75.5-77.4' - dark gray to brown, very thin to thin bedding, fine sand to coarse sand, well sorted	
76.0				76.0' - Fracture, horizontal, rough, undulating			R15: 10:03-10:20
			0				
			1	77.1-77.4' - Fracture, 95 deg, rough, undulating		**Siltstone** 77.4-77.5' - dark gray, soft, fresh, very fine grained	At 77.6': R-Scale = R3-R4
	R15NQ 5 ft 100%	98	0	77.4-77.6' - Fracture, 65 deg, rough, undulating, compound fractures		**Sandstone** 77.5-77.6' - gray, soft to hard, very thin bedding, fine sand to coarse sand, subangular to subrounded, well sorted, fresh	
			0				
80 186.3							At 79.9': R-Scale = R3-R4
			0			**Siltstone** 77.6-77.8' - dark gray, soft, fresh, very fine grained	
81.0				80.8' - Contact between siltstone and sandstone, sharp		**Sandstone** At 77.8' - gray, rust colored mottling, very fine sand to medium sand, well sorted, fresh 79.8-80.8' - coarsens	R16: 10:32-10:56
			0				SC-5 collected 81.8-83.0'
			0			**Siltstone** 80.8-87.0' - dark reddish brown, green mottling, soft, fresh, 5-40% very fine to fine sand, varying amounts	
	R16NQ 5 ft 100%	94	0				At 84.6': R-Scale = R3
			0				R17: 11:13-11:17
85 181.3							At 86.5': R-Scale = R3-R4
			2	85.2' - Fracture, horizontal, smooth, undulating 85.2' - Fracture, horizontal, rough, undulating, 0.01' thick clay infilling			First water level = 14.9' bgs taken 6/29/06 at 14:35; second water level = 15.25' bgs taken 6/30/06 at 12:30
86.0							
87.0	R17NQ 1 ft 100%	100	0				R-Scale performed after drilling on stored samples
						Bottom of Boring at 87.0 ft bgs on 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

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

ORIENTATION : Vertical

WATER LEVELS : 14.5 ft bgs

START : 8/3/06 13:12

END : 8/4/06 12:25

LOGGER : JS/LH

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
265.9	0.0				**Grass And Gravel** 0.0-0.2' - fine to coarse gravel, angular		
		10.0	SS1SS	7-12-12-50/4 (24)	**Sandy Lean Clay (CL)** 0.2-0.7' - reddish brown, dry, very stiff, low to medium plasticity, slow dilatancy, 25-30% very fine to medium sand, reworked native		Very friable Drillers Remark: Moved over 4' North and began rock boring
	2.0						
	2.5	3.0	SS2SS	50/3 (50/3")	**Lean Clay (CL)** 0.7-0.8' - red, dry, hard, low to medium plasticity, slow dilatancy, 10-15% very fine to fine sand		Soil sampling completed at 13:30 on 8/3/06
	2.8				**Lean Clay (CL)** 2.5-2.8' - red, dry, hard, low to medium plasticity, slow dilatancy, 10-15% very fine to fine sand		
					Begin Rock Coring at 2.8 ft bgs See the next sheet for the rock core log		
5 260.9							
10 255.9							
15 250.9							
20							

PROJECT NUMBER:	BORING 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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	2.8						
	R1NQ 2.5 ft 100%	93*	2	2.8' - Fracture, 10 deg, smooth, undulating, 0.01 relief		**Siltstone** At 2.8' - dark reddish brown, 20% green mottling, soft, 30% white inclusions	Rock coring began on 8/3/06
			0			2.8-3.9' - moderately weathered	R1: No time recorded
			0			3.9-5.3' - heavy green and purple mottling, moderately weathered, fine grained with 10-15% very fine to fine sand,	At 3.0': R-Scale = R2
5 260.9	5.3						At 4.1': R-Scale = R1
			5	5.4' - Fracture, horizontal, smooth, stepped			R2: 14:35-14:44
				5.6' - Fracture, 50 deg, smooth, undulating, 15% black stains		5.3-10.3' - black mottling, very fine grained, 5-10 % very fine sand, soft, trace white inclusions, in first 0.3'	
			0	5.8' - Fracture, 5 deg, smooth, undulating, 40% black stains		5.3-16.4' - fresh	At 6.2': R-Scale = R1-R2
	R2NQ 5 ft 98%	94	2	5.9' - Fracture, 10 deg, smooth, undulating, 30-40% black stains			
				7.8-7.9' - Fractures (2), smooth, undulating, 25% black and gold stains			
			0				At 8.6': R-Scale = R1-R2
10 255.9	10.3		0				R3: Began at 14:50
			10+	10.7' - Fracture, 10 deg, smooth, undulating, <0.21' thick clay infilling		10.3-12.2' - trace black mottling, less red with depth, very soft with clay seams	
			10+			10.8-11.0' - clay seam, same color as bedrock	At 11.5': R-Scale = R1-R2
	R3NQ 5 ft 100%	69	2	12.2' - Fracture, horizontal, smooth, undulating, 0.25 thick clay infilling		11.8-11.9' - clay seam	
				12.5' - Fracture, 20 deg, smooth, undulating, 0.02' relief		12.0-12.1' - clay seam, 0.05' thick	
			2	12.8' - Fracture, 20 deg, rough, undulating, black stains, 0.01' relief, break in lense with up to 20% medium sand		12.8-15.3' - sand lenses, 10-30% very fine to medium sand, subangular to subrounded	At 13.5': R-Scale = R2
							At 14.0': R-Scale = R2
15 250.9	15.3		0	14.3-14.4' - Fractures, horizontal, hairline partial fractures with white, green and black mottling about 1-2 long		14.3-15.1' - black and green mottling, very fine to fine grained, ~12.5-15.3'	
						5-10% very fine sand/ coarse silt	
			0			15.3-15.4' - alternating beds, grades to sandstone lens	R4:15:25-15:33
						15.4-15.6' - 50% fine to medium to coarse sand	At 16.2': R-Scale = R2-R3
			0			15.4-16.4' - 0-45% very fine to medium sand, subangular to subrounded	
	R4NQ 5 ft 99%	98	0			15.6-16.0' - 20% black mottling, siltstone	At 17.9': R-Scale = R2-R3
			1	18.7' - Fracture, 70 deg, rough, undulating, 0.02' relief		**Sandstone** 16.4-17.0' - multi-colored, soft to hard, fine sand to coarse sand, subangular to subrounded, fresh, well graded, gradational contact, 2 siltstone lenses	
20 245.9	20.3		0				At 19.5': R-Scale = R2-R3
			1	20.4' - Fracture, horizontal, rough, undulating		**Siltstone** 17.0-17.2' - dark reddish brown, green mottling, soft, fresh, 20% thready green mottling, 30% white inclusions	R5: 15:38-15:45
			1	21.1-21.8' - Fracture, 70 deg, rough, undulating, yellow-orange stains in first 0.1', then 95% black stains			
	R5NQ						At 22.2': R-Scale = R2-R4

PROJECT NUMBER:	BORING NUMBER:	
338884	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

WATER LEVELS : 14.5 ft bgs

START : 8/3/06 13:12

END : 8/4/06 12:25

LOGGER : JS/LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	5 ft 102%	100	0			**Sandstone** 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 to well sorted	
			0				At 23.4': R-Scale = R2-R4
25			0			At 21.2' - interbedded siltstone, sandstone, and conglomerate lenses, fine to coarse grained sand, fine gravel, subrounded to subangular	
240.9	25.3						At 25.0': R-Scale = R2-R4
			10+	25.3-25.8' - Fracture zone, horizontal, smooth, undulating, dry			R6: 16:20-16:30
			0			**Siltstone** At 25.8' - dark reddish brown, 15% purple, green, and white mottling, fresh, very fine to fine grained, trace to 15% very fine sand to coarse silt, soft	At 26.5': R-Scale = R2
	R6NQ 5 ft 96%	92	2	27.3' - Fracture, horizontal, rough, undulating			
				28.0' - Fracture, horizontal, smooth, planar			
			0				At 28.9': R-Scale = R2
30			0				
235.9	30.3						
			2	30.5' - Fracture, horizontal, smooth, planar		30.3-46.1' - mottled greenish gray and reddish black, soft	R7: 08:08-08:17 on 08/04/06
				30.6' - Fracture, horizontal, smooth, planar			
			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			0				
230.9	35.3						R8: 08:23-08:32
			0				
			0				
	R8NQ 5 ft 99%	99	0				
			0				
40			0			39.4-40.3' - highly mottled, very soft	
225.9	40.3						
			0			40.3-41.5' - mottled olive	R9: 08:38-08:46
			2	41.5' - Fracture, horizontal, rough, planar		41.5-51.8' - laminated bedding, laminated bedding	
				41.8' - Fracture, horizontal, rough, undulating, black stains		41.6-41.7' - clay seam, very soft, friable, some siltstone in it	
	R9NQ						

PROJECT NUMBER:	BORING 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 LEVELS : 14.5 ft bgs

START : 8/3/06 13:12

END : 8/4/06 12:25

LOGGER : JS/LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD 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, fresh, sandstone lense, very fine grained, subangular to subrounded, well sorted	
45 220.9	45.3		0				
			0				R10: 09:10-09:17
			0			46.0-46.1' - grades to sandstone 46.1-54.2' - very dark gray, white, dark greenish gray, and pale red, soft to hard, laminated to medium bedding, very fine sand to coarse sand, poorly sorted to well sorted	
	R10NQ 5 ft 102%	100	0			46.1-47.7' - mottled dark reddish brown	At 47.7': R-Scale = R2
			0			46.4-48.7' - laminated bedding, laminated siltstone beds	
50 215.9	50.3		0			48.8-48.8' - shale bed, dark gray with 20% sand	
			0			50.3-54.2' - begins to coarsen with depth	R11: 09:23-09:28
			0				At 51.5': R-Scale = R1
	R11NQ 5 ft 98%	98	0				
			0				
			0	54.2' - Contact between siltstone and sandstone, 30 deg, smooth, undulating, tightly healed		**Siltstone** At 54.2' - dark reddish brown, mottled greenish gray and reddish black, soft, fresh, laminated, fine grained sandstone beds alternating and on a 30-60 degree angle	
55 210.9	55.3		0				R12: 10:03-10:11
			0				
			0				
	R12NQ 5 ft 100%	89	0				At 58.0' R-Scale = R1 (performed at later date)
			0				
60 205.9	60.3		2	59.8' - Fracture, 10 deg, rough, undulating, black stains		59.5-60.3' - gravel sized white clasts	
			2	60.1' - Fracture, 10 deg, rough, slickensided, black stains 60.4' - Fracture, horizontal, rough, undulating		60.3-70.3' - almost completely mottled reddish black	R13: 10:17-10:26
			0	60.5' - Fracture, 30 deg, rough, undulating			
	R13NQ						

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-45	SHEET 5 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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (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 (performed at later date)
			0				
65 200.9	65.3		0				
			0				R14: 11:30-11:40
			0				
	R14NQ 5 ft 102%	100	0				At 67.7' R-Scale = R2-R3 (performed at later date)
			0				
70 195.9	70.3		0				
			0			70.3-73.3' - trace very fine to fine sand	R15: 11:46-11:51
			0				
	R15NQ 5 ft 99%	99	0				At 72.2' R-Scale = R3-R4 (performed at later date)
			0			**Sandstone** 73.3-76.3' - dark reddish gray and white, soft to hard, very fine sand to coarse sand, fresh, finer grained beds and coarser grained beds, siltstone lenses in coarser material, beds on 20 degree angle	SC-1 collected 73.3-74.2'
75 190.9	75.3		0				R16: 12:00-12:07
			0				
			3	76.3' - Contact between siltstone and sandstone, horizontal, rough, undulating, tightly healed		**Siltstone** 76.3-85.3' - dark reddish brown, mottled greenish gray and reddish black, soft, fresh	At 76.2' R-Scale = R4 (performed at later date)
	R16NQ 5 ft 100%	93	0	76.4' - Fractures (2), horizontal and 20 deg, smooth, undulating		76.3-78.7' - gravel sized white clasts	At 77.0' R-Scale = R2-R3 (performed at later date)
			0	76.6' - Fracture, horizontal, rough, undulating			
80 185.9	80.3		0				
			0				R17: 12:14-12:25
			0				
	R17NQ						At 81.6' R-Scale = R2-R3 (performed at later date)

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-45 SHEET 6 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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	5 ft 104%	100	0				First water level = 14.5' bgs taken 8/4/06 at 16:20; second water level = 11.4' bgs taken 8/7/06 at 09:45 R-Scale performed during rock core logging
			0				
85 180.9			0				
	85.3		XXX			Bottom of Boring at 85.3 ft bgs on 8/4/06 12:25	Total depth was adjusted for Recovery for last core run
90 175.9							
95 170.9							
100 165.9							

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-46 SHEET 1 OF 5

SOIL BORING 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
DRILLING EQUIPMENT AND METHOD : CME-750, 2-15/16 Tricone Bit, 24" Split Spoon, and 140 lb. Automatic Hammer
ORIENTATION : Vertical
WATER LEVELS : 19.8 ft bgs
START : 8/7/06 08:58
END : 8/8/06 16:24
LOGGER : AT/EM/LH

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
268.0	0.0				**Sandy Silt (ML)** 0.0-0.4' - brown, dry to moist, soft, 40% very fine to fine sand		
	2.0	8.4	SS1SS	3-4-4-4 (8)	**Clay (CL)** 0.4-0.7' - brownish yellow, dry to moist, soft, low to medium plasticity, slow to rapid dilatancy		
	2.5				**Clay (CL)** 2.5-2.8' - brownish yellow, moist, soft, low to medium plasticity, slow to rapid dilatancy		
	4.5	15.0	SS2SS	2-5-13-26 (18)	**Clay (CL)** 2.5-3.8' - reddish brown, mottled green and purple, dry to moist, stiff to very stiff, low to medium plasticity, slow to rapid dilatancy		
5							
263.0	5.0				**Clay (CL)** 5.0-5.9' - reddish brown, mottled green and purple, dry to moist, hard, low to medium plasticity, slow to rapid dilatancy		
	7.0	10.2	SS3SS	36-50/5 (50/5")			
	7.5				**Silty Sand (SM)** 7.5-8.1' - very dark gray, dry to moist, hard, 30% silt; black organics throughout sample		
	9.5	6.0	SS4SS	50 (50")			
10							
258.0	10.0				**Clay (CL)** 10.0-11.1' - brownish yellow, moist, hard, low to medium plasticity, slow to rapid dilatancy		
	12.0	13.2	SS5SS	22-25-50/3.75 (75/9.75")			
	12.5				**Clay (CL)** 12.5-12.9' - brownish yellow, moist to dry, hard, low to medium plasticity, slow to rapid dilatancy		
	14.5	3.5	SS6SS	50/3.5 (50/3.5")			
15							Soil sampling completed at 12:50 on 8/7/06
253.0	15.0 15.2	2.0	SS7SS	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							

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-46 SHEET 2 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 : 19.8 ft bgs

START : 8/7/06 08:58

END : 8/8/06 16:24

LOGGER : AT/EM/LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	15.2		1	15.6' - Fracture, horizontal, smooth, planar, black stains		**Siltstone** At 15.2' - dark reddish brown, mottled green and purple, soft to hard, fresh to slightly weathered, 15% very fine to fine sand; black thin linear features (organics) 15.6-15.8' - clay seam	Rock coring began at 12:58 on 8/7/06 R1: No time recorded on 08/07/06.
	R1NQ 4.8 ft 94%	64	1				
			0				At 18.1': R-Scale = R1 (performed at later date)
			0				
20			0				
248.0	20.0					20.0-23.4' - mottled reddish black, very soft, laminated bedding	R2: 08:50-08:59 on 08/08/06.
			1	20.6' - Fracture, horizontal, smooth, planar			
			1	21.1' - Fracture, horizontal, smooth, undulating			At 21.6': R-Scale = R2
	R2NQ 5 ft 103%	100	1	22.1-22.3' - Fracture, 60 deg, rough, undulating			
			2	23.1' - Fracture (2), horizontal and 45 deg, rough, undulating, black stains		**Sandstone** 23.4-27.6' - white, very dark gray, and dark greenish gray, very soft, laminated to medium bedding, very fine sand to medium sand, subangular to subrounded, poorly sorted, fresh to slightly weathered, stained dark reddish brown in bands on 20-50 degree angles and horizontal, 0-40% silt/clay 24.6-24.9' - mottled greenish gray, siltstone lense 26.1' - 40-60% silt/clay and greenish gray beds/banding on 20-30 degree angles	
			1	23.4' - Contact between siltstone and sandstone, horizontal and 45 deg, rough, undulating, black stains			
25	25.0			24.6' - Fracture, horizontal, rough, planar, beginning of top of siltstone lens in sandstone			
243.0			0				R3: 09:07-09:15
			0				At 26.0': R-Scale = R1
	R3NQ 5 ft 104%	49	1	27.6' - Contact between siltstone and sandstone, 20 deg, smooth, planar			
			1			**Siltstone** At 27.5' - greenish gray, yellowish brown, dark reddish brown, very soft, some laminated beds 27.6-30.0' - highly weathered 28.7-29.0' - clay seam 29.2-29.4' - hard 29.6-32.1' - 0-20% very fine sand 30.0-35.0' - mottled reddish black, very soft to soft, fresh, no laminations	
			2	29.3' - Fracture, horizontal, rough, undulating, black stains			
30	30.0			29.6' - Fracture, 10 deg, rough, planar			
238.0			2	30.5' - Fracture, 10 deg, rough, undulating			R4: 09:24-09:36
			0	30.8' - Fracture, horizontal, smooth, undulating			
	R4NQ 5 ft 98%	95	2	32.3-32.4' - Fracture (2), 20 deg, rough, planar			
			0				
			0				At 34.4': R-Scale = R3
35	35.0						

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-46 SHEET 3 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 : 19.8 ft bgs

START : 8/7/06 08:58

END : 8/8/06 16:24

LOGGER : AT/EM/LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (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
			1	36.8' - Contact between siltstone and sandstone, 30 deg, rough, undulating		**Sandstone**	
	R5NQ 5 ft 101%	99	0			36.8-41.4' - very dark gray, white, and pink, soft to hard, very fine sand to medium sand, angular to subrounded, well sorted, fresh, coarsens with depth	
			0			36.8-38.4' - 0-30% silt	At 38.6': R-Scale = R2
40			1	39.2-39.4' - Fracture, 60 deg, rough, undulating, brown stains			
228.0	40.0						
			0			40.0-41.4' - beds on 20 degree angle	R6: 10:12-10:23
			2	41.4' - Contact between siltstone and sandstone, 20 deg, rough, undulating, black stains		41.0' - laminated, black, shale bed 41.1' - laminated, black, shale bed	
	R6NQ 5 ft 102%	96	3	41.5' - Fracture, 20 deg, smooth, planar 41.9-42.3' - Fractures (4), rough, undulating, light brown stains and silt, (2) horizontal, (1) 70 deg, (1) 60 deg		**Shale** 41.4-41.6' - greenish gray, very soft, laminated bedding, fresh, 20 degree bedding	
			0			**Siltstone** 41.6-45.3' - dark reddish brown, mottled greenish gray and reddish black, very soft to soft, fresh	At 43.8': R-Scale = R3
45			0			42.3-45.0' - 0-10% very fine to fine sand	
223.0	45.0						R7: 10:35-10:47
			0			**Sandstone** 45.3-52.0' - dark greenish gray and white, soft to hard, laminated to medium bedding, very fine sand to coarse sand, angular to subrounded, fresh, poorly sorted to well sorted	
			0				At 46.2': R-Scale = R3
	R7NQ 5 ft 99%	99	0			45.3-45.8' - stained dark reddish brown	
			1	48.1' - Fracture, 10 deg, smooth, planar		47.6-48.1' - beds on 20 degree angle; 0-10% fine gravel 48.1-48.2' - siltstone lens (0.07' thick)	
			0			48.7-50.0' - stained dark reddish brown	SC-1 collected 48.1-49.2'
50						49.4-49.9' - trace gravel	
218.0	50.0					49.5' - gravel sized siltstone clast that is red and black	R8: 10:57-11:17
			1			50.0' - becomes finer with depth	
			2	51.0' - Fracture, 10 deg, rough, undulating 51.3' - Fracture, horizontal, rough, undulating			
	R8NQ 5 ft 91%	56	4	52.0-52.1' - Contact between siltstone and sandstone, horizontal, rough, undulating, clay is very soft, friable, 0.05' thick		**Siltstone** 52.0-54.2' - dark greenish gray, very dark gray and gray, soft, laminated bedding	At 52.3': R-Scale = R3-R3.5
			2	52.5' - Fracture, 20 deg, smooth, undulating 52.7' - Fracture, 20 deg, smooth, undulating		52.0-53.1' - fresh	
			1	53.0' - Fracture, 20 deg, slickensided, undulating		53.1-54.2' - highly weathered	
55	55.0			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	

PROJECT NUMBER:	BORING 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 : 19.8 ft bgs

START : 8/7/06 08:58

END : 8/8/06 16:24

LOGGER : AT/EM/LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (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**	R9: 12:55-13:10
			0	55.2' - Fracture, horizontal, smooth, planar		At 54.2' - dark reddish brown, soft, fresh	
			0	55.5' - Fractures (2), horizontal, smooth, planar		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
			0				
60 208.0	60.0						
			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
			0			60.0-60.5' - very fine to fine sand seam	
	R10NQ 5 ft 101%	100	0			62.3-62.9' - fine gravel to coarse sand sized reddish black clasts	At 62.6': R-Scale = R1
			0			62.9-65.0' - laminated bedding	
			0				
65 203.0	65.0						
			1	65.4-65.7' - Fracture, 60 deg, smooth, undulating, greenish gray and black stains			R11: 13:57-14:23
			0				
	R11NQ 5 ft 97%	95	0			67.4-70.0' - mottled olive	At 66.7': R-Scale = R2-R3
			2				
			2	68.8' - Fractures (2), horizontal and 45 deg, smooth, planar 69.3' - Fracture, horizontal, rough, planar			
70 198.0	70.0			69.8' - Fracture, 20 deg, rough, undulating		70.0-71.0' - laminated bedding	R12: 14:33-14:53
			1				
			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
			0				SC-2 collected 70.0-71.0'
75	75.0						

PROJECT NUMBER: 338884	BORING NUMBER: BPA-46 SHEET 5 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 : 19.8 ft bgs

START : 8/7/06 08:58

END : 8/8/06 16:24

LOGGER : AT/EM/LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION — DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	LITHOLOGY — ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	COMMENTS — 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
			1				
			1	78.9' - Fracture, horizontal, rough, planar, few black stains			
80	80.0			79.2' - Fracture, horizontal, rough, planar, few black stains			
188.0			0				R14: 15:38-16:05
			0			81.0-81.6' - grades to sandstone	
	R14NQ 5 ft 108%	100	1			**Sandstone** 81.6-85.7' - very dark gray and white, soft to hard, thin to medium bedding, very fine sand to medium sand, subrounded to rounded, well sorted	At 82.4': R-Scale = R4
			0	83.0-83.2' - Fracture, 60 deg, rough, undulating		81.6-85.0' - fresh	
			0			81.6-82.8' - stained dark reddish brown	R15: 16:16-16:24
85	85.0					83.3-84.8' - siltstone lense	
183.0						85.0-85.7' - moderately weathered, red laminated beds on irregular angles	First water level = 19.8' bgs taken 8/10/06 at 11:59
	R15NQ 2 ft 115%	100*	0			**Siltstone** 85.7-86.3' - dark greenish gray, very dark gray and gray, soft, moderately weathered	
			10+	86.3-86.4' - Fracture zone, smooth, undulating 86.6' - Fracture, 20 deg, rough, undulating			R-Scale performed during rock core logging
	87.0					**Siltstone** 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: 338884	BORING NUMBER: 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
WATER LEVELS : ---
START : 12/8/06 08:20
END : 12/14/06 10:03
LOGGER : EM/JS

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
264.5							
	3.8	4.0	SS1SS	50/4 (50/4")	**Sandy Silt (ML)** 3.8-4.2' - reddish brown, greenish gray mottling, dry to moist, hard, low to medium plasticity		
5 259.5	5.8						Soil sampling completed at 09:45 on 12/8/06
	6.3 6.5	3.0	SS2SS	50/3 (50/3")	**Sandy Silt (ML)** 6.3-6.5' - reddish brown, greenish gray mottling, dry to moist, very hard, low to medium plasticity Begin Rock Coring at 6.5 ft bgs See the next sheet for the rock core log		
10 254.5							
15 249.5							
20							

PROJECT NUMBER:	BORING NUMBER:	
338884	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

WATER LEVELS : ---

START : 12/8/06 08:20

END : 12/14/06 10:03

LOGGER : EM/JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	RQD (%)	FRACTURES PER FOOT	DISCONTINUITIES — DESCRIPTION: DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	LITHOLOGY: ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	COMMENTS: SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
	6.5 R1HQ 0.5 ft 150%	80	1	6.6' - Fracture, horizontal, rough, undulating, 0.0003' relief		**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	Rock coring began at 10:15 on 12/8/06
	7.0			7.0' - Fracture, 40 deg, rough, undulating		7.0-10.0' - up to 25% fine sand	R1: No time recorded on 12/8/06
			1				At 6.6': R-Scale = R2
			3	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		8.6' - large pinkish white clasts, up to 0.1' thick	At 6.9': R-Scale = R2
	R2HQ 5 ft 96%	84	2	8.4' - Fracture, horizontal, rough, undulating 8.9' - Fracture, horizontal, rough, undulating		9.0-12.0' - small clasts up to 0.02' thick	R2: 11:00-11:28
10 254.5			0	9.0' - Fracture, horizontal, rough, undulating 9.1' - Fracture, horizontal, rough, undulating 9.3' - Fracture, horizontal, rough, undulating		10.5' - 0.1' thick dark bluish gray clast	At 9.9': R-Scale = R3
			2	11.3' - Fracture, 10 deg, rough, undulating 11.4' - Fracture, horizontal, rough, undulating		11.5' - large pinkish white clasts, up to 0.1' thick	At 11.0': R-Scale = R3.5-R4
	12.0					11.9' - large pinkish white clasts, up to 0.1' thick	R3: 12:17-12:41
			1	12.8' - Fracture, rough, undulating, loose fit		12.0-17.0' - reddish brown	At 12.9': R-Scale = R2
			0			12.0-15.0' - trace white clasts up to 1	
	R3HQ 5 ft 100%	94	1				At 14.2': R-Scale = R3
15 249.5			1	15.0' - Fracture, rough, undulating, black staining			
			1	15.6' - Fracture, horizontal and 5 deg, smooth, undulating, <0.0002' thick clay infilling			
	17.0						At 16.4': R-Scale = R3
			0	16.9' - Fracture, 60 deg, rough, undulating, <0.0002' thick white infilling, black staining		17.0-18.7' - 15% very fine sand	R4: 12:56-13:13 SC-12 collected 17.0-18.05'
			3				At 17.8': R-Scale = R2
	R4HQ 5 ft 104%	70	2	18.7-18.8' - Fracture zone, horizontal, smooth, undulating, 0.03' thick clay infilling			At 18.1': R-Scale = R3
20 244.5			10+	19.5' - Fracture, 10 deg, smooth, undulating, 0.03' thick clay infilling 19.8' - Fracture, 60 deg, smooth, undulating, black & yellow stains		19.5-22.0' - 10-15% very fine sand	
			2	20.1' - Fracture, 40 deg, smooth, undulating, <0.0001' thick white infilling, black stains 20.5-21.4' - Fracture zone, horizontal and			
	22.0					22.0-22.3' - 35% fine sand	At 22.0': R-Scale = R3
			1	80,40 deg, rough, undulating, black stains, smooth to rough, some with white clay coating (<0.0002'), ~0.1'-0.3' brown clay infill mixed with rock fragments		**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	R5: 13:24-13:53
			3	22.3' - Fracture, horizontal, smooth, undulating, 0.01' thick clay infilling, loose fit 22.5' - Fracture, 20 deg, rough, undulating, black stains, tight fit			At 23.9': R-Scale = R3
	R5HQ 5 ft 97%	55	2	23.3-23.4' - Fractures, horizontal, smooth, undulating, 0.01' thick clay infilling, loose fit		23.3-23.5' - siltstone lens	
25 239.5			4	24.4' - Fracture, horizontal, rough, undulating, <0.0002' thick clay infilling, smooth & stepped at contact (upper side)			At 25.7': R-Scale = R4

CH2MHILL

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

WATER LEVELS : ---

START : 12/8/06 08:20

END : 12/14/06 10:03

LOGGER : EM/JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			5	24.8' - Fracture, horizontal, smooth, stepped, <0.02' thick clay infilling, 0.05' relief (likely with in weak zone)		**Siltstone** 24.4-25.1' - dark reddish brown, very soft to soft, slightly weathered, very fine to fine grained, one fine to medium irregular sandstone lens 1 thick	R6: 14:08-14:45
	27.0					24.8-25.1' - clayey lenses	
			5	25.1' - Fracture, horizontal, smooth, stepped, <0.01' thick clay infilling, bedrock fragments to 1/2 in size			SC-1 collected 27.5-28.4'
			0	25.3' - Fracture, 80 deg, rough, undulating, black stains, 0.0007 relief			
	R6HQ 5 ft 95%	76*	2	25.9' - Fracture, horizontal, smooth, undulating, <0.0001' thick clay infilling, loose fit		**Sandstone** 25.1-26.7' - dusky red, hard, slightly weathered, very fine to fine grained, 10-20% silt	At 28.4': R-Scale = R3 At 28.5': R-Scale = R2
30 234.5			2	26.6' - Fractures, 50 deg, smooth, undulating 26.7-26.9' - Fractures (3), horizontal, smooth, undulating, little relief		**Siltstone** At 26.7' - dark reddish brown, very soft to soft, very fine to fine grained 26.7-27.0' - slightly weathered 27.0-29.4' - green mottling, moderately weathered, harder with depth, 0-15% very fine sand	
			0	27.5' - Fractures, horizontal, smooth, undulating			At 31.1': R-Scale = R2 At 31.3': R-Scale = R2
	32.0			29.4' - Fracture, horizontal and 5 deg, loose fit			R7: No time recorded
			0	30.0' - Fracture, horizontal, rough, undulating, 0.0009' relief, loose		**Conglomerate** 29.4-29.6' - soft, subrounded to rounded, moderately weathered, multicolored grains, siltstone matrix; 20-25% fine to coarse sand	
			0	30.1' - Fracture, 10 deg, smooth, undulating, loose fit 30.4' - Fracture, horizontal, smooth, planar			At 32.9': R-Scale = R2
	R7HQ 5 ft 106%	92	2				At 33.9': R-Scale = R3
35 229.5			0	34.7-34.9' - Fractures (3), horizontal and 5 deg, middle break at 5 deg. and has clay coating, <0.0002' thick, loose		**Siltstone** At 29.6' - dark reddish brown, green mottling, very soft to soft, very fine to fine grained; trace very fine sand 29.6-30.4' - moderately weathered 29.6-31.8' - trace white clasts to 1/2 29.7-29.9' - large clast 30.4-51.0' - fresh	
			4	36.5' - Fracture, 70 deg, rough, undulating, tight fit			
	37.0					32.0-37.0' - soft, fine sand increase to 10-15% in last 2'	R8: 08:24-08:51 on 12/9/2006
			1	36.7' - Fracture, horizontal and 5 deg, rough, undulating, tight fit		37.0-42.0' - dark reddish brown, trace purple and green mottling, soft, darker with depth; very fine sand increases with depth from 5-10% to 20%; scattered white irregular clasts to 3/8 with 5-10%, most in the last 2'	
			1	37.0' - Fracture, horizontal and 5 deg, rough, undulating 37.2' - Fracture, horizontal and 5 deg, rough, undulating			
	R8HQ 5 ft 100%	100	0	37.8' - Fracture, horizontal, smooth, undulating 38.8' - Fracture, horizontal and 5 deg, rough, undulating, tight fit			
40 224.5			0				
			0				At 41.0': R-Scale = R3 At 41.5': R-Scale = R3
	42.0					42.0-47.0' - trace purple and green mottling	R9: 09:13-09:48
			0			42.0-42.6' - 20-25% very fine sand with 0.2-0.3' thick very fine to fine irregular sand lens, light gray	At 42.7': R-Scale = R2-R3 Driller Remark: bit plugging up, mostly in last 2-3'
			4	43.4-43.4' - Fractures, horizontal, smooth, undulating		42.6-46.0' - trace sand	At 43.0': R-Scale = R2-R3
	R9HQ 5 ft 100%	70	3	43.7' - Fracture, horizontal, smooth, planar 43.9' - Fracture, horizontal, smooth, undulating, slickensided, over 60% of surfaces			
45 219.5			3	44.1' - Fracture, horizontal, smooth, undulating, slickensided over 10% of surface 44.3' - Fracture, horizontal, smooth, undulating 44.5' - Fracture, horizontal, smooth, undulating		46.0-47.0' - 20% very fine sand	SC-2 collected 44.5-45.3'

PROJECT NUMBER:	BORING NUMBER:	
338884	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

WATER LEVELS : ---

START : 12/8/06 08:20

END : 12/14/06 10:03

LOGGER : EM/JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			1	45.3' - Fracture, horizontal, rough, undulating, 0.0002-0.0003' relief			At 46.4': R-Scale = R3
47.0			1	45.8-45.9' - Fractures, horizontal and 5 deg, rough, undulating, ~1/4 of clay and chewed up rock fragments to medium to coarse sand size		47.0-51.0' - dark reddish gray to dark gray, soft, transition siltstone to sandstone (approximately 35% siltstone and 65% sandstone with silty matrix)	R10: 09:59-10:26
			2	46.0' - Fracture, 40 deg, slickensided, undulating			At 48.2': R-Scale = R3
	R10HQ 5 ft 99%	93	0	47.2' - Fracture, horizontal, rough, planar 47.9' - Fracture, horizontal, 2 long hairlike fracture			At 48.4': R-Scale = R3
50 214.5			0	48.7' - Fracture, 30 deg, rough, undulating, <0.0003' relief			
			0	48.9' - Fracture, horizontal, rough, planar, parallel hairlike fracture 0.002' above			At 50.7': R-Scale = R3
52.0			0			**Sandstone** 51.0-54.6' - gray to dark gray, soft to hard, fresh, fine to medium grained in a 0.4' lens then very fine to fine grained 52.0-54.6' - very fine to fine grained	R11: 11:03-11:24
			0				At 52.5': R-Scale = R2-R3
			1	53.3' - Fracture, horizontal, rough, undulating, <0.0003' relief; bottom surface has a gray silty/clayey coating-siltstone lens <<0.5 mm thick		53.4' - 0.2' thick medium to coarse grained lens	At 52.8': R-Scale = R2-R3
	R11HQ 5 ft 100%	100	0				
55 209.5			0			**Siltstone** 54.6-55.0' - very dark gray, soft, fresh, up to 35% very fine sand, very thin bedding	
			0			**Sandstone** At 54.9' - gray to very dark gray, soft to hard, fresh	At 56.3': R-Scale = R2-R3
57.0			0			54.9-55.6' - fine grained, 20 degree beds	R12: 11:36-11:59
			0			55.6-57.0' - medium grained with 20% coarse grains in beds; some large grains appear mottled orange, trace red mottling	At 58.3': R-Scale = R3
	R12HQ 5 ft 98%	96	0			57.0-59.8' - some fine to medium grained beds with rust colored mottling	
60 204.5			0			58.0-59.2' - medium to coarse grained 59.2-59.8' - soft to hard, fine to medium grained, bedding at 20 degrees	
			2	61.2' - Fracture, horizontal, smooth, stepped, through a material that is almost slickensided in appearance (~30% of surface)		**Siltstone** 59.8-60.0' - dark reddish brown, trace green mottling, soft, fresh, siltstone lens; very fine to fine grained; 15% very fine sand	At 61.3': R-Scale = R2 At 61.5': R-Scale = R3
62.0			0	61.8' - Fracture, horizontal, smooth, undulating			R13:12:18-12:52
			0			**Sandstone** 60.0-60.2' - dark reddish brown, trace green mottling, soft to hard, fresh, sandstone lens; fine to medium grained, abrupt contact at 20 degrees	At 62.8': R-Scale = R3
	R13HQ 5 ft 103%	98	2				At 63.7': R-Scale = R3
65 199.5			1	64.9' - Fracture, 20 deg, smooth, planar, tight fit 65.0' - Fracture, 20 deg, smooth, stepped		**Siltstone** At 60.2' - dark reddish brown, trace green mottling, soft, fresh, siltstone lens; trace sand 60.2-60.4' - convoluted sand lenses	SC-3 collected 65.1-66.0'
			0	65.7' - Fracture, horizontal, smooth, undulating, shiny appearance			At 66.0': R-Scale = R2-R3

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-47	SHEET 5 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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
67.0							
			0			60.8-61.2' - filled with red-brown siltstone	At 66.6': R-Scale = R2-R3
			0			62.0-67.0' - trace purple and green mottling, some with white centers, very fine to fine grained; trace very fine sand; trace white clasts harder than matrix	R14: 13:03-13:27
	R14HQ 5 ft 100%	100	0			67.0-72.0' - massive appearance, trace to 10% very fine sand	At 68.0': R-Scale = R2-R3
70 194.5			0				At 69.2': R-Scale = R3-R4
			0				
72.0							
			0			72.0-77.0' - soft to hard, fine grained, 15-20% very fine sand	R15: 08:43-09:03 on 12/11/06
			0				Drillers Remark: last 1.5' drilled very fast, soft. SC-4 collected 72.5-73.2'
	R15HQ 5 ft 100%	88	0				At 73.8': R-Scale = R3
75 189.5			2				At 74.4': R-Scale = R3
			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% coverage)			
77.0							
			1	76.8-77.3' - Fracture, 80 deg, rough, undulating, 0.0002' relief		77.0-78.8' - trace to 10% clasts to 1/4	R16: 09:16-09:43
			3			77.5' - soft to hard, becomes sandier, up to 60% fine to medium sand	At 78.1': R-Scale = R3
	R16HQ 5 ft 101%	82	3	78.9-79.0' - Fractures, horizontal, along possible bedding		78.7-78.9' - possible rip-up clast or infill of material in clayey lens	
80 184.5			0	79.2' - Fracture, horizontal, rough, undulating, <0.0002' thick clay infilling, 1/2 relief <0.0002' 79.5' - Fracture, horizontal, smooth, undulating, shiny appearance - mica rich		78.7-78.9' - clay seams, only through ~ 20% of core, irregular. mixed with weak rock seam	At 79.9': R-Scale = R2-R3 SC-5 collected 80.1-81.2'
			1	81.2' - Fracture, horizontal, smooth, undulating		78.9-82.0' - very fine to fine grained; trace to 10% white clasts to 1/4, harder than matrix 79.1' - clay seam, 0.0002' thick	At 80.1': R-Scale = R2
82.0							
			0			82.0-83.0' - 20% very fine sand	R17: 10:00-10:23
			0			83.0-84.5' - trace very fine sand	At 82.9': R-Scale = R3
	R17HQ 5 ft 98%	92	0				At 83.5': R-Scale = R3
85 179.5			0			84.5-90.5' - 20-25% very fine sand and trace to 10% white fine to medium sand (scattered)	

PROJECT NUMBER:	BORING NUMBER:
338884	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

WATER LEVELS : ---

START : 12/8/06 08:20

END : 12/14/06 10:03

LOGGER : EM/JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			2	86.2' - Fracture, 50 deg, white infilling, tightly healed			
87.0							
			0	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
	R18HQ 5 ft 99%	99	0				At 89.0': R-Scale = R2
90 174.5			0				
			0			**Sandstone** 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						90.5-94.0' - 10-15% silt, decreases with depth	R19: 12:32-12:52
			0				At 93.1': R-Scale = R3
			0				At 93.5': R-Scale = R3
	R19HQ 5 ft 100%	100	0			94.0-95.8' - grades to very fine to fine grained with 20% silt	
95 169.5			0			95.2-95.8' - fine to medium white sand grains to .08; silt/siltstone lenses, irregular and horizontal	
			0			**Siltstone** At 95.8' - dark reddish brown, trace purple and green mottling, soft, fresh, very fine to fine grained, trace to 10% very fine sand, laminated	At 96.6': R-Scale = R2
97.0							At 96.8': R-Scale = R3
			2	97.2' - Fracture, horizontal, smooth, undulating, possible fossilized organics			R20: 13:06-13:39
			0	97.6' - Fracture, horizontal, rough, undulating, 0.5 mm relief, lower surface is 50% smooth and planar		96.7-97.0' - black mottling, trace hard white gravel and sand sized clasts; up to 15% fine to medium grained white sand	
	R20HQ 5 ft 100%	96	0	98.6-98.9' - Fracture, 80 deg, hairline fracture, does not extend through core.		97.0-102.0' - trace yellow mottling, soft to hard, trace black laminations	
100 164.5			0			97.0-98.0' - sandy lens; very fine to fine grained, trace very fine sand	
			0	101.3' - Fractures, through ~10% of core		98.0-102.0' - very fine sand increases with depth to 15% of matrix	At 100.6': R-Scale = R3
102.0				101.8' - Fractures, 50 deg, through ~10% of core			At 101.0': R-Scale = R3
			0			102.0-107.0' - soft to hard	R21: 13:54-14:31
			1	102.9' - Fracture, horizontal, smooth, planar		102.0-105.0' - 5-15% very fine sand increasing with depth	SC-6 collected 102.0-102.9'
	R21HQ 5 ft 100%	100	0				At 104.0': R-Scale = R3
105 159.5			0				At 104.45': R-Scale = R3
						105.0-108.7' - up to 20% very fine sand	
							At 106.0': R-Scale = R3

PROJECT NUMBER:	BORING 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

WATER LEVELS : ---

START : 12/8/06 08:20

END : 12/14/06 10:03

LOGGER : EM/JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (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
			0				R22: 14:57-15:32
			1				At 107.7': R-Scale = R3
	R22HQ 5 ft 100%	81	2	108.7' - Fracture, horizontal and 50 deg, slickensided, undulating, 40% slickensided		108.7-110.2' - gray and green mottling, soft, very fine to fine grained with trace very fine sand	At 108.2': R-Scale = R3
110 154.5			2	109.6' - Fracture, 50 deg, slickensided, 50% slickensided		**Siltstone**	SC-7 collected 110.1-111.2'
			2	109.8' - Fracture, horizontal, smooth, undulating		110.2-116.2' - black to greenish black, very soft to soft, very fine grained; trace of very fine sand; banded and laminated, 0-20 degree bedding, trace black laminae	
			5	110.1' - Fractures (2), horizontal, slickensided, very smooth to slickensided		110.2-112.0' - fresh	
	112.0			111.2' - Fracture, 30 deg, slickensided, slickensided may be fossilized organics		112.0-113.0' - moderately weathered	R23: No time recorded
			10+	111.7' - Fracture, 20 deg, smooth, shiny appearance, looks like fossilized leaves			At 112.4': R-Scale = R3
			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 grained	At 112.5': R-Scale = R3
	R23HQ 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 some slickensided pieces			SC-8 collected 113.9-114.8'
115 149.5			1	112.8-112.9' - Fractures, horizontal and 5 deg, slickensided		114.6-114.9' - fresh, white, light, and dark gray laminae; very fine grained	
	116.2			113.9' - Fracture, 40 deg, smooth, undulating, ~20% slickensided		114.9-116.0' - fresh, trace very fine sand; becoming reddish brown at bottom	At 115.6': R-Scale = R3
	R23AHQ 0.8 ft 81%	81	0	114.8' - Fracture, 40 deg, slickensided, undulating, ~60% slickensided		**Siltstone**	R23A: Began at 08:47 on 12/12/06
	117.0			115.1' - Fracture, horizontal and 5 deg, smooth, undulating		At 116.2' - dark reddish brown, mottled green, purple, yellow, and gray, very soft to soft, fresh, very fine to fine grained, trace very fine sand increases with depth	At 116.7': R-Scale = R2-R3
			0				R24: 09:12-09:46
			0			117.0-122.0' - soft, trace to 20% very fine sand	At 117.7' R-Scale = R4
	R24HQ 5 ft 101%	99	2				At 119.0': R-Scale = R3
120 144.5			0				
			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 with a white hard center	
	122.0			120.9' - Fracture, horizontal, smooth, undulating			At 121.6': R-Scale = R3
			0			122.0-127.0' - trace dark gray and green mottling, very fine to fine grained, gray material a little finer grained than red; 0-5% very fine sand; transitions to very dark gray to very dark greenish gray	R25: 10:05-10:30
			0				At 123.0': R-Scale = R3
	R25HQ 5 ft 103%	100	0				
125 139.5			1				At 125.0': R-Scale = R3

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-47	SHEET 8 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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0	125.8' - Fracture, 55 deg, slickensided, planar, <<0.5mm gap, very thin, very soft on rock scale			At 126.4': R-Scale = R2-R3
127.0							
			0			**Siltstone** 127.0-128.9' - very dark gray to very dark greenish gray, soft, very fine to fine grained with up to 20% very fine sand; faint banding at 0 degrees	R26: 10:49-11:14 At 127.3': R-Scale = R3
			2				At 128.3': R-Scale = R3
	R26HQ 5 ft 99%	91	0	128.7' - Fracture, 10 deg, smooth, undulating 128.9' - Fracture, horizontal, smooth, undulating, tight fit		**Sandstone** At 128.9' - dark reddish gray, soft to hard, fresh, fine sand, laminated to medium bedding	
130 134.5			1				
			0	130.6' - Fracture, 20 deg, smooth, undulating			At 130.7': R-Scale = R3
132.0							
			0			131.6-131.6' - gray siltstone lens; abrupt contacts at 20 degrees 131.6-136.3' - fine to medium grained 132.0-136.3' - with lenses of 5-20% coarse grained material (up to several millimeters)	R27: 11:33-11:53 SC-9 collected 132.0-133.1' At 133.1': R-Scale = R3
	R27HQ 5 ft 99%	99	0				At 134.0': R-Scale = R5
135 129.5			0			135.1-136.3' - medium sand to medium gravel, subrounded to subangular; some elongated pieces	
			0				
137.0							
			0			**Siltstone** 136.3-137.0' - weak red, soft to hard, fresh, fine grained; 40% very fine to fine sand 136.9-137.0' - siltstone clasts and medium to coarse sand	R28: 13:00-13:26
			0			**Sandstone** 137.0-141.1' - dusky red to pale red, soft to hard, fresh, 70% very fine to fine sand, 30% medium to coarse sand; gradual increases to up to 60% medium to coarse sand with some grains up to 0.1'; begins gradual transition to siltstone at 140.7	
	R28HQ 5 ft 100%	90	0				
140 124.5			0				At 140.3': R-Scale = R3 At 140.8': R-Scale = R5
			5	140.7-141.1' - Contact between siltstone and sandstone		**Siltstone** At 141.1' - dark reddish brown, very soft to soft, fresh, very fine grained; trace of very fine sand; banded and laminated, horizontal bedding 142.0-147.0' - black and greenish gray mottling, up to 15% fine sand	
142.0				141.6' - Fracture, 10 deg, smooth, undulating 141.7' - Fracture, horizontal, rough, undulating			
			5	141.8' - Fracture, 10 deg, smooth, undulating 141.9' - Fracture, horizontal, rough, undulating			R29: 14:00-14:37 Driller's Remark: For 1st 5 min. did not go down
			0	142.1' - Fracture, 30 deg, slickensided 142.2' - Fracture, horizontal, rough, undulating 142.2' - Fracture, horizontal, rough, undulating			
	R29HQ 5 ft 99%	92	0	142.4' - horizontal, small cracks 142.4' - Fracture, horizontal, smooth, undulating			At 144.0': R-Scale = R4
145 119.5			0	142.7' - Fracture, horizontal, smooth, undulating			At 144.5': R-Scale = R5

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-47	SHEET 9 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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				
147.0							
			0			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
			0				At 148.0': R-Scale = R5
	R30HQ 5 ft 104%	86	0				
150 114.5			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 150.5' - Fracture, horizontal, rough, undulating 150.8' - Fracture, horizontal, rough, undulating 150.9' - Fracture, horizontal, rough, undulating			
			0				At 151.5': R-Scale = R3-R4
152.0							
			0			152.0-157.0' - black and greenish gray mottling, soft, 15% fine grained sand; little to no mottling	R31: 15:54-16:22
			0				At 153.0': R-Scale = R3
	R31HQ 5 ft 96%	96	0			153.6-154.3' - up to 25% fine sand	At 154.0': R-Scale = R5
155 109.5			0				
			0				
157.0							
			0			157.0-162.0' - dusky red, soft to hard, little to no sand	R32: 07:48-08:09 on 12/13/06
			0				At 158.0': R-Scale = R3-R4
	R32HQ 5 ft 102%	100	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 159.0': R-Scale = R5
160 104.5			0				
			0				
162.0							
			0			161.5-161.6' - decrease in sand (10%) and band at 15 degrees 161.8-161.9' - 20% coarse sand with siltstone matrix	R33: 08:30-08:55
			0			**Sandstone** 162.6-164.2' - dusky red, hard, fresh, gradual increase in fine to medium grained sand up to 70% with 5-10% coarse grained sand	At 163.0': R-Scale = R5
	R33HQ 5 ft 90%	70	1	164.2' - Contact between siltstone and sandstone, fairly sharp, 25 deg			At 164.0': R-Scale = R3 SC-10 collected 164.1-164.9'
165 99.5			3	164.9' - Fracture, horizontal, smooth, undulating		**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	
			1	165.2' - Fracture, horizontal, smooth, undulating			

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-47	SHEET 10 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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
167.0				165.5' - Fracture, horizontal, smooth, undulating			
			3	165.8' - Fracture, horizontal, smooth, undulating			R34: 09:12-09:50
			0	166.4' - Fracture, horizontal, rough, undulating			At 168.0': R-Scale = R3
	R34HQ 5 ft 106%	85	0	167.0-167.2' - Fracture zone, rough, undulating, crumbled in to 4 pieces, multiple angles. 167.4' - Fracture, 40 deg, slickensided			At 169.0': R-Scale = R5
170 94.5			7	167.6' - Fracture, horizontal, rough, planar		169.4-170.1' - very soft to soft, up to 15% very fine to fine sand	
			2	170.5' - 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		170.5-171.3' - moderately weathered 171.3-182.9' - fresh	
172.0			1	171.0' - Fracture, rough, undulating, top 1/2 as 167.55'		172.0-177.0' - very soft to soft, up to 15% very fine to fine sand	R35: 10:21-10:51
			1	171.2' - Fracture, rough, undulating, top 1/2 as 167.55'			At 173.0': R-Scale = R3-R4
	R35HQ 5 ft 100%	100	0	171.3' - Fracture, horizontal, smooth, undulating 171.9' - Fracture, horizontal, rough, planar			
175 89.5			0	172.7' - Fracture, horizontal, smooth, undulating 173.5' - Fracture, horizontal, smooth, undulating			
			0				
177.0			0				R36: 13:31-14:01
			1				At 178.0': R-Scale = R5
	R36HQ 5 ft 95%	95	0	178.4' - Fracture, 5 deg, smooth, undulating, 1 slicken 0.05' long		178.8' - 0.1' thick bands of siltstone with ~25% fine sand	
180 84.5			0			179.0' - 0.1' thick bands of siltstone with ~25% fine sand	At 179.6': R-Scale = R3
			1	181.1' - Fracture, horizontal, smooth, undulating		179.1' - 0.1' thick bands of siltstone with ~25% fine sand 180.2' - 0.1' thick bands of siltstone with ~25% fine sand 180.3-182.0' - soft, up to 25% fine sand; no greenish gray mottling	
182.0			1	182.3' - Fracture, horizontal, smooth, undulating		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	R37: 15:20-15:45
			0	182.9' - Contact between siltstone and sandstone, sharp		**Sandstone** 182.9-189.9' - dark gray and dark reddish brown, hard, fresh, thin to medium bedding	
	R37HQ 5 ft 103%	97	0				At 184.0': R-Scale = R4
185 79.5			0			182.9-183.3' - 0.01-0.03' thick siltstone lenses (35% medium sand, 50% fine sand)	At 184.6': R-Scale = R3

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

WATER LEVELS : ---

START : 12/8/06 08:20

END : 12/14/06 10:03

LOGGER : EM/JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			183.3-185.1' - fine gravel, shaley/siltstone lenses up to 0.04' thick throughout	
187.0							
			0			184.8-185.1' - shale clasts	R38: 16:00-16:26
			0			185.1-186.8' - gradual change to more siltstone; faint banding of sand and silt bands ~0.02' thick; 50% sand at 185.1 to ~20% at 186.3	At 188.0': R-Scale = R5
	R38HQ 5 ft 102%	100	0			186.8-187.0' - small pebbles up to 0.02'; ~10% coarse sand/pebbles, 35% fine to medium, silty matrix thin lenses ~0.01' thick of very fine sand and siltstone/claystone; subangular grains	At 189.0': R-Scale = R3
190 74.5			0				
			0			187.0-188.7' - gradual change from 70% fine to medium sand to ~25% fine sand	
192.0							
			0			188.1-188.7' - faint banding	R39: 07:38-08:04 on 12/14/06
			0			188.7-189.9' - silty matrix with 60% coarse grained sand	
	R39HQ 5 ft 100%	87	3	194.2-194.3' - Fractures, horizontal, smooth, undulating		188.7' - large shaley siltstone clasts	
195 69.5				194.6' - Fracture, 10 deg, smooth, undulating		189.1' - large shaley siltstone clasts	
			0			189.7' - large shaley siltstone clasts	
			10+	196.4-196.6' - Fracture, horizontal and 10 deg, highly fractured, crumbled		189.8' - large shaley siltstone clasts	
197.0						**Siltstone**	
			4	196.8' - Fracture, 45 deg		At 189.9' - dusky red, fresh, very fine to fine grained	
				196.5' - Fracture, 45 deg, slickensided, perpendicular to 196.8'		189.9-192.0' - trace black mottling, soft to hard, ~10% very fine to fine sand; convoluted laminations of greater sand contact (up to 15%)	SC-11 collected 196.6-196.8'
			0	197.1' - Fracture, 45 deg and horizontal, smooth, undulating, partially slickensided		192.0-197.0' - hard, laminae of black, olive, and dark gray, ~15% fine sand with lighter colored bands having up to 25%	R40: 08:25-09:07
				197.3' - Fracture, horizontal, rough, planar		194.3-195.9' - increase in sand up to 35%	
	R40HQ 5 ft 99%	87	2	197.4' - Fracture, horizontal, rough, planar		195.0-197.0' - very soft	
200 64.5						195.9' - 0.01' thick sandstone lense with 75% fine to coarse sand and fine to medium gravel	
			0	199.9' - Fracture, horizontal, rough, undulating, weak and fractioned in between		196.0' - very fine; little to no sand, laminated	
				199.9' - Fracture, horizontal, rough, undulating, weak and fractioned in between		196.4' - dark gray, very fine possible shale-crumbles, fissile	
			2	201.2' - Fracture, horizontal, rough, undulating		196.7' - becomes multi-colored breaking into sheets around fractures	
				201.3' - Fracture, horizontal, rough, undulating		197.0-202.0' - olive, gray, dusky red, trace black mottling, very soft to soft, gradual increase in sand contact from 5-15%	
202.0							R41: 09:30-10:03
			0			202.0-205.3' - soft to hard, gradual increase in sand to ~35%; at 205.3' to up to 75% fine sand	
			0			203.5-205.3' - black, gray, and dusky red laminae	At 203.9': R-Scale = R3
	R41HQ 5 ft 101%	100	0				At 204.5': R-Scale = R3
205 59.5							
			0	205.3' - Contact between siltstone and sandstone, sharp contact			At 205.5': R-Scale = R3

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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	207.0		0			**Sandstone** 205.3-207.0' - dark gray, hard, fresh, 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	R-Scale performed during rock core logging
210 54.5							
215 49.5							
220 44.5							
225 39.5							

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-48 SHEET 1 OF 11

SOIL BORING 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
DRILLING EQUIPMENT AND METHOD : B-57, Tricone Bit, 24 Split Spoon, 140 lb. Automatic Hammer
ORIENTATION : Vertical
WATER LEVELS : ---
START : 11/28/06 09:46
END : 12/7/06 14:50
LOGGER : RG/JS/EM

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
264.8	0.0	24.0	SS1SS	1-2-2-4 (4)	**Organic Silt And Clays (OL)** 0.0-0.4' - dark reddish brown, moist, low plasticity, roots **Fat Clay (CH)** 0.4-0.7' - brownish yellow, moist, high plasticity		
	2.0				**Silty Sand (SM)** 0.7-1.7' - yellowish reddish, few gray mottles, moist, soft, nonplastic to low plasticity		
	2.5	4.0	SS2SS	50/4 (50/4")	**Fat Clay (CH)** 1.7-2.0' - red, dry, soft to stiff, nonplastic, fissile **Clay (CL)** 2.5-3.1' - dark red, dry, very hard, medium to high plasticity		
	4.5						
5							
259.8	5.0	4.0	SS3SS	50/4 (50/4")	**Clay (CL)** 5.0-5.6' - dark red, moist, hard, medium to high plasticity		
	7.0						
	7.5	10.8	SS4SS	4-27-50/3 (77/9")	**Clay (CL)** 7.5-8.4' - dark red, mottled gray and greenish gray in clay fractures, moist, hard		
	9.5						
10							Soil sampling completed at 17:20 on 11/29/06
254.8	10.0	3.0	SS5SS	50/3 (50/3")	**Clay (CL)** 10.0-10.3' - dusky red, dry to moist, hard, medium to high plasticity (wet), laminated pieces with fissile structure		
	10.3				Begin Rock Coring at 10.4 ft bgs See the next sheet for the rock core log		
15							
249.8							
20							

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 09:46

END : 12/7/06 14:50

LOGGER : RG/JS/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	10.4		0			**Siltstone**	Rock coring began at 09:46 on 11/29/06
	R1HQ 1.6 ft 88%	70	0			10.4-36.6' - red, some black mottling (1/16-3/16"), fresh, fine grained, silts with some clays, 0.2 to 1.3 rock clasts over 5-10% core	R1: 09:46-10:13 on 11/29/06
	12.0					12.0-17.0' - at 14.4' very fine sand (5-10%) matrix increasing to coarse sands at base (20-35%); laminated bedding	At 10.4-11.4': R-Scale = R3
			1	12.3' - Fracture, natural break along laminated bedding			R2: 10:45-11:27
			3	13.3' - Fracture, horizontal			
	R2HQ 5 ft 100%	90	1	13.9' - Fracture, 1 deg and 2 deg, smooth, undulating			
15 249.8				14.4' - Fracture, 5 deg, smooth, planar			
			2	15.1' - Fracture, 5 deg, smooth, planar			
				15.7' - Fracture, 5 deg, smooth, undulating			
			2	16.3' - Fracture, 10 deg, smooth, planar			
	17.0			16.5' - Fracture, horizontal, smooth, planar			
			2	17.5-17.6' - Fracture, horizontal, smooth, planar, along laminated bedding			R3: 12:11-12:52
			0			18.5-19.1' - light gray, increased sand matrix	
	R3HQ 5 ft 92%	80	2	19.2' - Fracture, horizontal, smooth, planar, along laminated bedding			
20 244.8				19.5' - Fracture, horizontal, smooth, planar, along laminated bedding			
			2	20.1' - Fracture, horizontal, smooth, planar, along laminated bedding		20.1-20.7' - light gray, increased sand matrix	
			0	20.3' - Fracture, horizontal, smooth, planar, along laminated bedding			
	22.0						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%	100	1				
25 239.8				24.6' - Fracture, horizontal, rough, planar			
			2	25.3' - Fracture, 60 deg, rough, planar		25.4-26.2' - 15-20% medium to coarse grain sand matrix	SC-2 collected 23.6-24.7'
				25.8' - Fracture, horizontal, rough, planar			
			1	26.4' - Fracture, horizontal, rough, planar			
	27.0					27.0-36.6' - dusky red	R5: 15:18-16:06
			0				
			0				
	R5HQ 5 ft 100%	100	1	29.3' - Fracture, rough, stepped, ~0.0003-0.001' relief			
30 234.8							

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

WATER LEVELS : ---

START : 11/28/06 09:46

END : 12/7/06 14:50

LOGGER : RG/JS/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			1				
			0				
	32.0						
			0				R6:16:31-17:06
			1				
	R6HQ 5 ft 100%	100	0				
35 229.8			0			35.3-35.6' - 10-20% sandy matrix	
			0				
	37.0					**Sandstone** 36.6-37.0' - greenish gray, very fine sand to fine sand, poorly sorted, fresh, thin bedding	At 36.6-37.0': R-Scale = R2-R3
			0			**Siltstone** 37.0-38.2' - dusky red to red, laminated bedding, fresh, 10-20% sand matrix	R7: 07:38-08:06 on 11/30/06
			0				At 37.0-38.2': R-Scale = R3
	R7HQ 5 ft 100%	100	0			**Sandstone** 38.2-42.2' - greenish to blue-gray, fine sand to medium sand, fresh, well sorted, thick bedding	At 38.2-42.0': R-Scale = R2-R3 SC-1 collected 38.3-38.9'
40 224.8			0				
			0				
	42.0						
			1	42.2' - Contact between siltstone and sandstone, planar, smooth-rough, fines along surface break.		**Siltstone** At 42.2' - dusky red to red, mottled black, fresh, fine grained, 5-10% fine to coarse gravel sized rock clasts	R8: 08:57-09:43
			0				
	R8HQ 5 ft 100%	93	0				
45 219.8			0			45.6-46.3' - clasts ranging from .08-.8, ~10-20% as matrix in siltstone	
			1				
	47.0					47.0-57.0' - dusky red, laminations are undulating or wavy like	R9: 10:09-10:59
			0				
			0				At 47.0-52.0': R-Scale = R3 SC-3 collected 46.2-47.0'
	R9HQ 5 ft 100%	100	1				
50 214.8							

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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				
			0				
	52.0						
			0				R10: 11:48-12:30
			0				At 52.0-57.0': R-Scale = R3
	R10HQ 5 ft 100%	100	0				
55 209.8			0				
			0				
	57.0						
			1	57.7' - Fracture, horizontal, smooth, planar			R11: 13:10-13:52 SC-4 collected 57.0-57.7'
			1	58.6' - Fracture, 60 deg, rough, planar			At 57.0-62.0': R-Scale = R3
	R11HQ 5 ft 100%	100	0				
60 204.8			1	60.1' - Fracture, horizontal, rough, planar			
			0			60.7-62.0' - 5-10% clasts ranging from .08 to .5	
	62.0						
			0			62.0-72.0' - fine grained throughout; laminations are undulating or wavy like	R12: 14:47-15:30
			0				At 62.0-67.0': R-Scale = R3
	R12HQ 5 ft 90%	90	0				
65 199.8			0				
			0				
	67.0						
			1				R13: 15:58-16:32
			1				At 67.0-72.0': R-Scale = R3
	R13HQ 5 ft 100%	95	1				
70 194.8							

PROJECT NUMBER:	BORING NUMBER:	
338884	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

WATER LEVELS : ---

START : 11/28/06 09:46

END : 12/7/06 14:50

LOGGER : RG/JS/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				
			2				
72.0							
			0			72.0-72.4' - 30-40% sandy matrix, gradational contact	R14: 16:50-17:25
			0			**Sandstone** 72.4-77.0' - very fine sand to coarse sand, poorly sorted, fresh, interbedded siltstone	At 72.4-77.0': R-Scale = R3-R4
	R14HQ 5 ft 96%	88	1	74.0' - Fracture, horizontal, rough, planar, break along laminated sand and fine bedding			SC-5 collected 74.0-74.8'
75 189.8			1	75.3' - Fracture, horizontal, rough, planar			
			1	76.2' - Fracture, horizontal, rough, planar			
77.0							
			3	77.2' - Fracture, horizontal, rough, undulating 77.4' - Fracture, horizontal, rough, undulating 77.6' - Fracture, horizontal, rough, undulating		**Siltstone** At 77.0' - gray mottling, undulating laminations 77.0-127.0' - fresh 77.7-78.3' - undulating laminations	R15: 10:13-10:54 on 12/1/06
			0			78.8' - gray mottling	
	R15HQ 5 ft 96%	80	2	79.5' - Fracture, horizontal, rough, stepped		79.2-80.5' - 15-25% fine to coarse gravel sized clasts	At 77.0-82.0': R-Scale = R3
80 184.8			1	80.0' - Fracture, horizontal, smooth, planar, breaks along areas contains rock clasts 80.4' - Fracture, horizontal, rough, stepped		80.5-82.0' - few pockets of gray mottling	
			1	81.4' - Fracture, horizontal, smooth, planar, break along siltstone laminations			
82.0							
			0			82.0-93.3' - dusky red, undulating laminations	R16: 11:25-12:10
			0				At 82.0-87.0': R-Scale = R3
	R16HQ 5 ft 100%	100	0				
85 179.8			0				
			0				
87.0							
			0				R17: 14:00-14:30
			0				At 87.0-92.0': R-Scale = R3
	R17HQ 5 ft 100%	100	0				
90 174.8							

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-48	SHEET 6 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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				
			0				
	92.0						
			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	
	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	
95 169.8			0			95.0-97.0' - 0-5% clasts	
			1				
	97.0						
			0			97.0-102.0' - dark reddish brown, 10-20% greenish gray mottling	R19: 09:00-09:10
			0			97.9-98.1' - slightly coarse grained 98.0-98.2' - soft, whitish pink clasts	At 97.9': R-Scale = R3
	R19HQ 5 ft 100%	100	0			98.9-99.0' - fine grained	
100 164.8			0				
			0				At 101.5': R-Scale = R3
	102.0						
			0	102.0-103.0' - Fracture, microfractures filled with greenish gray infilling with mottling around		102.0-107.0' - dark reddish brown, fine grained, 0-35% medium grained sand, coarsens with depth 102.0-103.0' - greenish gray mottling	R20: 09:40-10:29
			0				
	R20HQ 5 ft 100%	100	0				
105 159.8			0				At 105.1': R-Scale = R3
			0			106.0-112.0' - soft to hard	At 105.9': R-Scale = R3
	107.0						
			1	107.4' - Fracture, <5 deg, rough, undulating, 0.01' thick			R21: 10:50-11:44
			0				
	R21HQ 5 ft 98%	98	0			109.0' - up to 15% coarse grained sand	
110 154.8						109.3' - very fine grained thin convoluted laminations	

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-48	SHEET 7 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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			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							
			0			112.0-117.0' - dark reddish brown, up to 5% greenish gray mottling, olive gray mottling	R22: 08:23-09:25
			0			112.9-113.1' - dark reddish brown to black mottling, up to 0.02' thick throughout entire run, soft, very fine to fine grained	At 113.0': R-Scale = R2
	R22HQ 5 ft 100%	100	0				
115 149.8			0				At 115.3': R-Scale = R3
			0	115.8' - Fractures, microfractures with greenish gray infilling		116.3' - large greenish gray mottle	
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, 0-25%, very fine to fine grained sand	R23: 09:59-10:45 and 11:00-11:25
			0				At 117.8': R-Scale = R3
	R23HQ 5 ft 106%	100	0			117.8'	
120 144.8			0			118.9'	At 118.9': R-Scale = R3
			1	121.0-122.0' - Fracture, 82 deg, closed (joint) fracture, up to 0.01' thick some sand grains infilling		121.0' - soft	
122.0							
			0	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
			0				At 123.1': R-Scale = R2-R3
	R24HQ 5 ft 98%	97	0				
125 139.8			1	125.5' - Fracture, horizontal and 5 deg, rough, undulating		125.0' - dark reddish brown, multicolor mottling of olive gray, black, soft to hard, fine grained, laminations at 20 degree angle, some laminations up to 0.02' thick contain up to 30% very fine to fine sand	SC-6 collected 125.5-126.2'
			3	126.2' - Fracture, horizontal, smooth, undulating			
127.0							
			10+	126.3' - Fracture, horizontal, smooth, undulating 126.6' - Fracture, horizontal, smooth, undulating, 0.01' thick clay infilling		**Siltstone**	R25: 14:12-14:56
			4	126.7' - Fracture, microfractures filled with green gray material on it, brown clay		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	At 128.0': R-Scale = R3-R4 At 128.5': R-Scale = R3-R4
	R25HQ 5 ft 91%	50	1	127.0-127.2' - Fracture zone, horizontal and 5 deg, stepped-laminated beds, but surfaces are smooth to slickensided and undulating		127.0-130.4' - slightly weathered	SC-7 collected 128.9-129.3'
130 134.8							

PROJECT NUMBER: 338884	BORING NUMBER: 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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION — DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	LITHOLOGY — ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	COMMENTS — SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
			2	127.4-127.7' - Fracture zone, horizontal and 5 deg, stepped-laminated beds, but surfaces are smooth to slickensided and undulating, more fractures		130.3-131.5' - 30% very fine to fine sand 130.4-156.0' - fresh	At 131.0': R-Scale = R3
			0				
132.0				127.8' - Fracture, horizontal, smooth, undulating			
			0			132.0-136.5' - very fine to fine sand content varies from 5-10% to 30-35%, gradational contact with underlying siltstone	R26: 15:36-16:30
			0				
	R26HQ 5 ft 90%	90	0				At 133.7': R-Scale = R3-R4
135 129.8			0				
			0				
137.0				136.5-136.9' - Fracture zone, highly fractured crumbled held together with clay infilling up to 0.01' thick fracture surface		**Siltstone** At 136.5' - dark reddish brown, soft, very fine to fine grained, black mottling up to 15% throughout core 0.02' thick 136.5-137.4' - some greenish gray mottling	R27: 10:24-11:00
			1				
			0				
	R27HQ 5 ft 106%	96	0				
140 124.8			0				At 140.2': R-Scale = R3
			1				At 141.0': R-Scale = R3
142.0				141.5' - Fracture, 10 deg, smooth, undulating			
			0			142.0-147.0' - reddish brown, mottled dark reddish black and greenish gray, soft, very fine to fine grained	R28: 11:50-12:22 At 142.2': R-Scale = R5
			0				
	R28HQ 5 ft 102%	100	0				At 144.4': R-Scale = R3
145 119.8			0				
			0				
147.0						147.0-147.6' - soft	R29: 28 minutes
			0			147.6-152.0' - dark reddish brown, trace purple (to1/4) and green mottling with a black thready center, soft, sand content varies; 20% very fine to fine sand with lenses of medium grained sand ~1 thick	At 147.6-152.0': R-Scale = R3
			0				
	R29HQ 5 ft 99%	92	0				At 148.9': R-Scale = R3
150 114.8							

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-48	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

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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0	150.3-150.9' - Fracture, 75 deg and vertical, hairline fractures through part of core			At 150.7': R-Scale = R3
			2	151.1-151.3' - Fracture		151.1-151.6' - soft to hard, 0.5 thick sand lens, up to 20% very fine to fine sand in matrix	
152.0				151.6' - Fracture, horizontal, rough, planar, 0.0003' relief, tight fit		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	R30: 29 minutes
			0	151.9' - Fracture, 1 deg, rough, planar, 0.0003' relief, tight fit, trace dark orange spots to 1mm			At 153.0': R-Scale = R3-R4
			0				
	R30HQ 5 ft 99%	99	0			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	
155 109.8			0				
			0			155.0-155.2' - trace red mottling in a sandier zone	At 156.3': R-Scale = R3
157.0				156.8' - Contact between siltstone and sandstone, horizontal, tightly healed		**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	R31: 14:34-15:18 At 157.3': R-Scale = R2
			2			**Siltstone** 156.8-157.0' - dark gray, very soft, fresh, very fine grained, laminated	
			0			**Siltstone** At 157.0' - dark reddish brown, green mottling, very soft to soft, fresh, very fine to fine grained	At 158.3': R-Scale = R2
	R31HQ 5 ft 100%	96	0			157.9-159.3' - trace green mottles, soft, becomes more competent, 5-10% black mottling to 1/4	At 158.9': R-Scale = R2-R3
160 104.8			1			159.3-160.0' - green mottling, very fine to fine grained	
			0			162.0-167.0' - trace green mottles to 1/4, soft to hard, very fine to fine grained	At 161.1': R-Scale = R3
162.0						162.5-164.5' - soft, 10-15% very fine to fine sand with irregular 1 lenses of 20-25% sand	R32: 15:52-16:28
			0			165.0-167.0' - very soft to soft	At 162.7': R-Scale = R2
			0			165.2-165.3' - patches of white clasts, to 1/4 in length, irregularly shaped	
	R32HQ 5 ft 100%	100	0			165.6-166.5' - white clasts increase to 15%	At 164.1': R-Scale = R2-R3
165 99.8			0			166.5-167.0' - white clasts increase to 50% of area, harder than matrix	
			1	166.5' - Fracture, horizontal, rough, undulating, 0.001' relief		167.0-167.3' - trace to 10% greenish white inclusions or mottles, soft, very fine to fine grained, trace very fine to fine sand	At 165.6-165.9': R-Scale = R2
167.0						167.9-168.9' - trace to 10% greenish white inclusions or mottles	R33: Finished at 16:40
			1				
			0				At 168.7': R-Scale = R2
	R33HQ 5 ft 102%	98	0				At 169.3': R-Scale = R3
170 94.8							

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

WATER LEVELS : ---

START : 11/28/06 09:46

END : 12/7/06 14:50

LOGGER : RG/JS/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				
			1	171.5-172.1' - Fracture, long			
172.0				171.9' - Fracture, 80 deg, rough, undulating		172.0-174.3' - scattered green mottling, soft to hard, very fine to fine grained, trace very fine to fine sand	R34: 07:50-08:17
			0				At 172.8': R-Scale = R3
			0	173.0' - Little to few (<10%) microfractures with greenish gray mottling			
	R34HQ 5 ft 100%	100	0				At 174.1': R-Scale = R2-R3
175 89.8			0			174.3-175.6' - very fine to fine sand lenses up to 85%	
			0			**Sandstone** At 175.6' - very dark gray, soft to hard, up to 50% fine sand	
177.0							
			0			177.0-179.4' - gradual increase in grain size, with coarse grain sand (10%)	R35: 08:40-09:09
			0			178.2-178.4' - gradual decrease in grain size	At 177.8': R-Scale = R3
	R35HQ 5 ft 98%	83	0				SC-8 collected 178.9-179.6'
180 84.8			5	180.0' - Fracture, 50 deg, rough, undulating, over 50% whitish infilling		179.4-179.9' - greater increase in grain size with 10% coarse sand and small pebbles and up to 40% fine to medium sand	
			0	181.2' - Fracture, horizontal, smooth, undulating		**Siltstone** At 179.9' - dark reddish gray, very soft to soft, very fine to fine grained, laminated	
182.0				181.4-181.7' - Fractures (3), horizontal, rough, undulating, up to 0.01' thick clay infilling, easily crumbles, fissile		180.2-181.0' - ~10% greenish gray, black mottling	R36: 09:30-10:45
			6	182.1' - Fracture, <5 deg, rough, undulating		182.0-187.0' - greenish gray mottling, very soft to soft, very fine to fine grained, little to no sand, slight fissile laminations	
			9	182.5' - Fracture, <5 deg, rough, undulating 182.7-187.0' - Microfractures with greenish gray infilling			
	R36HQ 5 ft 100%	60	0	182.8' - Fracture, <5 deg, rough, undulating 182.9' - Fracture, <5 deg, rough, undulating			
185 79.8				183.0' - Fracture, 60 deg, slickensided			
			0	183.0' - Fracture, <5 deg, rough, undulating 183.2' - Fracture, <5 deg, rough, undulating 183.3' - Fracture, <5 deg, rough, undulating			
			2	183.4' - Fracture, <5 deg, rough, undulating 183.5' - Fracture, <5 deg, rough, undulating			
187.0				183.6' - Fractures (2), <5 deg, rough, undulating		187.0-192.0' - soft	R37: 11:00-11:37
			0	183.6' - Fracture, <5 deg, rough, undulating 183.7' - Fracture, <5 deg, rough, undulating			
			0	183.9' - Fracture, 50 deg, slickensided 186.6' - Fracture, horizontal, rough, undulating, rounded, slickensided			
	R37HQ 5 ft 102%	97	0	186.7' - Fracture, horizontal, smooth, undulating to planar			
190 74.8				187.3' - Fracture, horizontal, smooth, undulating			

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-48	SHEET 11 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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION — DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	LITHOLOGY: ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	COMMENTS: SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
			0				At 190.5': R-Scale = R3
			0				At 191.5': R-Scale = R3-R4
192.0							
			0			192.0-197.0' - dusky red, black mottling, soft to hard, gradual increase in grain size (sand content)	R38: 13:02-13:25
			0			192.0-193.0' - 10% sand	At 193.0': R-Scale = R3
	R38HQ 5 ft 100%	100	0				At 194.0': R-Scale = R3
195 69.8			0				
			0			196.0-197.0' - 50% sand	
197.0							
			0			197.0-202.0' - gradually becomes finer grained	R39: 13:40-13:59
			0			197.0' - 50% fine to medium sand	
	R39HQ 5 ft 96%	96	0				
200 64.8			0				
			2	201.1' - Fracture, 65 deg, tight fit 201.2' - Fracture, 65 deg, rough, undulating 201.3' - Fracture, horizontal, rough, undulating			
202.0							
			0			202.0-203.8' - soft to hard, 10% fine sand, 0.05' thick beds of finer gravel material	R40: 14:24-14:43
			0			202.0-203.0' - dark reddish gray, mottled black and faint dark purple, soft to hard, 10-20% very fine sand/coarse silt, faint bedding <.04 to .1 thick, trace medium grained white sand, more in last 0.2'	At 202.9': R-Scale = R3
	R40HQ 3.7 ft 105%	100	0				
205 59.8			0				At 204.5': R-Scale = R3
			1			**Sandstone**	R-Scale performed during rock core logging.
205.7				205.4' - Fracture, horizontal, rough, undulating, 0.0003' relief, tight fit		203.8-205.7' - dark reddish gray, mottled white, gray, and green, hard, medium sand to coarse sand, fresh, siltstone interbeds and clasts - dark reddish brown, irregular, up to 15 thick, cover ~40% area, fine grained, soft	
						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
WATER LEVELS : ---
START : 12/7/06 08:00
END : 12/12/06 16:15
LOGGER : RG/EM

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
261.9							
5							
256.9	5.0						
		16.2	SS1SS	2-14-21 (35)	**Clay (CL)** 5.0-6.4' - dark red, dry to moist, stiff, nonplastic to low plasticity		
	6.5						
10							
251.9	10.0						
		3.5	SS2SS	50/3.5 (50/3.5")	**Clay (CL)** 10.0-10.3' - dark red, dry to moist, nonplastic to low plasticity, 5-15% very fine, poorly graded sand, very hard		
	11.5						
	14.0						
15		7.2	SS3SS	50 (50")	**Clay (CL)** 14.0-14.6' - dark red, dry to moist, nonplastic to low plasticity, very hard		
246.9	15.5						
							Soil sampling completed at 10:45 on 12/7/06
	19.0	1.0	SS4SS				
	19.1			50/1 (50/1")	**Clay (CL)** 19.0-19.1' - dark red, dry to moist		
20					Begin Rock Coring at 19.1 ft bgs See the next sheet for the rock core log		

PROJECT NUMBER:	BORING 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

WATER LEVELS : ---

START : 12/7/06 08:00

END : 12/12/06 16:15

LOGGER : RG/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (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%	83*	1	19.6' - Contact between siltstone and sandstone		**Siltstone** 19.1-19.6' - dark red, soft, moderately weathered	Rock coring began at 14:04 on 12/7/06 R1: 14:04-14:10 At 19.0-19.6': R-Scale = R3-R4
			0	19.6' - Fracture, smooth, undulating, 0.002' clay infilling, at siltstone-sandstone contract		**Sandstone** 19.6-25.7' - white to pink, very soft, laminated bedding, fine sand to medium sand, moderately weathered, well sorted, moderately cemented, 30-40 degree laminations	At 19.6': R-Scale = R0-R1 At 20.3': R-Scale = R3-R4
	21.0		2				
			0				R2: 14:40-14:52
	R2NQ 5 ft 100%	98*	0				At 23.1': R-Scale = R3-R4
25 236.9			0				
			0				
	26.0					**Shale** 25.7-26.0' - dark bluish gray, very soft, moderately weathered, fissile, micaceous, weak cementation	At 25.7-26.0': R-Scale = R2 R3: 15:02-15:17
			4	26.0' - Fractures (5), rough, stepped		**Siltstone** 26.0-28.5' - laminated bedding, moderately weathered, bedding on 20-30 degree angle	
			5	27.1' - Fracture, horizontal, smooth, planar, 0.1' clay infilling			SC-3 collected 27.1-27.2'
	R3NQ 5 ft 100%	58*	3	27.4' - Fracture, rough, stepped, 0.05' clay infilling 28.4' - Fracture, rough, stepped		**Clay (CL)** 28.5-29.0' - light to dark gray, moderately weathered	
			0	28.9' - Fracture, 30 deg, rough, planar 29.0' - Fracture, horizontal, rough, planar, <0.002' clay infilling		**Siltstone** 29.0-29.5' - dusky red, moderately weathered	At 29.0-29.5': R-Scale = R1-R2
30 231.9			2				SC-1 collected 30.0-30.5'
	31.0					**Sandstone** 29.5-32.2' - light bluish gray, fine sand to medium sand, moderately weathered, well sorted	
			1	31.0' - Fracture			R4: 15:34-15:46
			5			**Siltstone** 32.2-36.3' - dusky red, 30-40% very fine to fine sand, well sorted 32.2-36.0' - moderately weathered	
	R4NQ 5 ft 66%	38*	1				
			4				
35 226.9							
	36.0						
			1	36.0' - Fracture, rough, stepped		36.0-36.3' - slightly weathered	R5: 15:55-16:15 At 36.3-37.3': R-Scale = R1
						Siltstone 36.3-37.3' - gray, very soft, slightly weathered	
			2			**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
	R5NQ 5 ft 100%	88	0				

PROJECT NUMBER:	BORING NUMBER:	
338884	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

WATER LEVELS : ---

START : 12/7/06 08:00

END : 12/12/06 16:15

LOGGER : RG/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	R Q D (%)	FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION — DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	LITHOLOGY: ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	COMMENTS: SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
40 221.9			1	39.0' - Fracture, rough, stepped, <0.002' clay infilling			
			0				
	41.0						
			1				R6: 16:30-16:43 SC-2 collected 41.0-41.6'
			2				
	R6NQ 5 ft 100%	80	5	43.0' - Fracture, rough, stepped, <0.002' clay infilling			
			3	44.4-44.7' - Fractures (2)			
45 216.9			1				
	46.0						
			3	45.9' - Fracture, rough, stepped, <3 mm relief 46.1-46.5' - Fractures (3), rough, undulating		46.0-49.4' - dark dusky red, 25-30 degree laminations	R7: 08:41-08:58 At 46.0-49.4: R-scale = R3-R4
			1				
	R7NQ 5 ft 100%	62	2	47.8' - Fracture, 30 deg, rough, planar, along laminations 48.0' - Fractures (2), 31 deg, rough, planar			
			10+	49.2' - Fracture, 30 deg, smooth, planar, along laminations		49.1-49.4' - highly weathered	
50 211.9			10+	49.4-51.0' - Fractures, along laminations		**Clay (CL)** 49.4-50.2' - dark brown, highly weathered	SC-4 collected 49.9-50.2'
	51.0					**Siltstone** At 50.2' - dusky red, soft 50.2-51.0' - highly weathered 51.0-69.7' - slightly weathered	
			1				R8: 09:21-09:41
			0	51.8' - Fracture, smooth, planar			At 51.0-56.0': R-scale = R3-R4 SC-5 collected 52.3-54.2'
	R8NQ 5 ft 100%	59	10+	53.0-54.3' - Fractures			
			4	54.3-54.9' - Fractures (3), horizontal, rough, planar, <0.001' clay infilling, along laminations			
55 206.9			4	55.1-55.9' - Fractures (5), along laminations			
	56.0						
			3				R9: 10:00-10:28
			1	56.7-56.9' - Fractures (3), horizontal, rough, planar, <0.001' clay infilling, along laminations 57.0-57.3' - Fractures (2), 1 deg, rough, planar, along laminations		56.7-56.9' - very soft 57.0-57.3' - very soft	At 56.0-61.0': R-scale = R3-R4 At 56.7-56.9': R-Scale = R2 At 57.0-57.3': R-Scale = R2
	R9NQ 5 ft 100%	67	5	58.3-59.5' - Fractures (8), horizontal, rough, planar, <0.002' clay infilling, along laminations		58.3-58.9' - very soft	At 58.3-58.9': R-Scale = R2

PROJECT NUMBER:	BORING NUMBER:	
338884	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

WATER LEVELS : ---

START : 12/7/06 08:00

END : 12/12/06 16:15

LOGGER : RG/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
60 201.9			4			59.3-59.5' - very soft, friable areas	At 59.3-59.5': R-Scale = R2
			0				At 60.3': R-Scale = R3-R4
	61.0						R10: 10:48-11:05
			1	61.2' - Fracture, smooth to rough, planar, <0.0007' clay infilling			
			1	62.1' - Fracture, smooth, planar			
	R10NQ 5 ft 96%	90	1	63.1' - Fracture, smooth, planar			
			0				
65 196.9			2	65.0' - Fracture, smooth, undulating, 9 mm relief			
	66.0		XXX	65.5' - Fracture, rough, planar			
			0				R11: 11:39-11:54
			1				
	R11NQ 5 ft 100%	82	1	67.8' - Fracture, rough, undulating 68.1' - Fracture			At 66.0-76.0': R-scale = R3-R4
			9	69.2-69.7' - Fractures (9), rough, planar, along laminations			
70 191.9						69.7-82.5' - fresh	
	71.0		0				
			0				R12: 12:11-12:25 SC-6 collected 71.0-72.0'
			0				
	R12NQ 5 ft 100%	100	0				
			0				
75 186.9			0				
	76.0		0			76.0-82.5' - reddish gray to weak red, 20-30% very fine to fine sand, well sorted	R13: 12:42-12:54
			0				
	R13NQ 5 ft 100%	100	0				

CH2MHILL

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

WATER LEVELS : ---

START : 12/7/06 08:00

END : 12/12/06 16:15

LOGGER : RG/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
80 181.9			0				At 76.0-86.0': R-Scale = R3-R4
			0				
	81.0						
			0				R14: 13:12-13:26
			2	82.6' - Fracture, 40 deg, rough, planar		**Sandstone**	
	R14NQ 5 ft 100%	93	1	82.8' - Fracture, rough, planar		82.5-84.0' - dark bluish gray, fresh, very fine to fine, well sorted, faint laminations (fines)	
			1	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	
85 176.9			0				
	86.0						
			0			86.0-93.0' - fine gravel sized dark pink clasts	R15: 14:20-14:35
			0				
	R15NQ 5 ft 100%	100	0				
			0				
90 171.9			0				At 86.0-96.0': R-Scale = R3-R4
	91.0						
			0				R16: 14:49-14:59
			0				
	R16NQ 5 ft 100%	100	0			**Sandstone** 93.0-99.6' - pale reds, soft, medium bedding, fresh, medium grained, well sorted	
			0				
95 166.9			0				
	96.0						
			0			96.0-98.0' - fine to medium grained	R17: 15:12-15:26
			0				
	R17NQ 5 ft 96%	90	2			98.0-99.6' - bluish gray and black, medium sand to coarse sand, well sorted	

PROJECT NUMBER:	BORING NUMBER:	
338884	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

WATER LEVELS : ---

START : 12/7/06 08:00

END : 12/12/06 16:15

LOGGER : RG/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
100 161.9			2	99.6-99.8' - Fracture zone (3), rough, planar, <0.003' clay infilling, fractured siltstone		**Siltstone** At 99.6' - dusky red, soft, fresh	At 99.8-100.8': R-Scale = R3-R4 At 96.0-106.0': R-Scale = R3-R4 R18: 15:42-15:57
			1	100.1' - Fracture, rough, planar, <0.001' clay infilling			
	101.0						
			0			101.8-102.4' - 10-20% medium grained sand, well sorted	
			0				
	R18NQ 5 ft 100%	100	0				SC-9 collected 103.0-104.0'
			0				
105 156.9			0				
	106.0						
			0			106.0-111.0' - dusky red, soft, 20 degree laminations	R19: 08:38-08:52
			0				
	R19NQ 5 ft 100%	100	0				
			0				At 106.0-111.0': R-scale = R3-R4
110 151.9			0				
	111.0						
			2	111.1' - Fracture, rough, stepped, ~5-10 mm relief			R20: 09:13-09:32
			2				
	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
			0				
115 146.9			1				
	116.0			115.7' - Fracture, 15 deg, smooth, planar, break along bedding plane			
			0			116.0-121.0' - dusky red to weak red, soft	R21: 09:44-10:04
			0				
	R21NQ 5 ft 100%	100	0			117.6-118.2' - 20-30% fine to coarse grained sand	

PROJECT NUMBER:	BORING NUMBER:	
338884	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

WATER LEVELS : ---

START : 12/7/06 08:00

END : 12/12/06 16:15

LOGGER : RG/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
120 141.9			0			119.3-120.0' - 20-30% fine to coarse grained sand	At 119.0': R-Scale = R3-R4
	121.0		0				
			0				R22: 10:43-10:50
			0				At 122.1': R-Scale = R3-R4
	R22NQ 5 ft 100%	98	0			**Sandstone** 122.2-124.8' - soft, medium sand to coarse sand, fresh, 20 degree laminated bedding	
			0			124.3-124.8' - 5-10% up to 0.002' rock clasts	
125 136.9			2	125.1' - Fracture, smooth to rough, planar, <0.001' clay infilling		**Siltstone** 124.8-125.3' - dusky red, fresh	At 124.8-125.3': R-Scale = R2
	126.0					**Sandstone** At 125.3' - reddish gray, fresh, very fine to fine sand, thin to massive bedding 126.0-133.9' - light bluish gray to bluish gray, soft, medium to coarse grained sand, well sorted	R23: 11:14-11:25
			0				
			0				At 127.4': R-Scale = R3-R4
	R23NQ 5 ft 100%	100	0				
			0				
130 131.9			0				
	131.0						R24: 11:46-12:00
			0				
			0				
	R24NQ 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
135 126.9			0				At 134.0': R-Scale = R3-R4
	136.0					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
			0	136.8-140.4' - Fractures (5), 15 deg and 20 deg, rough, undulating, along laminations			At 136.8': R-Scale = R3-R4
			0				At 137.4': R-Scale = R3-R4
	R25NQ 5 ft 100%	100	0				
							At 138.8': R-Scale = R3-R4

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-49	SHEET 8 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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
140 121.9			0			**Sandstone** At 138.8' - soft, fine sand to medium sand, fresh, poorly to well sorted, laminated to medium bedding, laminae are soft to hard and discontinuous 139.6-139.7' - siltstone lens 140.0-140.1' - siltstone lens 141.0-143.7' - very fine sand to fine sand, well sorted	At 139.4': R-Scale = R3-R4
			0				At 140.4': R-Scale = R3-R4
	141.0						R26: 12:58-13:10
			0				
			0				
	R26NQ 5 ft 100%	100	0				At 143.0': R-Scale = R3-R4
			0			143.7-146.0' - fine to medium sand, well sorted to poorly sorted, 5-15% <0.002' rock clasts	At 143.7': R-Scale = R3-R4
145 116.9			0				
	146.0						
			0			146.0-150.2' - light to dark gray 146.1-146.2' - dark gray, fine sand and silt 146.2-146.9' - very coarse sand to fine gravel 146.9-150.2' - coarse sand	R27: Finished at 08:40
			0				At 146.9': R-Scale = R3
	R27NQ 5 ft 100%	100	0				At 148.2': R-Scale = R3
			1	149.4' - Fracture, 30 deg, rough, undulating			
150 111.9			0	150.2' - Contact between siltstone and sandstone, 10 deg, sharp contact			SC-7 collected 149.5-150.2'
	151.0					**Siltstone** 150.2-166.0' - very dark gray, mottled greenish gray, soft, fresh	
			0				R28: 09:00-09:26
			0				
	R28NQ 5 ft 98%	98	0				
			0				
155 106.9			0				
	156.0						R29: 09:43-10:04
			0				
			0				
	R29NQ 5 ft 98%	88	0			158.0' - pale olive green, very soft to soft	

PROJECT NUMBER:	BORING NUMBER:	
338884	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

WATER LEVELS : ---

START : 12/7/06 08:00

END : 12/12/06 16:15

LOGGER : RG/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
160 101.9			10+	159.7' - Fracture, 10 deg, rough, undulating			
			2	160.1' - Fracture, 10 deg, rough, undulating			
	161.0					161.0-162.4' - hard, up to 20% fine sand	R30: 10:23-10:39
			0				
			0				
	R30NQ 5 ft 104%	98	0	162.9' - Fracture, horizontal, smooth, undulating			
			0				
165 96.9			1			165.0-166.0' - mottled olive green, gravel sized pinkish white clasts	At 164.8': R-Scale = R3
	166.0			165.7' - Fracture, horizontal, rough, undulating		**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 165.8': R-Scale = R4 R31: 11:16-11:38
			0				
			0				
	R31NQ 5 ft 98%	98	0				
			0				
170 91.9			0				
	171.0					171.0-179.4' - soft to hard, 10-25% fine sand 171.4-171.9' - up to 65% fine to medium sand	R32: 12:12-12:32 At 172.0': R-Scale = R3 At 172.3': R-Scale = R3
			0				
			0				
	R32NQ 5 ft 105%	87	0				
			1				
175 86.9			7	174.7' - Fracture, horizontal, smooth, undulating 175.3' - Fracture, horizontal, smooth, undulating			
	176.0			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
			0				
			0				At 177.0': R-Scale = R3
	R33NQ 5 ft 100%	100	0				At 178.0': R-Scale = R3

PROJECT NUMBER:	BORING NUMBER:	
338884	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

WATER LEVELS : ---

START : 12/7/06 08:00

END : 12/12/06 16:15

LOGGER : RG/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION — DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	LITHOLOGY — ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	COMMENTS — SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
180 81.9			0			**Sandstone** 179.6-186.0' - reddish gray to dark gray, fine sand to medium sand, fresh, gradational contact with overlying siltstone	
			1	180.6' - Fracture, 25 deg, smooth, undulating			
	181.0					181.0-186.0' - hard, coarse sand	R34: 13:39-13:52
			0				
			0			182.3-182.9' - very coarse sand	
	R34NQ 5 ft 98%	98	0			183.4-184.2' - very coarse sand	
			0				
185 76.9			0				At 185.0': R-Scale = R3 At 185.1': R-Scale = R3
	186.0					185.6-186.0' - very coarse sand	
			0			**Siltstone** 186.0-203.0' - dark reddish brown, trace greenish gray mottling, soft, fresh, very fine to fine grained, little to no sand	R35: No time recorded SC-8 collected 186.0-186.8'
			0				At 187.0': R-Scale = R3
	R35NQ 5 ft 100%	100	0			187.0-188.2' - small white clasts	
			0			188.2-190.4' - large white clasts	At 188.0': R-Scale = R3-R4
190 71.9			3	190.4' - Fracture, horizontal, rough, undulating			
	191.0					190.6' - 0.04' thick clay seam	
			0				R36: 14:55-15:14
			0				
	R36NQ 5 ft 105%	100	0				
			0				At 194.0': R-Scale = R4
195 66.9			0				
	196.0					195.5' - up to 35% fine grained sand, soft to hard, faint laminations	R37: 15:33-15:50
			0				
			0			197.3-198.0' - up to 30% fine to medium sand	
	R37NQ 5 ft 100%	100	0				At 198.8': R-Scale = R3

PROJECT 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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
200 61.9			0				
			0				
	201.0						
	R38NQ 2 ft 100%	100	0			201.0-203.0' - soft to hard, up to 30% fine to medium sand	R38: 16:10-16:15
			0				At 202.0': R-Scale = R4
	203.0						R-Scale performed during rock core logging.
						Bottom of Boring at 203.0 ft bgs on 12/11/06 16:15	
205 56.9							
210 51.9							
215 46.9							

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-50 SHEET 1 OF 11

SOIL BORING 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
DRILLING EQUIPMENT AND METHOD : CME-55, 4-1/4 Tricone Bit, 24" Split Spoon and 140 lb. Automatic Hammer
ORIENTATION : Vertical
WATER LEVELS : ---
START : 11/28/06 14:20
END : 12/7/06 13:17
LOGGER : RM/RG

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: PP (TSF)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
273.0	0.0				**Silty Sand (SM)** 0.0-0.5' - brown, moist, soft, fine grained, well-graded			
		19.8	SS1SS	3-2-3-5 (5)	**Clay (CL)** 0.5-1.7' - yellowish brown, mottled yellowish red, soft, mottling increases with depth		2	
	2.0							
	2.5	21.0	SS2SS	4-5-9-11 (14)	**Clay (CL)** 2.5-3.0' - strong brown, dry to moist, soft, somewhat cohesive **Clay (CL)** 3.0-4.3' - light gray, mottled yellowish brown, dry, medium stiff		2.5	
	4.5							
5								
268.0	5.0	19.2	SS3SS	25-32-50/5 (82/11")	**Silt (ML)** 5.0-6.6' - reddish brown, dry, very hard, laminated			
	7.0							
	7.5	15.0	SS4SS	11-25-50/3 (75/9")	**Silt (ML)** 7.5-7.9' - reddish brown, dry, soft, laminated **Clay (CL)** 7.9-9.1' - reddish brown, mottled reddish gray, dry, very hard			
	9.5							
10								
263.0	10.0	5.0	SS5SS	50/5 (50/5")	**Clay (CL)** 10.0-10.5' - light reddish brown, mottled yellow to brown, dry, very hard			
	10.5							
15								Soil sampling completed at 08:34 on 11/29/06
258.0	15.0	1.5	SS6SS	50/2 (50/2")	**Fine Sand (SW)** 15.0-15.2' - yellowish brown, very dense, well graded, laminated Begin Rock Coring at 15.2 ft bgs See the next sheet for the rock core log			
	15.2							
20								

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-50	SHEET 2 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

WATER LEVELS : ---

START : 11/28/06 14:20

END : 12/7/06 13:17

LOGGER : RM/RG

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	15.2 R1HQ 1.4 ft 111%	0	10+	15.2' - Fracture zone, rough, undulating		**Sandstone** At 15.2' - pale brown to brown, fine sand to medium sand, highly weathered, angular to subrounded, weakly cemented, micaceous, laminated to thick bedding	Rock coring began on 11/29/06 R1: 5 min 26 sec Cutting in 3rd gear At 15.2-16.5': R-Scale = R1
	16.5		0				
				16.5-21.5' - Fracture zone, rough, planar			
			10+	17.0-17.3' - Fracture, 60 deg, rough, planar, black stains			R2: 10 min 40 sec
			10+				
	R2HQ 5 ft 100%	0	10+				
20 253.0			10+				
			10+			20.5-21.5' - light reddish brown, highly weathered	At 20.5-21.5': R-scale = R1
	21.5					21.5-25.4' - very pale to pale brown, soft, fine sand to medium sand, moderately weathered, moderately to poorly sorted, subangular to subrounded, laminated bedding	R3: 15 min 10 sec
			0				
			0				
	R3HQ 5 ft 100%	97*	1				
			3	24.4' - Fracture, horizontal, rough, undulating			
25 248.0							At 24.8': R-Scale = R2
				25.0' - Fracture, rough, undulating			
			3	25.2' - Fracture, horizontal and 45 deg, rough, planar		**Weathered Clayey Siltstone** 25.4-26.2' - olive gray, very soft, moderately weathered	At 25.4-26.2': R-Scale = R1-R2
	26.5			25.5' - Fracture, horizontal, smooth, planar, 0.0003' greenish gray clay infilling		**Silt (ML)** 26.2-26.5' - dark reddish brown, moderately weathered, soft, laminated	At 26.3-26.5': R-Scale = R0 At 26.5-27.4': R-Scale = R1 R4: 17 min 10 sec
			1			**Silt (ML)** 26.5-27.4' - brown, moderately weathered	At 27.4-29.2': R-Scale = R2
			10+				
				28.2' - Fracture, <30 deg, smooth, planar, slickensided over 30-40%		**Siltstone** 27.4-29.2' - reddish brown to dark reddish brown, soft, moderately weathered, laminated 27.8-28.2' - sand lens	At 28.6': R-Scale = R2
	R4HQ 5 ft 100%	71*	1	29.2' - Fracture, horizontal, smooth, undulating			At 29.2-29.9': R-scale = R0 At 29.3' PP: 1.0 tsf SC-11 collected 29.3-29.8'
30 243.0			1			**Clay (CL)** 29.2-29.8' - moderately weathered 29.8-29.9' - slightly weathered	At 29.9-31.5': R-Scale = R2 At 30.4': R-Scale = R2 At 31.1': R-Scale = R2
	31.5		0				R5: 21 min. 0 sec
				31.3' - Fracture, horizontal, smooth, stepped, loose fit		**Siltstone** At 29.9' - reddish brown to dark reddish brown, mottled greenish gray, soft 29.9-34.3' - slightly weathered 31.3' - clasts 32.2-32.5' - very soft, soil-like 32.45-34.3' - dark reddish brown, trace fine sand	At 31.5-32.2': R-scale = R2/R3 At 31.9': R-Scale = R1 At 32.2-32.5': R-Scale = R0 At 32.3': R-Scale = R0 At 32.5-34.3': R-Scale = R2-R3 SC-12 collected 32.5-33.0' At 32.9': R-Scale = R2-R3
			2	31.4' - Fracture, 1 deg, smooth, stepped, loose fit			
			2	32.1' - Fracture, horizontal, smooth, stepped, loose fit			
				32.5' - Fracture, 30 deg, smooth, stepped, loose fit			
	R5HQ 5 ft 99%	80	1	33.3' - Fracture, <20 deg, smooth, planar, weakly slickensided, tight fit			
35			3				

PROJECT NUMBER:	BORING NUMBER:	
338884	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

WATER LEVELS : ---

START : 11/28/06 14:20

END : 12/7/06 13:17

LOGGER : RM/RG

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
				33.7' - Fracture, horizontal, smooth, stepped, loose fit		**Siltstone** At 34.3' - gray to dark greenish gray, mottled white, soft, fresh, coarse grained fragments	At 34.3-34.5': R-Scale = R2-R3
			0	34.2' - Fracture, 30 deg, smooth, planar			At 34.9': R-Scale = R2-R3
				34.4' - Fracture, 20 deg, smooth, stepped, inclined, loose fit			At 35.5': R-Scale = R2-R3
	36.5						R6: 12 min 59 sec
			1	36.2' - Fracture, horizontal, smooth, stepped, loose fit		36.5-37.5' - greenish gray, mottled dark reddish brown, soft	At 36.5-37.5': R-scale = R2-R3
			0			**Sandstone** At 37.5' - dark greenish gray, fine sand to medium sand, poorly sorted, fresh	At 37.5': R-Scale = R2-R3
							At 37.5-41.5': R-Scale = R2-R3
	R6HQ 5 ft 100%	100	0				At 37.7': R-Scale = R2-R3
							At 39.1': R-Scale = R2-R3
40 233.0			1	39.6' - Fracture, horizontal, rough, undulating, loose fit			
			0				At 40.5': R-Scale = R2-R3
	41.5						At 40.8': R-Scale = R2-R3
			0				R7: 21 min 23 sec
							At 42.2': R-Scale = R2-R3
			1	42.9' - Fracture, 60 deg and 70 deg, rough, planar, inclined, loose fit		42.8-43.5' - greenish gray, mottled gray and white	
	R7HQ 5 ft 96%	93	1	43.5' - Fracture, 30 deg and 40 deg, rough, stepped, <0.00003' greenish gray clay infilling		**Siltstone** At 43.5' - dark reddish brown, soft, fresh	At 43.4': R-Scale = R2
45 228.0			1				At 44.8': R-Scale = R3
			1	45.3' - Fracture, horizontal, smooth, stepped, tight fit			At 45.5-46.5': R-Scale = R2-R3
	46.5			46.2' - Fracture, horizontal, smooth, stepped, 0.0003' reddish brown clay infilling, loose fit			R8: 21 min 36 sec
			0				At 47.1': R-Scale = R2-R3
			1	47.8' - Fracture, 70 deg, rough, planar, tight fit		47.5-48.8' - mottled reddish brown, hard	At 47.5-51.5': R-scale = R2-R3
	R8HQ 5 ft 106%	99	2	48.6' - Fracture, horizontal, smooth, planar, loose fit			
				48.7' - Fracture, horizontal, rough, undulating, <0.00003' reddish brown clay infilling			
50 223.0			0	49.4' - Fracture, horizontal, smooth, stepped, tight fit			SC-1 collected 49.5-50.2'
							At 50.2': R-Scale = R2
			1				
	51.5			51.2' - Fracture, horizontal, smooth, planar, tight fit			R9: 27 min
			1	51.9' - Fracture, horizontal, rough, undulating, tight fit			At 51.5-53.8': R-Scale = R3
			2	52.7' - Fracture, horizontal, smooth, planar			At 52.3': R-Scale = R3
	R9HQ 5 ft 100%	100	1	53.3' - Fracture, horizontal, rough, stepped, loose fit			
				54.1' - Fracture, horizontal, rough, stepped, loose fit			
55			0				At 54.7': R-Scale = R3

PROJECT NUMBER:	BORING NUMBER:	
338884	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

WATER LEVELS : ---

START : 11/28/06 14:20

END : 12/7/06 13:17

LOGGER : RM/RG

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			**Sandstone** 53.8-54.1' - light reddish brown to pale red, fresh, very fine grained, laminae siltstone, interbedded convoluted bedding, laminated bedding	SC-2 collected 55.9-56.5'
56.5							At 55.9': R-scale = R3
			0			**Siltstone** 54.1-58.6' - dark reddish brown, mottled dark red and reddish gray, soft, laminated bedding, fresh, convoluted bedding	R10: 18 min 18 sec
			0				At 57.4': R-Scale = R3
	R10HQ 5 ft 100%	100	0			**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	
60 213.0			0				
			0				At 60.8': R-Scale = R2-R3
61.5							At 61.1': R-Scale = R2-R3
			1	61.9' - Fracture, horizontal, rough, stepped, tight fit		**Shale** 61.5-61.6' - black to very dark gray, mottled white, laminated bedding, fresh, some grains are visible	R11: 13 min 56 sec
			0			**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 sand intervals	At 61.6-68.3': R-Scale = R2
	R11HQ 5 ft 99%	100	0				SC-3 collected 61.5-61.9'
			0				At 62.6': R-Scale = R2
65 208.0			0				At 63.2': R-Scale = R2
			0				SC-13 collected 63.1-63.9'
66.5							At 64.0': R-Scale = R2
			0				At 65.6': R-Scale = R2
			1				R12: 17 min 38 sec
			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	At 67.1': R-Scale = R2-R3
	R12HQ 5 ft 98%	97.8					SC-5 collected 67.1-67.7'
70 203.0			1	69.9' - Fracture, 70 deg, rough, stepped			At 68.3-71.5': R-Scale = R3
			0				At 68.9': R-Scale = R3
71.5							At 70.7': R-Scale = R3
			2	71.5' - Fracture, 30 deg, rough, planar, inclined			R13: 27 min 47 sec
			4	72.2' - Fracture, horizontal, smooth, planar, loose fit 72.7' - Fracture, horizontal, smooth, planar, loose fit			
	R13HQ 5 ft 103%	96	0	72.8' - Fracture, horizontal, smooth, stepped, loose fit 72.9' - Fracture, horizontal, smooth, planar			At 74.0': R-Scale = R3
75			0	73.0' - Fracture, horizontal, smooth, planar, tight fit			At 74.9': R-Scale = R3

PROJECT NUMBER: 338884	BORING NUMBER: BPA-50 SHEET 5 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

WATER LEVELS : ---

START : 11/28/06 14:20

END : 12/7/06 13:17

LOGGER : RM/RG

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				
76.5							At 76.1': R-Scale = R3
			0			76.5-81.5' - dusky red to very dusky red, mottled greenish gray, soft	R14: 25 min 34 sec At 76.5-81.5': R-scale = R2-R3
			0				At 77.1': R-Scale = R2-R3
	R14HQ 5 ft 100%	86	0	79.0' - Fracture, horizontal, smooth, stepped, tight fit			At 78.2': R-Scale = R3
80 193.0			3	79.1' - Fracture, horizontal, smooth, planar, trace clay infilling, tight fit		79.2' - clay seam, reddish brown, soft	
			0				SC-4 collected 80.7-81.2'
81.5				81.2' - Fracture, horizontal, rough, stepped, loose fit			At 80.7': R-scale = R2-R3
			2	81.5' - Fracture, horizontal, rough, stepped, tight fit		81.5-84.0' - dusky red, mottled greenish gray, laminated bedding, irregular bedding on 20 degree angle	R15: 24 min 19 sec At 82.1': R-Scale = R2-R3
			0	82.5' - Fracture, horizontal, rough, stepped, tight fit			At 82.4': R-Scale = R2-R3
	R15HQ 5 ft 100%	93	1	84.0' - Fracture, 15 deg, rough, stepped, inclined, tight fit		84.0-86.5' - mottled greenish gray to dusky red, soft, laminated bedding, grades to fine grained sand	At 83.2': R-Scale = R2-R3 At 84.0-86.5': R-scale = R2-R3
85 188.0			10+	84.5-84.9' - Fracture zone (3), smooth, stepped, <0.0004" clay infilling, weakly slickensided		84.5-84.9' - very soft	At 84.5-84.9': R-Scale = R0
			0				At 85.4': R-Scale = R2-R3 At 85.8': R-Scale = R2-R3
86.5							
			1	86.6' - Fracture, horizontal, rough, undulating		**Siltstone** 86.5-95.8' - very dark greenish gray, soft, fresh	R16: 18 min 50 sec At 86.5-91.5': R-Scale = R2-R3
			0				At 87.1': R-Scale = R2-R3
	R16HQ 5 ft 100%	98	0				At 88.1': R-Scale = R2-R3 At 88.7-88.9': R-Scale = R2
90 183.0			0			89.5-95.8' - reddish brown laminae alternating with dark greenish gray laminae	At 90.0': R-Scale = R2-R3
			0				
91.5							At 91.1': R-Scale = R2-R3
			0			91.5-95.8' - mottled reddish brown	R17: 18min 24 sec
			0				At 92.8': R-Scale = R3
	R17HQ 5 ft 96%	94	1	93.7' - Fracture, horizontal, smooth, planar, tight fit			At 93.3': R-Scale = R3
95			1				

PROJECT NUMBER:	BORING NUMBER:
338884	BPA-50 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 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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (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
			1			**Sandstone**	
96.5				96.2' - Fracture, horizontal, smooth, planar, loose fit		95.8-96.0' - dark greenish gray, soft, fine sand, subangular to subrounded, fresh, moderately to poorly sorted	R18: 16 min
			1			**Shale**	
			0			96.0-96.5' - dark greenish gray, soft, fresh	At 97.3': R-Scale = R2
	R18HQ 5 ft 104%	100	0	98.6' - Fracture, 20 deg, smooth, stepped, tight fit		**Siltstone** 96.5-101.5' - very dark greenish gray, soft, fresh	At 98.1': R-Scale = R2
100 173.0			1				
			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	
101.5						**Sandstone**	At 101.4': R-Scale = R3
			1			101.5-104.9' - weak to dusky red, soft, fine sand, subangular to subrounded, fresh, moderately to poorly sorted	R19: 14 min 15 sec
			0			102.6-103.1' - abundant siltstone clasts	At 102.2': R-Scale = R3
	R19HQ 5 ft 100%	76	1	103.3' - Fracture, 50 deg and vertical, rough, stepped, ~1.1' long fracture			
105 168.0			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'
			2	106.0' - Fracture, <10 deg and 20 deg, smooth, planar, weakly slickensided, grayish clay on 10-15% surface, loose fit		**Shale** 106.0-106.3' - greenish black, soft, laminated bedding, fresh	At 105.5': R-Scale = R3 At 106.0-106.3': R-Scale = R0
106.5							At 106.4': R-Scale = R3
			1	106.0' - Fracture, 60 deg and 20 deg, rough, planar, trace white infilling		**Siltstone** 106.3-108.0' - dark reddish gray, soft, reddish brown laminae	R20: 24 min 33 sec
			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		106.3-107.1' - fresh 107.1-108.0' - slightly weathered to moderately weathered	SC-7 collected 108.0-108.9'
	R20HQ 5 ft 100%	62*	1	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 rock fragments	At 108.3-108.6' PP: 1.0 tsf
110 163.0			0				
			5	110.7' - Fracture, horizontal, smooth, planar, <0.0002" clay infilling		**Siltstone** At 108.9' - dark reddish brown to reddish gray, soft	
111.5							R21: 23 min 15 sec
			3	110.8' - Fracture, 60 deg and 50 deg, rough, stepped, horizontal to inclined, loose fit 110.8' - Fracture, horizontal, rough, stepped		108.9-111.5' - slightly weathered to moderately weathered	
			0	111.0' - Fracture, 1 deg, rough, stepped 111.1' - Fracture zone, rough, stepped		111.5-116.5' - very thin bedding, fresh	At 112.3': R-Scale = R3
	R21HQ 5 ft 100%	86	1	111.1' - Fracture, horizontal, smooth, stepped, loose fit			At 113.4': R-Scale = R3
115			0				

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-50	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

WATER LEVELS : ---

START : 11/28/06 14:20

END : 12/7/06 13:17

LOGGER : RM/RG

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			1				At 115.5': R-Scale = R3
116.5				116.3' - Fracture, horizontal, rough, stepped		116.5-136.5' - brownish red, fresh	
			0				R22: 08:30-08:55
			2			117.7-117.9' - mottled gray	At 116.5-121.5': R-scale = R1-R2 At 117.3': R-Scale = R1-R2 At 117.8': R-Scale = R3
	R22HQ 5 ft 98%	82	5	118.4' - Fracture, horizontal and 3 deg, rough, stepped, 0.001-0.003' relief 118.6' - Fracture, horizontal and 3 deg, rough, stepped			At 118.6-119.0': R-Scale = R0-R1
120 153.0			2	119.0' - Fracture, horizontal and 2 deg, rough, planar, (medium -hard), 0.07' thick laminated layering			
			0				
121.5							
			4	122.0' - Fracture, 60 deg, rough, planar			R23: 09:18-09:44
			2	122.1' - Fracture, horizontal, rough, planar, laminated, platy bedding 122.3' - Fracture, 1 deg, rough, planar, laminated, platy bedding			
	R23HQ 5 ft 92%	68	1	122.4' - Fracture, 2 deg, rough, planar, laminated, platy bedding 122.5' - Fracture, 3 deg, rough, planar			
125 148.0			1	123.5' - Fracture, 4 deg, rough, planar 124.5' - Fracture, horizontal, smooth, planar			
			3	125.7' - Fracture, 60 deg, smooth, planar, slickensided			
126.5				126.1' - Fracture, 20 deg, slickensided, planar			
			2				R24: 10:18-10:35
			1	127.3' - Fracture, horizontal, rough, planar			At 126.5-131.5': R-scale = R3 SC-9 collected 126.5'
	R24HQ 5 ft 100%	92	0				
130 143.0			0				
			0				
131.5							
			0				R25: 10:59-11:18
			0				SC-8 collected 132.4-133.2'
	R25HQ 5 ft 100%	100	0				
135			0				

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-50	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

WATER LEVELS : ---

START : 11/28/06 14:20

END : 12/7/06 13:17

LOGGER : RM/RG

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			135.0-136.5' - 10-20% very fine to fine well sorted sand	
136.5							
			0			**Siltstone** 136.5-138.7' - dark gray, fresh	R26:11:37-11:57 At 136.5-138.0': R-scale = R3
			0				
	R26HQ 5 ft 100%	100	0			**Sandstone** At 138.7' - light bluish gray, medium sand, well sorted, fresh, interbedded siltstone laminae to thin beds, 20-60 degree bedding	At 138.7-142.1': R-Scale = R2-R3
140 133.0			0				
			0				
141.5							
			0				R27: 12:56-13:17
			0	142.1' - Fracture, 10 deg, smooth, stepped, yellowish brown stains		**Shale** 142.1-142.2' - dark gray to black, fresh, fissile	At 142.1': R-Scale = R0-R1
			2	142.2' - Fracture, horizontal, smooth, undulating, loose fit		**Siltstone** 142.2-148.0' - dark reddish brown, fresh, 5-10% very fine to fine sand matrix	At 142.8': R-Scale = R3-R3.5
	R27HQ 5 ft 100%	99	0				
145 128.0			0				At 145.2': R-Scale = R3-R3.5
			0			145.7-146.5' - 10-20% 0.0003-0.001' clasts (by volume)	
146.5							R28: 13:54-14:10
			0			147.0-148.0' - grades to sandstone	At 147.2': R-Scale = R3
			0			**Sandstone** 148.0-155.4' - light bluish gray, very fine sand to fine sand, fresh, well sorted thick bedding	
	R28HQ 5 ft 100%	100	0				At 148.8': R-Scale = R3
150 123.0			0				
			0				At 150.4': R-Scale = R3
151.5							
			0			151.5-155.4' - soft, medium sand, well sorted	R29: 14:56-15:15 Set a (4th) 5' casing section to 20.5'
			0				At 152.1': R-Scale = R3.5
	R29HQ 5 ft 100%	100	0				At 153.8': R-Scale = R3.5
155			0				At 154.4': R-Scale = R3.5

PROJECT NUMBER:	BORING NUMBER:	
338884	BPA-50	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

WATER LEVELS : ---

START : 11/28/06 14:20

END : 12/7/06 13:17

LOGGER : RM/RG

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			**Siltstone** 155.4-156.9' - dark reddish brown, fresh 156.3-156.5' - soft, 20-30% medium to coarse sand	
	156.5		0				R30: 10:40-10:52
			0			**Sandstone** 156.9-165.5' - light gray, soft, medium sand to coarse sand, fresh, poorly to well sorted	At 157.3': R-Scale = R3.5
	R30HQ 5 ft 100%	100	0				
160 113.0			0				
			0				At 160.8': R-Scale = R3.5
	161.5						R31: 11:13-11:52
			0				
			1			162.5-164.5' - becomes coarser grained	
	R31HQ 5 ft 100%	100	1				
165 108.0			0	164.5' - Contact between siltstone and sandstone, 30 deg, smooth, planar		164.5-165.5' - interbedded siltstone laminae until contact	
			0	165.5' - Fracture, 40 deg, smooth, planar, broke at contact of siltstone and sandstone interbed		**Siltstone** 165.5-171.5' - dark reddish brown, fresh, well sorted, 10-20% very fine to fine sand	
	166.5						R32: 12:16-12:40
			0			166.9-167.4' - 5-10% dark pinkish clasts, soft	
			0			167.8-169.4' - 5-10% dark pinkish clasts (0.0003-0.004' in size), soft	
	R32HQ 5 ft 100%	100	0				
170 103.0			0				At 169.7': R-Scale = R3.5
			1				
	171.5						R33: 13:35-13:54
			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	At 172.5': R-Scale = R3-R3.5
			0				At 173.3': R-Scale = R3-R3.5
	R33HQ 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
175			0				

PROJECT NUMBER:	BORING 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

WATER LEVELS : ---

START : 11/28/06 14:20

END : 12/7/06 13:17

LOGGER : RM/RG

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				At 174.0-176.5': R-Scale = R3.5
176.5							At 174.5': R-Scale = R3-R3.5
			0			176.5-181.5' - dark reddish gray, soft, very fine sand, well sorted	R34: 14:14-14:32
			0				
	R34HQ 5 ft 100%	100	0				At 177.9': R-Scale = R3.5
180 93.0			0				
			0				At 180.4': 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	R35: 15:03-15:23
			0			181.5-186.5' - light bluish gray, laminated bedding, fine sand to medium sand, well sorted	
	R35HQ 5 ft 100%	100	0			181.5-182.5' - laminae on 15 degree angle	
185 88.0			0			183.7-184.9' - laminae on 25 degree angle	
			0				
186.5							
			3	186.8' - Fracture, horizontal, rough, planar, <0.002' clay infilling, medium plasticity, break along laminations		**Siltstone** 186.5-198.7' - dusky red, soft, laminated bedding, fresh, 5-10% gravel sized clasts	R36:15:43-16:07
			0	186.9' - Fracture, 1 deg, rough, planar, <0.002' clay infilling, medium plasticity, break along laminations			At 186.5-191.5': R-scale = R3.5
	R36HQ 5 ft 100%	91	1	187.2' - Fracture, 2 deg, rough, planar, <0.002' clay infilling, medium plasticity, break along laminations			
190 83.0			1	189.3' - Fracture			
			0	190.4' - Fracture			
191.5							
			0				R37: 16:28-16:51
			0				At 192.4': R-Scale = R4
	R37HQ 5 ft 97%	93	0				
195			0				At 194.3': R-Scale = R4

PROJECT NUMBER:	BORING NUMBER:	
338884	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

WATER LEVELS : ---

START : 11/28/06 14:20

END : 12/7/06 13:17

LOGGER : RM/RG

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				SC-10 collected 195.5-196.2'
196.5							At 195.5': R-scale = R4
			0			196.5-198.7' - very dusky red	R38: 08:57-09:11
			0				
			0			198.0-198.7' - 30-40% very fine to fine sand, well sorted	
	R38HQ 5 ft 100%	100	0			**Sandstone**	At 198.8': R-Scale = R3.5
200 73.0			0			198.7-203.8' - fine sand to coarse sand, fresh, 0.0003-0.004' fine sediment layers (10-20%), poorly sorted, 20-25 degree bedding	
			0				
201.5							
			0			201.5-203.8' - dark gray, very fine sand to coarse sand, 35 degree bedding	R39: 11:46-12:02
			0				
							At 203.4': R-Scale = R3.5
	R39HQ 5 ft 100%	100	0			**Sandstone**	At 203.8-205.1': R-Scale = R3.5
205 68.0			0			203.8-205.1' - very dark bluish gray, soft, fresh, 50% fines and sands (fine to medium grained, well sorted)	At 204.3': R-Scale = R3.5
			0			**Sandstone**	At 205.1': R-Scale = R3.5
206.5						At 205.1' - white and pink, laminated to medium bedding, fine sand, fresh, well sorted	
			0			205.5-107.5' - 5-10% <0.001' clasts	R40: 12:29-12:46
			0			207.5-209.3' - dark bluish gray, black laminae	At 207.3': R-Scale = R3.5
	R40HQ 5 ft 100%	100	0				At 207.5-209.3': R-Scale = R3.5
210 63.0			0	209.3' - Fracture, 20 deg, smooth, planar, break along lamination		209.3-211.2' - pinks, soft, fine sand to medium sand, well sorted	
			0				
211.5							
			0			211.2-212.5' - very dark bluish gray, soft, 10-20% fines	R41: 13:11-13:17
	R41HQ 1.7 ft 100%	87	0				At 211.9': R-Scale = R3.5
213.3						212.5-213.3' - white, pink, red, soft, fine sand to coarse sand, poorly sorted	R-Scale performed during rock core logging.
						Bottom of Boring at 213.3 ft bgs on 12/6/06 13:17	
215							

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

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
263.9	0.0						
		8.0	SS1SS	8-5-6-8 (11)	**Clay (CL)** 0.0-0.7' - reddish brown, mottled yellow and white, medium stiff, soft, trace very fine sand, scattered coarse sand, tip has medium sand, fill or reworked native material		
	2.0						
	2.5						
		14.0	SS2SS	4-5-5-50/5 (10)	**Lean Clay (CL)** 2.5-3.7' - reddish brown, moist, stiff, medium plasticity, no dilatancy, yellow mottling, scattered bedrock pieces to coarse sand sized		
	4.5						
5							
258.9	5.0	1.0	SS3SS	50/1 (50/1")	**Lean Clay (CL)** 5.0-5.1' - reddish brown, moist, stiff, medium plasticity, no dilatancy, yellow staining, scattered bedrock pieces to coarse sand sized		Soil sampling completed at 14:10 on 4/21/06
	5.1						
	5.6				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:	BORING NUMBER:	
338884	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

WATER LEVELS : 7.1 ft bgs

START : 4/21/06 13:30

END : 4/24/06 15:45

LOGGER : JS/DT/JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	5.6		1			**Siltstone** At 5.6' - reddish brown, soft, fine grained, green along fracture/bedding planes 6.3-6.8' - pink-white to light gray rip-up clasts of siltstone 6.8-14.2' - moderately weathered	Rock coring began at 14:25 on 4/21/06 R1: 14:25-14:38 and 14:40-14:50 on 4/21/06
			1	6.5' - Fracture, horizontal, rough, undulating, tight fit			
			0				
			1	9.0' - Fracture, horizontal, smooth, undulating, tight fit			
10 253.9			2	10.0' - Fracture, horizontal, rough, undulating			
	R1NQ 9.9 ft 99%	82*	2	10.4' - Fracture, horizontal, rough, undulating			
			3	11.1' - Fracture, 80 deg, rough, undulating 11.4' - Fracture, 80 deg, rough, undulating			
			2	12.0' - Fracture, horizontal, rough, undulating 12.2' - Fracture, horizontal, rough, undulating 12.3' - Fracture, horizontal, rough, undulating 12.8' - Fracture, horizontal, rough, undulating 13.0' - Fracture, horizontal, rough, undulating			
			3	13.7' - Fracture, 15 deg, smooth, undulating 14.0' - Fracture, 15 deg, smooth, undulating 14.3' - Fracture, 15 deg, smooth, undulating		14.2-31.2' - fresh	
15 248.9			1	15.1' - Fracture, 15 deg, smooth, undulating			
	15.5		2	15.6' - Fracture, horizontal, rough, planar 15.8' - Fracture, horizontal, rough, planar			R2: 15:23-15:30 and 15:32-15:43
			1				
			1	17.4' - Fracture, 50 deg, rough, undulating			
			0			18.5-20.5' - siltstone rip-up clasts, some along areas of fractures	
20 243.9			0				
	R2NQ 10 ft 92%	83	3	20.8' - Fracture, 60 deg, rough, undulating		20.0-25.5' - light gray to white siltstone infilling within former fractures in rip-up clasts, some white fracture infilling may be calcitic	
			2	21.4' - Fracture, 60 deg, rough, undulating 21.8' - Fracture, horizontal, rough, undulating 21.9' - Fracture, horizontal, rough, undulating 22.0' - Fracture, horizontal, rough, undulating			
			1	23.2' - Fracture, horizontal, rough, undulating			
			1	24.1' - Fracture, horizontal, slickensided, undulating		24.0-24.5' - green mottling	
25 238.9	25.5		1				

PROJECT NUMBER:	BORING NUMBER:
338884	BGA-1 SHEET 3 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

WATER LEVELS : 7.1 ft bgs

START : 4/21/06 13:30

END : 4/24/06 15:45

LOGGER : JS/DT/JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			2				R3: 08:45-09:25 on 4/24/06
			4	26.3' - Fracture, <5 deg, slickensided, undulating 26.4' - Fracture, 30 deg, rough, undulating 26.8' - Fractures (2), <5 deg, rough, undulating			
			1	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 100%	92	1	30.0-30.5' - Fracture, rough, undulating, near vertical fracture (on edge of core and through it)			
			0			**Sandstone** At 31.2' - light gray to white, dark reddish brown in matrix, very fine sand to coarse sand, poorly sorted, fresh, 20% coarse sand 32.0-32.6' - reddish brown, fresh 32.6-34.5' - pinkish brown, coarse to very coarse grained sand, moderately to well sorted 32.6-34.2' - fresh 34.2-34.5' - highly weathered	
			0				
			0				
			1				
35 228.9	35.0			34.5-35.0' - Fracture, capillary fracturing		**Siltstone** 34.5-35.0' - reddish brown, highly weathered	R4: 09:42-10:15
			0			**Sandstone** 35.0-37.8' - white, gray, and black, medium sand to coarse sand, poorly sorted, fresh	
			0				
			0				
			1	37.8' - Fracture, 30 deg, rough, undulating		**Siltstone** 37.8-60.8' - reddish brown to brown, fine grained 37.8-41.9' - fresh 38.7' - white siltstone rip-up clasts 39.3' - white siltstone rip-up clasts	
			0				
40 223.9	R4NQ 10 ft 100%	94	1	39.8' - Fracture, <5 deg, rough, undulating		39.8' - white siltstone rip-up clasts	
			0			40.4-40.5' - white siltstone rip-up clasts	
			2				
			10+	41.8' - Fracture, rough, undulating 42.0' - Fracture, rough, undulating 42.1-42.3' - Fracture zone, fractured/broken fragments		41.9-42.5' - highly weathered 42.5-60.8' - fresh	
			0				
			0				
45 218.9	45.0			45.0' - Fractures, small (0.05') disc fractures			R5: 10:35-11:25

PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-1	SHEET 4 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

WATER LEVELS : 7.1 ft bgs

START : 4/21/06 13:30

END : 4/24/06 15:45

LOGGER : JS/DT/JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, 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				
			0				
			0				
50 213.9	R5NQ 10 ft 100%	100	0				
			0				
			0				
			0				
			1	53.0' - Fracture, <5 deg, rough, undulating			
			0				
55 208.9	55.0		1			55.0-65.0' - weak red to very dusky red, mottled blue-green along relic fractures, soft	R6: 11:35-13:45
			5	56.3' - Fracture, <5 deg, rough, undulating 56.5' - Fracture, <5 deg, rough, undulating			
			3	56.5' - Fracture, <5 deg, rough, undulating 56.7' - Fracture, 10 deg, rough, undulating 56.9' - Fracture, <5 deg, rough, undulating		57.5-58.0' - white-gray inclusions	
			2	57.1-57.2' - Fracture, horizontal/parallel, rough, undulating 58.2' - Fracture, <5 deg, rough, undulating			
			1				
60 203.9	R6NQ 10 ft 100%	91	1	59.9' - Fracture, 10 deg, rough, undulating 60.0-62.0' - Fractures, horizontal and vertical, hairline fractures			
			1			**Sandstone** 60.8-65.0' - weak red, gray-green mottling, hard, fresh, coarsens to 60.8'; fining upward sequence below	
			1				
			1	62.0' - Fracture, >80 deg, rough, undulating 62.0-63.0' - Fracture, vertical, white calcitic infilling, hairline fracture			
			1				
			1				
65 198.9	65.0						R7: 13:54-14:40

PROJECT NUMBER:	BORING NUMBER:
338884	BGA-1 SHEET 5 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

WATER LEVELS : 7.1 ft bgs

START : 4/21/06 13:30

END : 4/24/06 15:45

LOGGER : JS/DT/JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION — DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	LITHOLOGY — ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	COMMENTS — SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
			0			**Siltstone**	
			1	66.8' - Fracture, 10 deg, rough, undulating		At 65.0' - very dusky red to dark reddish brown, soft, fresh, fine grained	
			1	67.8' - Fracture, <5 deg, rough, undulating			
			0				
			0				
70 193.9	R7NQ 10 ft 99%	99	0			70.0-74.5' - mottled blue-green along relic fractures	
			0				
			0				
			0				
			0				
			1	74.3' - Fracture, <5 deg, rough, undulating		74.5-75.0' - white inclusions	
75 188.9	75.0					75.0-76.0' - heavily mottled blue-green along relic fractures	R8: 14:55-15:45
			0				
			1	76.0' - Fracture, horizontal, small hairline crack			
			0				
			1				SC-1 collected 78.0-78.9'
			0				
80 183.9	R8NQ 10 ft 102%	100	0			80.0-84.0' - mottled blue-green	
			0				
			0				First water level = 7.12' bgs taken 4/25/06 at 07:35
			0				
			0				
			0			**Sandstone**	R-Scale not performed on rock core samples
85 178.9	85.0					84.0-85.0' - weak red, heavily mottled blue-green, fresh, coarse grained	
						Bottom of Boring at 85.0 ft bgs on 4/24/06 15:45	

PROJECT NUMBER:	BORING NUMBER:
338884	BGA-2 SHEET 1 OF 5

SOIL BORING 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

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

ORIENTATION : Vertical

WATER LEVELS : 5.0 ft bgs

START : 6/1/06 13:48

END : 6/2/06 14:24

LOGGER : LH

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	PP (TSF)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
262.4	0.0				**Clay (CL)** 0.0-0.2' - very dark gray, dry, stiff, some roots and organics, topsoil			
		20.4	SS1SS	6-5-6-6 (11)	**Silty Gravel (GM)** 0.2-0.4' - brown, dry, medium, some silt, little organics			
	2.0				**Clay (CL)** 0.4-1.7' - reddish brown, black mottling, dry to moist, stiff, trace coarse sand and fine gravel; trace roots			PP: friable
	2.5				**Clay (CL)**			
		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	
	4.5							
5								
257.4	5.0	2.4	SS3SS		**Clayey Sand (SC)**			Soil sampling completed at 14:20 on 6/1/06
	5.2			50/3 (50/3")	5.0-5.2' - very dusky red, moist to wet, very dense Begin Rock Coring at 5.5 ft bgs See the next sheet for the rock core log			
10								
252.4								
15								
247.4								
20								

PROJECT NUMBER:	BORING NUMBER:
338884	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

WATER LEVELS : 5.0 ft bgs

START : 6/1/06 13:48

END : 6/2/06 14:24

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND 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	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				**Sandstone** At 6.5' - light gray, soft to hard, thin to massive bedding, fine sand to coarse sand	
	8.8						At 8.0' bgs coring water turned from red to purple
	R2NQ 1.2 ft 71%	0	0			6.5-10.0' - highly weathered	At 8.8-10.0': R-Scale = R1 R2: 16:03-16:16
10	10.0						
252.4			0			10.0-17.3' - moderately weathered	R3: 16:22-16:30
			0				
	R3NQ 5 ft 98%	98*	0				At 12.5-16.1': R-Scale = R1
			0				
			0			14.0-15.0' - reddish brown	
15	15.0						
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			**Siltstone** 18.0-22.1' - gray, very soft, laminated bedding, sandy near top, high clay content 18.0-18.6' - highly weathered 18.6-22.1' - slightly weathered 18.9-22.1' - very dark gray, mottled greenish gray, very soft to soft	
			0	18.9' - Fracture, 45 deg, smooth, undulating			
20	20.0						
242.4			1	20.3' - Fracture, horizontal, rough, undulating			R5: 16:53-17:04
			8	21.2' - Fracture, horizontal, smooth, undulating 21.3' - Fracture, horizontal, smooth, undulating			At 20.7': R-Scale = R2
	R5NQ 5 ft 100%	85	0	21.3' - Fracture, horizontal, smooth, undulating 21.4' - Fracture, horizontal, smooth, undulating 21.5' - Fracture, horizontal, smooth, undulating		**Sandstone** 22.1-23.8' - very dark gray, soft to hard, fine sand to medium sand, slightly weathered 22.6-23.8' - light gray	At 22.5': R-Scale = R3
			2	21.5' - Fracture, horizontal, smooth, undulating 21.6' - Fracture, horizontal, smooth, undulating			
			0	23.8' - Contact between siltstone and sandstone, sharp		**Siltstone** 23.8-40.0' - very dark gray, mottled greenish gray, very soft to soft 23.8-30.0' - fresh to slightly weathered	
25	25.0						
237.4							

PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-2	SHEET 3 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

WATER LEVELS : 5.0 ft bgs

START : 6/1/06 13:48

END : 6/2/06 14:24

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			5	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
			4	25.1' - Fracture, horizontal, rough, planar, edges rounded			
	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 material reddish brown	At 27.7': R-Scale = R3
			1	25.9' - Fracture, horizontal, rough, planar, tight, friable		28.5-29.0' - soft, very fine to fine white sandstone inclusions; parent material has been stained by surrounding material reddish brown	
			4	26.0' - Fracture, horizontal and 45 deg, smooth, undulating, edges rounded			
30	30.0			26.2' - Fractures (2), horizontal, rough, undulating, edges rounded, friable material			
232.4			10+	26.2' - Fracture, horizontal, rough, undulating, edges rounded, friable material		30.0-40.0' - fresh	R7: 09:55-10:07
			10+	27.0' - Fracture, 45 deg, rough, stepped, tight fit			
	R7NQ 5 ft 100%	64	1	28.2' - Fracture, 45 deg, rough, undulating, slightly altered fracture; some material lost or crumbly 29.7' - Fracture, horizontal, rough, planar, friable material			At 32.4': R-Scale = R3
			0	29.8' - Fracture, horizontal, rough, planar, friable material			
			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
35	35.0						
227.4			1	30.3' - Fracture, horizontal and 45 deg, smooth, planar to undulating		35.0-40.0' - trace medium sand	R8: 10:15-10:26
			1	30.4' - Fracture, horizontal and 45 deg, smooth, planar to undulating 30.5' - Fracture, horizontal and 45 deg, smooth, planar to undulating			
	R8NQ 5 ft 100%	80	0	30.8-31.5' - Fracture zone, horizontal and vertical, smooth, planar to undulating, friable material			SC-1 collected 37.4-38.4'
			2	31.7' - Fracture, 30 deg, smooth, undulating 32.8' - Fracture, 15 deg, smooth, undulating 34.1' - Fracture, 45 deg, tightly healed			
			1	34.7-35.0' - Fracture zone, horizontal, smooth, undulating			At 39.2': R-Scale = R3-R4
40	40.0			35.1' - Fracture, horizontal, rough, planar			
222.4			0	36.7' - Fracture, horizontal, rough, undulating, tight fit		39.8-39.9' - large (>0.05' thick) greenish gray mottles	R9: 10:33-10:43
			0	38.9' - Fracture, horizontal, rough, undulating 39.7' - Fracture, horizontal, rough, planar, tight fit		**Sandstone** 40.0-47.5' - dusky red, medium bedding, very fine sand to fine sand, fresh, trace medium sand, quartz and feldspars, very soft	At 41.5': R-Scale = R3
	R9NQ 5 ft 100%	100	1	42.2' - Fracture, horizontal, smooth, undulating		42.3-45.0' - fine sand to medium sand, gray and white, soft	
			0				At 43.6': R-Scale = R3
			0			44.0-45.0' - banded, light and dark	
45	45.0						
217.4							R10: 10:52-11:00

PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-2	SHEET 4 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

WATER LEVELS : 5.0 ft bgs

START : 6/1/06 13:48

END : 6/2/06 14:24

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			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
			0				
	R10NQ 5 ft 98%	83	10+	46.7' - Fracture, 45 deg, tightly healed 47.0' - Fracture, horizontal, rough, planar 47.2-47.5' - Fracture zone, horizontal and vertical, rough, planar		**Siltstone** 47.5-57.9' - dark reddish brown, greenish gray mottling, very soft to soft, fresh, trace very fine sand throughout	
			0	47.5-50.0' - Trace microfractures with greenish gray infilling			
			0	47.9' - Fracture, 15 deg, smooth, undulating		47.5-50.0' - very soft, gravel sized clasts with no grains apparent, laminated beds; vugs <0.01' thick; linear vertical lines throughout	
50 212.4	50.0					50.0-51.0' - gravel sized very fine clasts	R11: 11:00-11:17
			10+	50.7-51.0' - Fracture zone, horizontal and 45 deg, vertical, rough, undulating			
			0				At 51.5': R-Scale = R3
	R11NQ 5 ft 92%	70	1				
			10+	52.9' - Fracture, 45 deg, rough, undulating			At 53.5': R-Scale = R3
			10+	53.9-54.8' - Fracture zone, horizontal and 45 deg, vertical, rough, undulating			
55 207.4	55.0			54.9' - Fracture, horizontal, rough, undulating		55.0-57.9' - becomes coarser with depth	R12: 11:38-11:49
			1	55.0' - Fracture, horizontal, rough, undulating			
			1	56.0' - Fracture, horizontal, rough, undulating, tight fit			
	R12NQ 5 ft 100%	76	0	56.2' - Fracture, horizontal, rough, undulating, tight fit			At 57.2': R-Scale = R3
			0			**Sandstone** 57.9-59.2' - dark gray, hard, fresh, dark reddish brown, medium bedding	
			10+	59.3-59.7' - Fracture zone, horizontal and vertical, horizontal fractures are smooth, stepped, and friable; vertical fractures are smooth, slickensided and tight		**Siltstone** 59.2-70.4' - dark reddish brown, very soft, fresh	
60 202.4	60.0					59.2-60.0' - high clay content; laminated beds except in slickenside	R13: 11:57-12:04
			10+	60.0-60.2' - Fracture zone, horizontal, rough, planar		60.0-61.2' - dark reddish brown and greenish gray, soft to hard, trace medium to coarse sand; becomes coarser with depth	At 60.7': R-Scale = R3
			1	61.1' - Fracture, 45 deg, rough, undulating, greenish gray hard infilling			
	R13NQ 5 ft 96%	92	0			61.2-65.0' - greenish gray mottling, very soft to soft, trace very fine sand throughout	
			0			61.2-63.4' - black coarse sand sized clasts	At 63.5': R-Scale = R3-R4
			0				
65 197.4	65.0			65.0-65.3' - Fracture, vertical, rough, planar			R14: 13:00-13:13

PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-2	SHEET 5 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

WATER LEVELS : 5.0 ft bgs

START : 6/1/06 13:48

END : 6/2/06 14:24

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			2	65.3' - Fracture, horizontal, smooth, planar, 0.001' clay infilling, black stains, tight fitted		65.0-70.0' - greenish gray mottling, 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 degree angle 70.0-70.4' - greenish gray mottling, very soft to soft, trace very fine sand throughout; becomes coarser with depth	
			1				
	R14NQ 5 ft 100%	84	0	66.8' - Fracture, 45 deg, smooth, undulating, 0.005' clay infilling, tight fitted			At 67.1': R-Scale = R3-R4
			1	68.5-68.7' - Fracture, 45 deg, hard white infilling			
			0	68.8' - Fracture, horizontal, rough, undulating 69.1' - Fracture, 30 deg, hard white infilling, tightly healed			At 69.4': R-Scale = R3-R4
70 192.4	70.0						R15: 13:40-13:53
			0			**Sandstone** 70.4-73.8' - dark reddish gray to dusky red, soft, very fine sand to fine sand, fresh, no clear contacts; grades from siltstone to sandstone and back	
			0				
	R15NQ 5 ft 100%	100	0				At 72.0': R-Scale = R3
			0				
			0			**Siltstone** 73.8-82.3' - dark reddish brown, greenish gray mottling, very soft to soft, trace very fine sand throughout 73.8-78.0' - fresh 75.0-80.0' - trace greenish gray mottling 75.0-77.6' - soft, laminated beds	
75 187.4	75.0						R16: 13:57-14:06
			0				
			0				At 76.3': R-Scale = R3-R4
	R16NQ 5 ft 100%	88	0				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		77.6-80.0' - very soft, trace medium grained sand 78.0-82.3' - slightly weathered	
			1	78.6' - Fracture, horizontal, smooth, undulating 78.7' - Fracture, horizontal, smooth, undulating			
80 182.4	80.0			79.0-79.4' - Fracture, 45 deg, tightly healed 79.5-79.6' - Fracture		80.0-82.3' - very soft, laminated beds	R17: 14:12-14:24
			3	79.9-80.0' - Fractures (2), horizontal and vertical, horizontal are rough, planar and vertical are slickensided			
			0	80.1-80.9' - Fracture zone, 60 deg and vertical, slickensided, undulating, very soft/smooth to the touch (rock is hard), cuts through laminated beds			At 81.8': R-Scale = R3-R4
	R17NQ 5 ft 100%	86	1	82.6' - Fracture, 10 deg, tightly healed		**Sandstone** 82.3-85.0' - dusky red, soft to hard, very fine sand to fine sand, fresh, very thin to medium bedding 83.5-84.2' - rock seems to have more silt (in layers)	First water level = 5.0' bgs taken 6/2/06 at 15:08; second water level = 7.9' bgs taken 6/5/06 at 10:05
			1	83.5' - Fracture, horizontal			
			3	84.5' - Fracture, horizontal, rough, planar			R-Scale performed after drilling on stored samples
85 177.4	85.0			84.8' - Fracture, horizontal, rough, undulating 85.0' - Fracture, horizontal, rough, undulating		Bottom of Boring at 85.0 ft bgs on 6/2/06 14:24	

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

WATER LEVELS : 9.4 ft bgs

START : 4/19/06 10:15

END : 4/26/06 09:50

LOGGER : JS

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
259.9	0.0						
		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		
	2.0						
	2.5						
		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		
	4.5						
5							
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						Drillers Remark: Hard at 7.5' bgs
	7.5						
		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		
	9.5						Soil sampling completed at 11:10 on 4/19/06
10							
249.9	10.0	1.0	SS5SS		**Clay (CL)**		
	10.1			50/1 (50/1")	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							
20							

PROJECT NUMBER:	BORING NUMBER:	
338884	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

WATER LEVELS : 9.4 ft bgs

START : 4/19/06 10:15

END : 4/26/06 09:50

LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	10.1		1	10.5' - Fracture, 70 deg, rough, undulating, loose fit		**Siltstone** 10.1-16.4' - dark reddish brown, mottled green and black, very soft to soft, slightly weathered, fine grained with fine sand throughout	Rock coring began at 09:30 on 4/21/06 R1: 09:30-10:30 on 4/21/06
			1				
	R1HQ 5.4 ft 85%	83	0	12.0' - Fracture, horizontal, rough, stepped, loose fit			
			0				
			0				
15 244.9	15.5						
			10+	15.6' - Fracture, horizontal, smooth, undulating, loose fit		15.5-16.4' - reddish brown, soft	14:20 ream out hole R2: 14:45-15:22
			1	16.0-16.4' - Fracture zone, horizontal and vertical, rough, undulating, tight and loose fits, piece fine gravel to >3		**Sandstone** 16.4-18.6' - reddish brown, fine sand to medium sand, slightly weathered, scattered coarse grains, fine gravel near 18.6', core surface is pitted, hard	
	R2HQ 5.8 ft 94%	77	1	16.7' - Fracture, 20 deg, rough, undulating, some fine sand and clay infilling, tight			
			3	18.1' - Fracture, horizontal, rough, undulating, some fine sand and clay infilling, tight 18.6' - Fracture, 20 deg, rough, stepped, with fractured pieces, coarse sand to fine gravel size, bedrock pieces, loose		**Siltstone** At 18.6' - reddish brown, soft, fine grained, scattered green mottling 18.6-34.5' - slightly weathered	
20 239.9			0	18.9' - Fracture, horizontal, smooth, stepped, loose fit			
	21.3		0	19.3' - Fracture, 10 deg, rough, stepped, tight fit			
			10+	21.3-21.4' - Fracture zone, horizontal, smooth, undulating, loose			R3: Finished at 16:15
			2			22.9-23.4' - very soft	
			3	23.1-23.5' - Fracture, horizontal and 70 deg, smooth, undulating, loose 23.8' - Fracture, horizontal, smooth, undulating, loose fit		23.4-26.1' - coarse sand sized green and black mottling	
25 234.9			0	23.9' - Fracture, horizontal, smooth, undulating, loose fit			
			10+	23.9' - Fracture, horizontal, smooth, undulating, loose fit			
	R3HQ 10.2 ft 93%	82	10+	26.1-27.5' - Fracture zone, horizontal and 80 deg, rough, undulating, plus many small pieces, fine gravel to coarse sand size, loose to tight		26.1-27.5' - dark reddish brown, mottled black, fine sand scattered throughout	
			10+	27.6-27.8' - Fracture zone, horizontal and 60 deg, rough, undulating, loose and tight		27.5-29.2' - very soft to soft, white and reddish brown in a streaked pattern	
			10+	28.0' - Fracture, 30 deg, smooth, undulating, tight			
				28.5' - Fracture, horizontal, smooth, undulating, loose fit		29.2-31.5' - dark reddish brown, green mottling, soft	
30			0				

PROJECT NUMBER:	BORING NUMBER:	
338884	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 LEVELS : 9.4 ft bgs

START : 4/19/06 10:15

END : 4/26/06 09:50

LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0	29.1-29.2' - Fracture zone, horizontal and 30 deg, smooth, undulating, loose			
31.5							
			10+	32.1-34.2' - Fracture zone, horizontal, rough to smooth, stepped, loose fit		31.5-34.3' - dark reddish brown, mottled white, green, and purple, very soft to soft, green and white in vein pattern; purple in scattered coarse sand size	R4: 09:06-10:05 on 4/24/06
			10+				
			10+				
35 224.9			0			34.3-41.5' - dark reddish brown, trace green and purple mottling, soft 34.5-47.5' - fresh	
	R4HQ 10 ft 99%	86	1	36.1' - Fracture, horizontal, smooth, planar, rough to smooth, stepped, loose fit			
			0				SC-1 collected 37.3-38.2'
			0				
			0				
40 219.9			0				
			1	40.7' - Fracture, 30 deg, smooth, undulating, tight fit			
41.5							
			3	42.0' - Fracture, horizontal, smooth, planar, tight fit		41.5-50.5' - dark reddish brown, mottled white, green, and purple, soft, green and white in vein pattern; purple in scattered coarse sand size	R5: 10:15-11:10
			1	42.1' - Fractures (2), horizontal, smooth, undulating, loose fit, rough			
			0	42.1' - Fracture, horizontal, rough, undulating, loose fit 42.8' - Fracture, 10 deg, smooth, undulating, loose fit			
45 214.9			0				
	R5HQ 10 ft 93%	80	0				
			0				
			10+	47.5-48.3' - Fracture zone, horizontal and 50 deg, rough, stepped to undulating, loose		47.5-48.0' - slightly weathered **Siltstone** At 48.0' - very dark gray 48.0-50.5' - slightly weathered 48.7-50.2' - white and green mottling	
			3	48.7' - Fracture, horizontal, rough to smooth, stepped, loose 49.3-50.0' - Fractures, horizontal and 20 deg, 80, 150, rough to smooth, stepped, tight, loose			
50							

PROJECT NUMBER:	BORING NUMBER:	
338884	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

WATER LEVELS : 9.4 ft bgs

START : 4/19/06 10:15

END : 4/26/06 09:50

LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			3				
			1	50.6' - Fracture, horizontal, smooth, undulating, loose fit		50.5-51.5' - soft to hard, mostly white sand pebbles; fine grained with ~40% fine to medium sand	
51.5						51.5-53.5' - green mottling, soft to hard, with fine to medium sand, mostly white sand, irregular throughout	R6: 11:40-12:25
			0				
			0				
			0			53.5-55.4' - Siltstone/Sandstone gradational contact	
55 204.9			0				
	R6HQ 10 ft 97%	97	0			**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				
			0				
			0				
60 199.9			0				
			0				
61.5							R7: 13:00-13:30 and 14:00-14:25 SC-2 collected 61.5-62.6'
			0				
			1	62.6-65.5' - Microfractures, capillary pattern 62.6' - Fracture, 10 deg, smooth, planar, loose		62.45' - becomes fine grained sand **Siltstone** 62.6-65.5' - dark reddish brown, mottled green, purple, and dark gray, soft, fresh, fine grained, scattered fine sand	
			0				
65 194.9			1				
	R7HQ 10 ft 100%	98	0	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	
			0				
			2				
			0	68.3' - Fracture, horizontal, smooth to rough, stepped, loose 68.4' - Fracture, horizontal, smooth to rough, stepped, loose			
70							

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 : 9.4 ft bgs

START : 4/19/06 10:15

END : 4/26/06 09:50

LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				
			1	70.5' - Fracture, horizontal, rough, stepped, loose			
71.5							
			2	71.5' - Fracture, horizontal, smooth, undulating, loose		71.5-72.8' - some yellow inclusions	R8: 14:40-15:20
			0	72.0' - Fracture, horizontal, smooth, planar, loose		**Siltstone** At 72.8' - dark reddish brown, green to trace green mottling, soft, fresh	
			1				
75 184.9			0	74.4' - Fracture, horizontal, smooth, planar, tight			
	R8HQ 10 ft 95%	95	1				
			0	76.3' - Fracture, horizontal, smooth, planar, tight			SC-3 collected 76.28-77.56'
			0	78.0-90.1' - Capillary microfracture pattern			
			0				
80 179.9			0				
			0				
81.5							
			0			81.5-90.1' - black and green mottling, fine grained	R9: 15:30-16:15
			0				
			0				
85 174.9			0			84.8' - fine to medium sand , white inclusions begin, becomes hard	
	R9HQ 10 ft 100%	98.4	1	86.3' - Fracture, horizontal, smooth, planar, tight to loose			
			0			86.8' - inclusions, numerous, up to fine gravel sized, some mottling	
			0				
			0				
90							

PROJECT NUMBER:	BORING 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

WATER LEVELS : 9.4 ft bgs

START : 4/19/06 10:15

END : 4/26/06 09:50

LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			89.8-90.1' - transition to sandstone layer	
			3+	90.5' - Fracture, 80 deg, rough, undulating, thin quartz infilling, tight		**Sandstone**	
91.5				90.7' - Fracture, horizontal, rough, undulating, plus several coarse gravel sized fragments, broken bedrock		90.1-90.7' - dark gray, hard to thin, fine sand to medium sand, fresh, multi-colored grains	R10: 08:10-08:55 on 4/25/06
			0	91.4' - Fracture, horizontal, rough, stepped, tight		**Siltstone**	
			0			90.7-126.3' - dark gray to dusky red, mottled yellow and green, soft, fresh, fine grained	
			0			91.5-101.5' - dark reddish brown, green mottling, soft to hard	
95 164.9			0			91.5-94.4' - soft to hard, white, gray and green beds; not uniform and irregularly shaped; some swirled	
	R10HQ 10 ft 100%	99	1	96.1' - Fracture, 5 deg, smooth, undulating			
			1	96.9' - Fracture, horizontal, smooth, planar, tight fit			
			0				
			0				
100 159.9			0				
			0				
101.5							
			0			101.5-111.5' - dusky red, white and gray mottling, soft to hard, fine sand mica particles	R11: 09:20-09:55
			0			102.6-103.0' - medium to coarse sand throughout	
			0			102.8-102.9' - medium to coarse sand band at 20 degrees from horizontal	
105 154.9			0			104.0-111.5' - dark reddish brown, scattered green and purple mottling, few fine gravel sized whitish inclusions; fine mica particles throughout	
	R11HQ 10 ft 97%	97	0				
			0				
			0				
			0				
110							

PROJECT NUMBER:	BORING NUMBER:	
338884	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

WATER LEVELS : 9.4 ft bgs

START : 4/19/06 10:15

END : 4/26/06 09:50

LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			109.3-111.5' - numerous white inclusions, coarse sand to fine gravel sized; same hardness as matrix	
			1	111.1' - Fracture, 60 deg, rough, planar to undulating, loose-tight			
111.5						111.5-121.5' - dark reddish brown, green mottling	R12: Began at 10:45
			1	111.5-123.0' - Fine capillary microfracture pattern			
			0	111.8' - Fracture, horizontal, smooth to rough, planar to undulating			
			0				
115 144.9			0			114.7-116.1' - scattered white and black sand, medium grained sand	
	R12HQ 10 ft 99%	96	0				SC-4 collected 115.6-116.6'
			0				
			0			117.7-120.4' - 25% fine to coarse sand particles scattered throughout	
			0				
120 139.9			0				
			0				
121.5						121.5-123.0' - dark reddish brown, mottled yellow, purple, red, and green	R13: Finished at 13:30
			0				
			1	123.3' - Fracture, 50 deg, smooth to rough and undulating, loose fit		123.0-126.3' - hard, fine sand increasing with depth; occasional medium sand	
			0				
125 134.9			0				
	R13HQ 10 ft 95%	95	0				
			0	126.3-131.5' - Scattered microfractures		**Sandstone** At 126.3' - very dark gray to black, hard, fine sand, fresh 126.3-131.5' - mottled black, bluish gray and red	
			0				
			0				
130							

PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-3	SHEET 8 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 : 9.4 ft bgs

START : 4/19/06 10:15

END : 4/26/06 09:50

LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				
			0				
131.5							
			0			131.5-135.7' - 20 degree bedding, black, blue-green, and yellow	R14: 14:10-14:35
			0				
			0			133.6' - medium to coarse sand bed	
135 124.9			1				
	R14HQ 10 ft 100%	98	0	135.5' - Fracture, 20 deg, rough, stepped, tight fit		135.3-135.7' - transition zone; medium sand with silt/clay lenses 135.6' - coarse sand 135.7-140.4' - gray, multi-colored particles, medium grained with bands of coarse grained	
			0				
			0				
			0				
140 119.9			1				
			1	140.4' - Fracture, 20 deg, smooth, stepped		**Siltstone** At 140.4' - dark reddish brown, green mottling, soft, fresh, fine grained	
141.5							
			1	141.3' - Fracture, horizontal, smooth, undulating, loose 141.7' - Fracture, horizontal, smooth, undulating to planar, loose		141.5-143.9' - soft to hard	R15: 14:51-15:45
			0				
			1	143.6' - Fracture, horizontal, smooth, stepped to planar, loose		143.9-145.0' - heavy yellow and blue-green mottling	
145 114.9			2	144.9' - Fracture, horizontal, smooth, stepped to planar, tight fit		145.0-147.0' - soft to hard	
	R15HQ 10 ft 99%	63	2	145.0' - Fracture, horizontal, rough, stepped, loose fit 145.0' - Fracture, horizontal, smooth to rough, undulating, loose			
			0	146.2' - Fracture, horizontal, smooth, planar, loose fit		147.0-148.0' - transition zone, becomes very dark greenish gray	
			1	146.2' - Fracture, horizontal, rough, stepped, loose fit 148.0-154.8' - Fine microfractures		**Siltstone** At 148.0' - very dark greenish gray, red and yellow mottling, soft, fresh, fine grained	
			10+	148.2' - Fracture, horizontal, smooth, undulating, loose fit, with some rough areas 149.0' - Fracture, horizontal, smooth, stepped, loose fit			
150							

PROJECT NUMBER:	BORING NUMBER:	
338884	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 LEVELS : 9.4 ft bgs

START : 4/19/06 10:15

END : 4/26/06 09:50

LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0	149.2' - Fracture, horizontal, smooth to rough, undulating, loose fit		149.7-151.5' - hard, fine white and black beds	SC-5 collected 149.7-150.9'
			10+	149.5-149.7' - Fracture zone 150.9' - Fracture, 20 deg, smooth, planar, tight fit			
151.5							
			2	151.7' - Fracture, horizontal, smooth, stepped, loose		151.5-154.8' - very dark gray, hard, fine grained; lighter and darker thin streakings throughout	R16: 16:30-17:18
			0	151.8' - Fracture, 30 deg, smooth, undulating, tight			
			3	154.0' - Fracture, horizontal, smooth, undulating, loose fit			
155 104.9			1	154.2' - Fracture, horizontal, smooth, planar, loose fit		**Conglomerate** 154.8-155.3' - fresh, medium to coarse sand sized clasts, multicolored, harder than siltstone	
			0	154.2' - Fracture, 10 deg, smooth to rough, undulating, tight fit			
	R16HQ 10 ft 100%	96		155.9' - Fracture, 30 deg, smooth, undulating		**Siltstone** 155.3-155.7' - very dark gray, hard, fresh, fine grained; lighter and darker thin streakings throughout	
			0			**Conglomerate** 155.7-155.8' - fresh, medium to coarse sand sized clasts, multicolored, very hard	
			0				
			0			**Siltstone** 155.8-159.2' - very dark gray, soft, fresh, fine grained 158.9-159.2' - transition zone	First water level = 9.4' bgs taken 4/26/06 at 17:00; second water level = 5.4' bgs taken 4/27/06 at 09:19
160 99.9			0	159.2-161.5' - Fine microfractures			
			0			**Siltstone** 159.2-161.5' - dark reddish brown, soft to hard, fresh, fine grained	
161.5							
			2	161.8' - Fracture, 80 deg, smooth, undulating, some thin white infilling, tight fit		**Siltstone** 161.5-162.0' - very dark gray, red, yellow, dark brown, and green mottling, very soft to soft, fresh, fine grained	R17: 09:22-09:50
			5	162.1' - Fracture, horizontal, smooth, undulating, loose fit			
	R17HQ 5 ft 95%	34		162.5' - Fracture, horizontal, smooth, undulating, loose fit		**Siltstone** 162.0-166.5' - dusky red, very soft to soft, fresh, fine grained, convoluted dark brown, red, yellow, and green mottling	
			1	162.9' - Fracture, horizontal, smooth, undulating, loose fit			SC-6 collected 163.5-164.4'
				163.1' - Fracture, horizontal, smooth, undulating, loose fit			Rig bounced a lot on 161.5-166.5' due to loose casing at surface; terminated boring.
165 94.9			4	163.4' - Fracture, horizontal, smooth, undulating, loose fit		165.0-166.0' - soft to hard, fine sand lenses	
			3	163.5' - Fracture, horizontal, smooth, undulating, loose fit			R-Scale not performed on rock core samples
166.5				164.4' - Fracture, horizontal, smooth, undulating, loose fit		Bottom of Boring at 166.5 ft bgs on 4/26/06 09:50	
				164.6' - Fracture, horizontal, smooth, undulating, loose fit			
				164.9' - Fracture, horizontal, smooth, undulating, loose fit			
				165.1' - Fracture, horizontal, smooth, undulating, loose fit			
				165.4' - Fracture, horizontal, smooth, undulating, loose fit			
170							

PROJECT NUMBER:	BORING NUMBER:
338884	BGA-3 SHEET 10 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 : 9.4 ft bgs

START : 4/19/06 10:15

END : 4/26/06 09:50

LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION — DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	LITHOLOGY — ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	COMMENTS — SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
				166.1' - Fracture, horizontal, smooth, undulating, loose fit			
175 84.9							
180 79.9							
185 74.9							
190							

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:
338884	BGA-4 SHEET 1 OF 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
WATER LEVELS : 18.5 ft bgs
START : 5/12/06 11:45
END : 5/26/06 13:05
LOGGER : DT/JF

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
275.0	0.0				**Clayey Sand (SC)** 0.0-1.0' - yellowish brown, moist, loose, trace silt organics		
		14.0	SS1SS	3-4-5-5 (9)	**Fat Clay (CH)** 1.0-1.2' - yellowish red, mottled, moist, stiff, medium to high plasticity, trace organics		
	2.0						PT-1 collected 2.0-4.0' ST-2 collected 2.5-4.1'
	2.5	20.0	ST2ST		**Clay (CL)** 2.5-4.2'		
	4.5						
5							
270.0	5.0	12.0	SS3SS	45-50/4 (50/4")	**Clay (CL)** 5.0-6.0' - strong brown, moist, hard, low plasticity, black oxidized nodules, trace fine sand		
	7.0				**Silty Sand (SM)** 6.0-7.0' - very pale brown, moist, hard, fine grained, micaceous		
	7.5	5.0	SS4SS	50/5 (50/5")	**Silty Sand (SM)** 7.5-7.9' - very pale brown, moist, hard, fine grained, micaceous		
	9.5						
10							
265.0	10.0	5.5	SS5SS	50/5.5 (50/5.5")	**Siltstone** 10.0-10.5' - dark reddish brown, soft, trace fine sand, black oxidized nodules, some lamination, micaceous		
	12.0						
	12.5	3.0	SS6SS	28-50/3 (50/3")	**Siltstone** 12.5-13.3' - dark reddish brown, soft, trace fine sand, black oxidized nodules, some lamination, micaceous		
	14.5						Soil sampling completed at 13:40 on 5/12/06
15							
260.0	15.0 15.1	2.0	SS7SS	50/2 (50/2")	**Siltstone** 15.0-15.1' - dark reddish brown, soft, fine grained, thinly laminated bedding at 20 degrees Begin Rock Coring at 15.1 ft bgs See the next sheet for the rock core log		
20							

PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-4	SHEET 2 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 : 18.5 ft bgs

START : 5/12/06 11:45

END : 5/26/06 13:05

LOGGER : DT/JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	15.1		1	15.3' - Fracture, 5 deg, rough, undulating, tight, 0.05' relief		**Sandstone** At 15.1' - dark reddish brown, soft, very fine sand to fine sand, slightly weathered, thinly laminated bedding at 20 degrees	Rock coring began at 10:30 on 5/25/06
			1	16.5' - Fracture, 40 deg, rough, undulating, black stains, 0.02' relief		15.5-20.0' - slightly weathered	R1: 10:30-10:40 and 12:45-13:10 on 5/25/06
	R1NQ 4.9 ft 106%	96	0			17.1-20.4' - reddish brown, fine sand to medium sand, subangular to angular	At 16.2': R-Scale = R1
			1	18.4' - Fracture, 40 deg and 50 deg, rough, undulating, black stains, tight, 0.02' relief, perpendicular to bedding		18.1' - pale red to reddish brown, red mottling	
			2			18.6' - thin black oxidized bands parallel/subparallel to bedding 0.03-0.2' apart	
20	20.0			19.7' - Fracture, 20 deg, rough, undulating, tight		19.4' - gradational from fine to coarse sand, subangular grains	
255.0			2	19.8' - Fracture, 20 deg, rough, undulating, tight		20.0-21.0' - highly weathered	R2: 13:15-13:30
			10+	20.6' - Fracture, 20 deg, rough, undulating, tight, parallel to bedding		20.4-20.5' - strong brown, more fine-grained sand strong brown with small scale (0.03-0.1') long perpendicular to bedding, dendritic pattern of thin black lines	
	R2NQ 5 ft 56%	0	0	20.7' - Fracture, 70 deg, rough, undulating, black stains, perpendicular to parallel breaks		**Claystone** 21.0-21.6' - dark reddish brown, tan, and blue green, heavily mottled, very soft, highly weathered, very fine grained	21.6-21.7' of recovery of 0.1' represents 1.2' of material as no other zone was crumbled
				21.0' - Contact between siltstone and sandstone, 20 deg, rough, undulating, parallel to bedding			At 22.4': R-Scale = R1
				21.6-21.7' - Fracture zone, heavily fractured rock/clay zone, crumbled			At 23.4': R-Scale = R1
				23.7-24.6' - Horizontal hairlike fractures across bedding, bedding not readily visible		**Siltstone** At 21.6' - very dusky red, blue-green to light green mottling, very soft to soft, fine grained	
25	25.0					21.6-25.0' - highly weathered	
250.0			0	25.0' - Fracture, small horizontal capillary fractures		25.0-30.0' - very dusky red to dark reddish brown, blue-green mottling, slightly weathered	R3: 13:35-13:50
			0				
	R3NQ 5 ft 100%	100	0				
			0			28.6-28.8' - fine sand	
			0				
30	30.0						
245.0			1	30.3' - Fracture, 30 deg, rough, undulating, black stains, tight, small (not full break)		**Sandstone** At 30.0' - pinkish gray, soft to hard, medium bedding, fine sand, slightly weathered	R4: 14:10-14:35
			0			30.3-31.5' - red and red brown mottling	At 31.0': R-Scale = R1
	R4NQ 5 ft 100%	84	3			31.5-33.1' - fine sand to medium sand	
				32.7-32.9' - Fracture zone, rough, ~10 pieces			
			0			33.1-33.8' - light reddish gray, soft to hard, fine sand to medium sand, subangular	
			0			33.8-35.9' - light pinkish gray, pinkish-red mottling, becoming more coarse	
35	35.0						

PROJECT NUMBER:	BORING NUMBER:	
338884	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 : 18.5 ft bgs

START : 5/12/06 11:45

END : 5/26/06 13:05

LOGGER : DT/JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			1				R5: 14:40-14:50
			1	35.9' - Fracture, 5 deg, rough, undulating, 0.05-0.07' cm relief, sharp contact		**Siltstone**	SC-1 collected
	R5NQ			36.4' - Fracture, 5 deg, rough, undulating,		At 36.0' - dark reddish brown, heavy	35.0-35.9'
	5 ft	100	0	0.02' relief, small capillary fracture throughout		blue-green mottling, very soft, slightly	
	100%			siltstone		weathered, fine grained	
			0				At 38.3': R-Scale = R1
			0				
40	40.0						
235.0			0			40.0-41.1' - 20 degree bedding, mottled brown	R6: 14:55-15:10
			1	41.1' - Fracture, 5 deg, smooth, undulating		41.1-42.2' - red-brown,yellow, tan, blue-gray, heavily mottled, very soft to soft	
	R6NQ		2	42.2' - Fracture, 10 deg, rough, undulating		42.2-42.8' - punctuated by (0.05') clay seams	
	5 ft	92		42.7-42.8' - Fracture zone, 5 deg, rough,		**Sandstone**	
	100%		1	undulating		42.8-43.7' - greenish gray, soft to	At 43.2': R-Scale = R4
				43.7' - Clay seam, 5 deg, rough, undulating,		hard, thin bedding, fine sand to	
			0	little staining, small capillary fractures		medium sand, subangular to angular,	
45	45.0			throughout core		slightly weathered	
230.0			0	45.0-55.0' - Small capillary fractures		**Siltstone**	R7: 15:15-15:35
				throughout core		43.7-43.8' - blue gray, slightly	
			0			weathered, lens	
						Sandstone	
	R7NQ					43.8-44.2' - greenish gray, slightly	
	5 ft	100	0			weathered, band at 43.8-44.0' dark	
	100%					red brown tint, small elliptical (parallel	
						to bedding) dark red brown mottling,	
			0			thin bedding	
						Siltstone	
			0			44.2-45.0' - dark reddish brown ,	At 48.0': R-Scale = R1-R2
						blue-gray, mottled, slightly weathered,	
						bedding thinly laminated and wavy	
						0.05' band of dense elliptical dark	
						reddish brown soft at bottom	
50	50.0						
225.0			0	50.0' - Small capillary fractures throughout		**Siltstone**	R8: 15:40-16:00
				core		45.0-50.0' - very dusky red, trace	
			0			blue-green and purple mottling, soft,	At 50.7': R-Scale = R4
						fresh, fine grained	SC-2 collected
						Sandstone	51.6-52.4'
	R8NQ					50.0-60.8' - very dusky red, trace	
	5 ft	100	0			blue-green and purple mottling, soft,	
	100%					fine sand, fresh, medium to laminated	
						bedding	
			0			51.2-55.0' - trace blue-gray mottling,	
						medium grained sandstone lenses,	
			0			angular grains	
55	55.0						

PROJECT NUMBER:	BORING 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 : 18.5 ft bgs

START : 5/12/06 11:45

END : 5/26/06 13:05

LOGGER : DT/JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0	55.0' - Contact between sandstones, 30 deg, sharp contact		55.0-55.9' - very dark gray, trace mottling, soft to hard	R9: 08:30-08:55 on 05/26/06
			0			55.9-60.8' - dark gray, fine sand to medium sand 56.0-56.3' - very dark gray, trace mottling, medium sand	
	R9NQ 5 ft 100%	100	0			56.3-60.8' - light gray to gray, soft to hard, fine sand to coarse sand, subangular	At 57.3': R-Scale = R3
			0				
			0				
60	60.0						
215.0			0	60.0-65.0' - Small capillary microfractures in core (siltstone portion)		60.0-60.8' - fine to medium sandstone, finer sandstone <30 deg bedding	R10: 09:00-09:30
			0			**Siltstone** 60.8-66.5' - dark reddish brown, blue-green mottling, very soft, fresh, fine grained	
	R10NQ 5 ft 100%	100	0				At 61.6': R-Scale = R3
			0				
			0				
65	65.0						
210.0			0				R11: 09:40-10:06
			0			65.6-66.5' - fine sand increasing, gradational contact with sandstone	
	R11NQ 5 ft 100%	100	0			**Sandstone** 66.5-67.6' - reddish gray, blue-green mottling, soft to hard, fine sand, fresh	At 66.2': R-Scale = R3
			0			**Siltstone** 67.6-81.9' - dark reddish brown, blue-green mottling, very soft to soft, fresh, fine grained, some very fine -fine sand to no sand at bottom	
			0				
70	70.0						
205.0			0			70.0-75.0' - trace blue green mottling, very soft	R12: 10:10-10:45
			0			70.8-71.1' - circular pink and white clay clasts	At 70.8': R-Scale = R3-R4
	R12NQ 5 ft 100%	100	0			72.0-72.7' - circular pink and white clay clasts	
			0			73.0-73.1' - circular pink and white clay clasts	
			0				
75	75.0						

PROJECT NUMBER:	BORING 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

WATER LEVELS : 18.5 ft bgs

START : 5/12/06 11:45

END : 5/26/06 13:05

LOGGER : DT/JF

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				R13: 10:55-11:35
			0				
	R13NQ 5 ft 100%	100	0	77.3' - Fracture, 55 deg and 60 deg, rough, undulating, tight			At 77.2': R-Scale = R3
			0				
			0				
80 195.0	80.0						
			0	80.0-85.0' - Small capillary fractures in siltstone			R14: 11:40-12:00
			0				
	R14NQ 5 ft 100%	100	0			**Sandstone** 81.9-91.4' - reddish gray, trace blue-green mottling, soft to hard, fine sand, fresh, massive to medium bedding	At 81.7': R-Scale = R3
			0				
			0				
85 190.0	85.0						
			0				R15: 12:05-12:30
			0				
	R15NQ 5 ft 100%	100	0				At 86.8': R-Scale = R2-R3
			0				
			0				
90 185.0	90.0						
			0	90.0-95.0' - Small capillary microfractures in core		90.0-91.4' - medium sand to coarse sand	R16: 12:35-13:05
			0				At 91.1': R-Scale = R2
	R16NQ 5 ft 100%	100	0			**Siltstone** 91.4-95.0' - dark reddish brown, blue-green mottling, very soft to soft, fresh, fine grained, purple (0.003') clasts	At 91.6': R-Scale = R2 First water level = 18.5' bgs taken 5/30/06 at 09:25; second water level = 19.1' bgs taken 5/31/06 at 09:50
			0				
			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	

PROJECT NUMBER:	BORING NUMBER:
338884	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

DRILLING EQUIPMENT AND METHOD : CME-750, Tricone Bit, 24" Split Spoon, and 140 lb. Automatic Hammer

ORIENTATION : Vertical

WATER LEVELS : 6.9 ft bgs

START : 7/26/06 10:00

END : 7/28/06 16:00

LOGGER : EM

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
268.4	0.0						
		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		
	2.0						
	2.5						
		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		
	4.5				**Clay (CL)** 3.4-3.6' - light greenish gray, hard, low to medium plasticity, slow to rapid dilatancy		
5							
263.4	5.0				**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		
		6.0	SS3SS	50 (50")			
	7.0						
	7.5						
		3.5	SS4SS	50/3.5 (50/3.5")	**Clay (CL)** 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				**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, yellowish red staining; laminated		
		18.0	SS5SS	39-23-29-50/4 (52)			
	12.0						Soil sampling completed at 11:35 on 7/26/06
	12.5	1.0	SS6SS		**Sandy Silt (MH)** 12.5-12.6' - pinkish gray, hard, low plasticity, slow to rapid dilatancy, 30% fine sand		
	12.6			50/1 (50/1")	Begin Rock Coring at 12.6 ft bgs See the next sheet for the rock core log		
15							
253.4							
20							

PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-5	SHEET 2 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 LEVELS : 6.9 ft bgs

START : 7/26/06 10:00

END : 7/28/06 16:00

LOGGER : EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (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 bedding, slightly weathered to moderately weathered, fine to medium sand, 40% silt 14.1-14.5' - gray, little to no silt 14.5-15.0' - 40% silt 15.0-15.4' - soft 15.4-16.3' - 40% silt	Rock coring began at 11:45 on 7/26/06 R1: 11:45-11:55 on 07/26/06 SC-1 collected 12.5-13.4'
	R1NQ 3.7 ft 97%	95	0				
15 253.4			0				At 15.4': R-Scale = R2-R3 (performed at later date)
	16.3		0				
			1	17.0' - Fracture, 25 deg, smooth, undulating		**Siltstone** 16.3-21.5' - dark reddish brown, pale green mottling, very soft to soft, fresh, 25% -50% fine to medium sand coarsening with depth to 21.5' 17.7-20.5' - laminated to very thin bedding, irregularly shaped sand pockets	R2: 12:53-13:10
			0				
	R2NQ 5 ft 97%	97	0				At 18.2': R-Scale = R2-R3 (performed at later date)
20 248.4			0				
	21.3		0			20.9-21.5' - grades to sandstone, laminated interbedded siltstone and sandstone	
			1	21.9' - Fracture, 10 deg, smooth, undulating, black stains		**Sandstone** 21.5-26.5' - gray, black mottling, soft to hard, fine sand to coarse sand, poorly sorted 21.5-26.3' - fresh 21.5-23.0' - some laminated clay-siltstone beds at 20 degrees, mottled greenish gray	R3: 13:19-13:30
			1	22.8' - Fracture, 10 deg, rough, undulating			
	R3NQ 5 ft 101%	90	0				
25 243.4			0				At 24.9': R-Scale = R1 (performed at later date)
	26.3		2	25.8' - Fracture, 65 deg, rough, undulating, black stains		26.3-26.5' - slightly weathered	R4: 14:00-14:20
			0	26.0' - Fracture, vertical, rough, undulating, black stains		**Siltstone** 26.5-36.3' - dark reddish brown, mottled dark reddish gray and dark greenish gray, very soft to soft 26.5-31.3' - slightly weathered, 45-50% fine sand, fining with depth	At 27.0': R-Scale = R2 (performed at later date)
			0	26.3' - Fracture, 55 deg, black stains 26.5' - Contact between siltstone and sandstone, <5 deg			
	R4NQ 5 ft 98%	98	0	29.0' - Joint, 55 deg			At 28.9': R-Scale = R2 (performed at later date)
30 238.4			0				
	31.3		0				R5: 14:28-14:43
			0				

PROJECT NUMBER:	BORING NUMBER:
338884	BGA-5 SHEET 3 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 LEVELS : 6.9 ft bgs

START : 7/26/06 10:00

END : 7/28/06 16:00

LOGGER : EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			2	32.9' - Fracture, 60 deg and <5 deg, rough, undulating		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	
	R5NQ 5 ft 102%	95	4	33.8' - Fracture, 60 deg, rough, undulating 34.1' - Fracture, <5 deg, rough, undulating			At 33.5': R-Scale = R3-R4 (performed at later date)
35 233.4			6	34.3-34.4' - Fracture, <5 deg, rough, undulating, very soft breaks in horizontal laminations		34.4-34.7' - clay seam, very soft	
			1	34.7-34.8' - Fracture, 85 deg 34.8' - Fracture, 10 deg, rough, undulating 35.2' - Fracture, 10 deg, smooth, undulating			
	36.3						
			0	36.2' - Fracture, 15 deg, smooth, undulating		**Siltstone** At 36.3' - dark gray, very soft to soft, 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	R6: 08:20-08:33 on 07/28/06
			5	37.4' - Fracture, 15 deg, smooth, undulating, black stains			
	R6NQ 5 ft 100%	91	0	37.4' - Fracture, 15 deg, smooth, undulating, 0.02' thick clay infilling 37.6' - Fracture, 5 deg, rough, undulating, 0.1' thick clay infilling			At 38.3': R-Scale = R3-R4
40 228.4			1	39.3' - Fracture, 40 deg, smooth, undulating, reddish brown stains		**Sandstone** 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 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 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 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	
			0				At 40.7': R-Scale = R3-R4
	41.3						R7: 08:50-09:00
			5	41.9-42.5' - Fractures (5), 85 deg and 15 deg, rough, undulating, < 0.01' thick 'limonite (yellowish brown) stains			
			0				At 42.9': R-Scale = R3-R4
	R7NQ 5 ft 102%	86	1	43.2-43.4' - Fracture, 10 deg, smooth, undulating			
45 223.4			0				SC-2 collected 45.1-46.0'
			0				
	46.3						
			0			**Siltstone** 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 sand	R8: 09:15-09:28
			0				At 47.1': R-Scale = R4
	R8NQ 5 ft 99%	99	1	49.0' - Fracture, 65 deg, smooth, undulating		**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 48.2-48.3' - very thin black siltstone bed, very fine grained, very soft	
50 218.4			0	49.8' - Contact between siltstone and sandstone, 60 deg			At 49.7': R-Scale = R4
			0				
	51.3						
			0				R9: 09:35-09:53

PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-5	SHEET 4 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 LEVELS : 6.9 ft bgs

START : 7/26/06 10:00

END : 7/28/06 16:00

LOGGER : EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			**Siltstone** 49.8-51.3' - greenish gray to dark reddish brown, mottled dark greenish gray, very soft to soft, fresh, very fine to fine grained 49.8-51.3' - 10-15% fine sand grading to <10% at bottom of run	
	R9NQ 5 ft 104%	100	0				
55 213.4			0				At 54.6': R-Scale = R3
			0			**Siltstone** At 51.3' - dark reddish brown, light reddish and greenish gray mottling, very soft to soft	
	56.3						
			10+	56.4-56.7' - Fracture zone, horizontal and 10 deg, smooth, 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
			3	57.1' - Fracture, 5 deg, rough, undulating 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
	R10NQ 5 ft 97%	72	3	58.5-58.7' - Fracture zone, 5 deg, rough, undulating 59.0' - Fracture, 5 deg, smooth, undulating			
60 208.4			0				
			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				
			0				
65 203.4							At 65.6': R-Scale = R3
	66.3						R12: 12:52-13:10
			0				
			0				
	R12NQ 5 ft 102%	100	0				
70 198.4			0	69.9' - Fracture, horizontal, smooth, undulating			At 69.4': R-Scale = R3
			1				
	71.3						R13: 13:20-13:45
			0			72.0-75.0' - 10% fine sand	

PROJECT NUMBER:	BORING NUMBER:
338884	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 LEVELS : 6.9 ft bgs

START : 7/26/06 10:00

END : 7/28/06 16:00

LOGGER : EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			1	73.0' - Fracture, 75 deg, rough, undulating, black stains			
	R13NQ 5 ft 100%	100	0				At 74.0': R-Scale = R3-R4
75 193.4			1	75.0' - Fracture, 45 deg, rough, undulating, black stains			
	76.3		0				
			2	76.8' - Fracture, horizontal, smooth, undulating 76.9' - Fracture, 20 deg, rough, undulating			R14: 13:56-14:31
	R14NQ 4.3 ft 100%	83	0				SC-3 collected 77.4-78.4'
			0				
80 188.4			0				At 79.0': R-Scale = R3-R4
	80.6						
			0			80.6-85.9' - soft to hard 80.6-84.5' - <10% fine sand	R15: 14:50-15:10 At 81.0': R-Scale = R4
			0				
	R15NQ 5.3 ft 101%	75	1	82.9' - Fracture, vertical, smooth, undulating			At 83.4' R-Scale = R3-R4 (performed at later date)
			1				
85 183.4			1	84.9' - Fracture, 60 deg, rough, undulating		84.5-87.9' - laminated to very thin bedding, sandy bands, fine to coarse	
	85.9			85.4' - Fracture, 60 deg, rough, undulating			
			1				R16: 15:28-15:42 At 89.0': R-Scale = R4
			1	86.6' - Fracture, 75 deg, rough, undulating			
	R16NQ 4.1 ft 100%	100	0				First water level =7.2' bgs taken 7/28/06 at 17:30; second water level = 12.1' bgs taken 7/31/06 at 09:22
			0				
			0				
90 178.4	90.0						R-Scale performed during rock core logging
						Bottom of Boring at 90.0 ft bgs on 7/28/06 16:00	

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-6	SHEET 1 OF 5

SOIL BORING 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

DRILLING EQUIPMENT AND METHOD : CME-750, Tricone Bit, 24" Split Spoon, and 140 lb. Automatic Hammer

ORIENTATION : Vertical

WATER LEVELS : 6.7 ft bgs

START : 7/24/06 09:40

END : 7/25/06 14:40

LOGGER : EM

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
275.2	0.0						
		11.0	SS1SS	2-2-3-4 (5)	**Clayey Sand (SC)** 0.0-0.5' - grayish brown, loose, fine to medium grained, medium plasticity, subrounded to subangular		
	2.0				**Clayey Sand (SC)** 0.5-0.9' - brownish yellow, moist, loose, fine to medium grained, medium plasticity		
	2.5	17.0	SS2SS	2-3-5-7 (8)	**Sandy Clay (CL)** 2.5-3.9' - pale brown, gray mottling, moist, medium stiff, medium to high plasticity, slow to rapid dilatancy, yellow laminations, 15 to 20% fine to medium grained sand		
	4.5						
5							
270.2	5.0	17.0	SS3SS	21-30-30-50/2.75 (60)	**Clay (CL)** 5.0-6.4' - red, greenish gray mottling, dry to moist, hard, low to medium plasticity, slow to rapid dilatancy, laminated		
	7.0						
	7.5	5.0	SS4SS	50/5 (50/5")	**Clay (CL)** 7.5-7.9' - red, 10% black staining, dry to moist, hard, low to medium plasticity, slow to rapid dilatancy, laminated, <5% fine sand		
	9.5						
10							
265.2	10.0	9.5	SS5SS	37-50/3.5 (50/3.5")	**Clay (CL)** 10.0-10.8' - reddish brown, dry to moist, fine grained, medium to low plasticity, slow to rapid dilatancy, <10% very pale brown mottling, 10% black staining		
	12.0						
	12.5	3.5	SS6SS	50/3.5 (50/3.5")	**Clay (CL)** 12.5-12.7' - reddish brown, dry to moist, fine grained, medium to low plasticity, slow to rapid dilatancy, <10% very pale brown mottling, 10% black staining		
	14.5				**Clay (CL)** 12.7-12.9' - light greenish gray, dry to moist, medium to low plasticity, rapid dilatancy, 20 to 25% fine sand, very hard		
15							
260.2	15.0	17.0	SS7SS	3-36-50/5 (86/11")	**Silty Sand (SM)** 15.0-16.3' - brownish yellow and greenish gray, moist, fine to medium grained, medium to low plasticity, rapid dilatancy, <10% clay, black staining at bottom of sample, soft, very hard, laminated		Driller Remark: Hit soft zone at 14.8' bgs; began losing water
	17.0						Soil sampling completed at 11:45 on 7/24/06
	17.5	2.0	SS8SS	50/2 (50/2")	**Silty Sand (SM)** 17.5-17.7' - light gray, fine to coarse grained, low plasticity, rapid dilatancy, 10% clay, 10-15% very pale brown mottling, 10% coarse sand, some mica flakes, grains are subrounded to subangular		Driller Remark: Hit hard zone at 17.2' bgs; stopped losing water
	17.7				Begin Rock Coring at 17.8 ft bgs See the next sheet for the rock core log		
20							

PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-6	SHEET 2 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

WATER LEVELS : 6.7 ft bgs

START : 7/24/06 09:40

END : 7/25/06 14:40

LOGGER : EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	17.8		0			**Sandstone** At 17.8' - light gray, mottled 20% very pale brown and 10% dark gray, very soft, medium to thick bedding, fine sand to coarse sand, subrounded, highly weathered	Rock coring began at 13:30 on 7/24/06 R1: 13:30-13:40 on 07/24/06 Driller Remark: Water loss of 30-35 gallons for entire core run At 17.8-21.5': R-Scale = R0-R1
	R1NQ 3.7 ft 59%	0	0				
20 255.2							
	21.5						
			0			21.5-29.5' - clay ripup clasts, increased coarse sand grains up to 0.01'	R2: 13:50-13:57
			0				At 22.8': R-Scale = R1
	R2NQ 5 ft 100%	0	0				
25 250.2			0				
			1				
	26.5			26.2' - Fracture, 50 deg, rough, undulating, black staining over 40% of fracture surface			
			0	26.9' - Fracture, <5 deg, rough, undulating 27.0' - Fracture, <5 deg, rough, undulating			R3: 14:15-14:25
			4	27.4' - Fracture, 45 deg, rough, undulating			SC-1 collected 27.4-28.3'
	R3NQ 5 ft 106%	40*	1	28.8' - Fracture, 10 deg, rough, undulating 29.0' - Fracture, 10 deg, rough, undulating			
30 245.2			1	29.2' - Fracture, 10 deg, rough, undulating 29.4' - Fracture, 15 deg, smooth, undulating, black staining		29.5-31.5' - gray, fine sand to medium sand, clay ripup clasts ~10% throughout, coarser at 31.1 - 31.5' 29.5-36.5' - moderately weathered	
			1	29.7' - Fracture, 10 deg, smooth, undulating, 0.05' clay infilling 31.1' - Fracture, <5 deg, rough, undulating			At 31.1': R-Scale = R2
	31.5						
			1	31.7' - Fracture, <5 deg, smooth, undulating		31.5-36.5' - gray, soft, laminated bedding, soft clay ripup clasts	R4: 14:35-14:45
			0				
	R4NQ 5 ft 94%	90*	0			33.2-36.5' - medium bedding, becomes coarser with small pebble sized grains, 20% increasing to 50% at bottom of run	At 33.7': R-Scale = R1-R2
35 240.2			0				
			0				
	36.5						
			1	36.7' - Fracture, 20 deg, rough, undulating		36.5-41.5' - medium bedding, fine gravel to medium gravel, subrounded to subangular, poorly sorted, clay clasts	R5: 14:55-15:08

PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-6	SHEET 3 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

WATER LEVELS : 6.7 ft bgs

START : 7/24/06 09:40

END : 7/25/06 14:40

LOGGER : EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R.Q.D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			3	38.1' - Fracture, <5 deg, rough, undulating		36.5-42.2' - highly weathered	
	R5NQ 5 ft 100%	0	4	38.4' - Fracture, <5 deg, rough, undulating 38.9' - Fracture, <5 deg, rough, undulating 39.2' - Fracture, 20 deg, rough, undulating		38.4' - red	
40 235.2			3	39.4' - Fracture, 20 deg, rough, undulating 39.6' - Fracture, 20 deg, rough, undulating			
			3	39.8' - Fracture, 70 deg and <5 deg, rough, undulating 39.9' - Fracture, 70 deg and <5 deg, rough, undulating			At 40.6': R-Scale = R1
	41.5						
			0	40.2' - Fracture, <5 deg, rough, undulating 40.8' - Fracture, <5 deg, rough, undulating		41.5-42.2' - increased clay/siltstone clasts to 50%	R6: 15:21-15:32
			10+	41.1' - Fracture, <5 deg, rough, undulating 41.3' - Fracture, 10 deg, rough, undulating 42.3' - Fracture, 80 deg, slickensided, undulating, brownish-yellow staining		**Siltstone** 42.2-44.1' - dark reddish brown, greenish gray mottling, soft, highly weathered, very fine grained 42.2-42.6' - highly weathered 42.6-44.1' - slightly weathered	
	R6NQ 5 ft 102%	48	2	42.5-42.6' - Fracture zone, <5 deg, smooth, undulating, heavily fractured; crumbled			
45 230.2			1	43.9-44.1' - Fracture zone, <5 deg, smooth, undulating		**Sandstone** 44.1-45.2' - gray, fine sand to coarse sand, poorly sorted, fresh	
			0	45.2' - Contact between siltstone and sandstone, 10 deg, smooth, undulating, V shape		**Siltstone** At 45.2' - dark reddish brown, soft to hard, fresh, 30% fine to medium sand 45.2-46.5' - 15-20% fine sand	At 45.8': R-Scale = R1-R2
	46.5						
			0			45.5' - coarse sand to small pebbles in 0.03' thick band at 20 degrees 46.2-46.3' - black mottling	R7: 15:45-16:05
			0				At 47.7': R-Scale = R3-R4
	R7NQ 5 ft 98%	100	0				
50 225.2			0			49.5-50.1' - up to 30% coarse sand and small pebbles, subrounded	
			0			50.5' - up to 30% coarse sand and small pebbles, subrounded	
	51.5						
			2	51.7' - Fracture, <5 deg, smooth, undulating		**Sandstone** At 51.5' - weak red, soft to hard, thick bedding, fine sand, subangular, poorly sorted, fresh, coarse sand to small pebbles mixed in, grades from 15% to 75-80% coarser material at 56.1', some clay clasts	R8: 08:51-09:05 on 07/25/06
			1	52.2' - Fracture, 20 deg, rough, undulating			At 52.8': R-Scale = R3.5
	R8NQ 5 ft 100%	60	3	53.4' - Fracture, <5 deg, rough, undulating, 0.01' clay infilling, crumbled 53.9' - Fracture, 60 deg, rough, undulating			
55 220.2			2	54.2' - Fracture, 60 deg, rough, undulating, 45 deg angle to previous fracture 54.5' - Fracture, vertical, rough, undulating			
			2	54.8' - Fracture, 70 deg, rough, undulating 55.3' - Fracture, <5 deg, rough, undulating 55.8' - Fracture, <5 deg, rough, undulating			
	56.5						
			0	56.1' - Contact between siltstone and sandstone, 60 deg and 10 deg, rough, undulating, 0.01' clay infilling		**Siltstone** At 56.1' - dusky red, soft, ~15-20% fine to medium sand 56.1-63.9' - slightly weathered	R9: 09:23-09:40

PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-6	SHEET 4 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

WATER LEVELS : 6.7 ft bgs

START : 7/24/06 09:40

END : 7/25/06 14:40

LOGGER : EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			10+	57.6-57.8' - Fracture zone, <5, 20, and 45 deg; smooth, undulating		57.9-61.5' - 15% greenish gray mottling, black mottling concentrated in 0.05' thick bands (ending at 59.7') of (up to 30%) fine to medium sand, 10 degree angle bedding, sand decreases at 61.3' to < 10%	
	R9NQ 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			
60 215.2			10+				At 60.1': R-Scale = R3
			0	60.7' - Microfractures			
61.5			XXX				
			0			61.5-71.5' - greenish gray mottling, black mottling, coarse grained sand grains embedded in finer siltstone <5%	R10: 09:55-10:15
			10+	62.5-62.7' - Fracture zone, <5 deg and 45 deg, rough and slickensided, undulating			
	R10NQ 5 ft 100%	72	2	63.2-63.3' - Fracture zone, heavily fractured; crumbled 63.7' - Fracture, <5 deg, smooth, undulating 63.9' - Fracture, 30 deg, smooth, undulating		63.6' - clay seam, ~0.05' thick 63.9-78.6' - fresh	
65 210.2			0				At 64.4': R-Scale = R3-R4
			0			65.7' - sand increases to 20-35%, fine to medium grained, coarse at 66.5'	
66.5							
			0			66.5-67.8' - 20-25% fine to medium sand	R11: 10:25-10:45
			0			67.3-69.3' - finer sand grain, amount decreases to ~10%, grades and increases up to 40% at 70.9, finer grain material clasts in increased sand material	At 67.2': R-Scale = R3 SC-2 collected 67.8-68.7'
	R11NQ 5 ft 100%	100	1	68.7' - Fracture, <5 deg, smooth, undulating			
70 205.2			0				
			1	70.7' - Fracture, <5 deg, smooth, undulating			
71.5							
			0			71.5-76.5' - greenish gray mottling, 10-25% fine to medium sand, coarsens with depth to 75.75', fining with depth at 75.75'	R12: 11:10-11:30
			10+	72.5-72.7' - Fracture zone, horizontal and 30 deg, rough, undulating		73.2-73.9' - laminated bedding	
	R12NQ 5 ft 100%	94	1	74.1' - Fracture, <5 deg, rough, undulating			At 73.5': R-Scale = R3-R4
75 200.2			0	74.1' - Fracture, <5 deg, rough, undulating			
			1	75.8' - Fracture, <5 deg, smooth, undulating			Driller Remark: 13:05-13:15 started losing water during last 1' of core for core run R12
76.5							
			0			76.5-78.6' - 15-30% fine to medium sand, coarsens with depth	R13: 13:26-13:37

PROJECT NUMBER:	BORING 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

WATER LEVELS : 6.7 ft bgs

START : 7/24/06 09:40

END : 7/25/06 14:40

LOGGER : EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				
	R13NQ 5 ft 97%	97	0			**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 siltstone again with pockets of sandstone ~0.05' thick	
80 195.2			0	79.8' - Contact between siltstone and sandstone, 40 deg			
			0	80.0' - Joint, fractured 1/2 way through; about 0.01' thick		At 80.0' - gray, soft to hard, very thin to medium bedding, fine sand to coarse sand, subrounded to subangular, poorly sorted, some pebbles up to 0.05' thick (~5%), red mottling, oval shaped joint around bottom half, 0.01' clay clasts throughout sandstone, coarsens with depth	At 80.8': R-Scale = R3-R4
	81.5						R14: 13:48-13:55
			1	81.6' - Fracture, <5 deg, rough, undulating			
			0				
	R14NQ 5 ft 102%	99	0			82.6-82.9' - 15% clay ripup clasts	
85 190.2			0			84.3-84.5' - 15% clay ripup clasts	
			0			85.1-85.4' - 15% clay ripup clasts 85.6-85.8' - 15% clay ripup clasts	At 85.2': R-Scale = R2
	86.5						R15: 14:07-14:19
			2	87.0' - Contact between siltstone and sandstone, <5 deg, rough, undulating		**Siltstone** 87.0-95.9' - dark reddish brown, mottled dark greenish gray, soft, fresh, white pink clasts up to 0.10' thick large, trace of fine sand <10% throughout, black mottling	
			1	87.1' - Fracture, 20 deg, smooth, undulating			
	R15NQ 5 ft 102%	98	2	88.3' - Fracture, 30 deg, rough, undulating 88.6' - Fracture, <5 deg, rough, undulating		88.3' - white clasts 89.1' - white clasts	
90 185.2			0				At 89.7': R-Scale = R4
			0				
	91.5						R16: 14:30-14:40
			0			91.5-95.9' - soft to hard, increase in sand to 30 % at 93.5'	
			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
	R16NQ 4.4 ft 100%	100	0				
95 180.2			0				At 94.3': R-Scale = R3-R4 Driller Remark: Ran out of water 0.5' short of 5' core run
	95.9		0				R-Scale performed after drilling on stored samples
						Bottom of Boring at 95.9 ft bgs on 7/25/06 14:40	

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

WATER LEVELS : 8.4 ft bgs

START : 5/17/06 10:10

END : 5/18/06 11:30

LOGGER : JS

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
267.8	0.0				**Silty Sand (SM)** 0.0-0.2' - light yellowish brown, dry, low plasticity, 40% fine to medium sand		
	2.0	14.0	SS1SS	4-5-4-5 (9)	**Sandy Lean Clay (CL)** 0.2-0.5' - yellowish brown, moist, low plasticity, slow dilatancy, 30% fine medium to medium sand		
	2.5				**Sandy Lean Clay (CL)** 0.5-1.2' - strong brown, dark orange mottling, moist, stiff, medium plasticity, slow dilatancy, 20% fine to medium sand		
	4.5	14.0	SS2SS	3-7-9-11 (16)	**Clayey Sand (SC)** 2.5-2.8' - brown, moist, low plasticity, 25% fine to medium sand		
5					**Sandy Lean Clay (CL)** 2.8-3.7' - light gray, heavy orange mottling, moist, very stiff, low plasticity, rapid dilatancy, 35% very fine to fine sand		
262.8	5.0				**Sandy Lean Clay (CL)** 5.0-5.1' - light gray, heavy orange mottling, moist, very stiff, low plasticity		
	7.0	12.0	SS3SS	6-32-50/4.5 (82/10.5")	**Clay (CL)** 5.1-6.0' - reddish brown, mottled black, moist, hard, low plasticity, a few white lenses near top		
	7.5				**Clay (CL)** 7.5-7.8' - reddish brown, mottled black, moist, hard, low plasticity		
	9.5	4.0	SS4SS	50/5 (50/5")			
10							
257.8	10.0				**Clay (CL)** 10.0-10.3' - reddish brown, scattered green mottling, moist, hard, low plasticity		
	12.0	4.0	SS5SS	50/4 (50/4")			
							Soil sampling completed at 11:30 on 5/17/06
	12.5	1.0	SS6SS		**Clay (CL)** 12.5-12.6' - reddish brown, scattered green mottling, moist, hard, low plasticity		
	12.6			50/1 (50/1")	Begin Rock Coring at 12.6 ft bgs See the next sheet for the rock core log		
15							
252.8							
20							

PROJECT NUMBER:	BORING NUMBER:
338884	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

WATER LEVELS : 8.4 ft bgs

START : 5/17/06 10:10

END : 5/18/06 11:30

LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	12.6		0			**Siltstone** At 12.6' - dark reddish gray, very soft, highly weathered, fine grained 13.5-13.8' - clay seam	Rock coring began at 11:50 on 5/17/06 R1: 11:50-12:07
	R1NQ 2.5 ft 106%	0	10+			14.1-14.4' - clay seam	
15 252.8	15.0		10+			14.8-14.9' - clay seam 14.9-19.3' - pale brown, mottled black, gray, and yellow, 50% very fine to fine sand 15.0-15.3' - clay seam 15.4-15.5' - clay seam 15.9-16.0' - clay seam	R2: 12:10-12:25
			10+				
			5	16.3' - Fracture, 20 deg, smooth, stepped 16.6' - Fracture, horizontal, smooth, planar			
	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 fracture at 60 deg		17.6-17.7' - clay seam 17.8-18.0' - clay seam	
			10+	18.1-18.3' - Clay seam, horizontal and vertical, and fractures		18.6-18.9' - clay seam	
			10+			19.1-19.3' - clay seam	
20 247.8	20.0					**Sandstone** 19.3-19.7' - brown, soft to hard, fine sand to medium sand, highly weathered, some silt lenses	R3: 14:38-14:43
			0			**Siltstone** 19.7-20.5' - brown, very soft, fine grained, gray banding and mottling 19.7-19.9' - clay seam 19.7-20.0' - highly weathered 20.0-20.5' - moderately weathered to slightly weathered	
			1				
	R3NQ 5 ft 98%	80	0				
			0				
			1			**Sandstone** At 20.5' - brown, very soft, laminated to medium bedding, very fine sand to fine sand, some laminated silt lenses 20.5-25.0' - moderately weathered to slightly weathered 21.0-21.1' - clay seam 21.2-21.8' - becomes more pink, soft, scattered black clay lenses, laminated, discontinuous 21.8-23.3' - coarsens, pink 23.3-24.3' - pale red, soft, fine to medium grained sand 24.3-25.0' - yellow	
25 242.8	25.0			24.8' - Fracture, 40 deg, rough, undulating, black stains, tight fit			R4: 14:54-15:05
			3				
			0				
	R4NQ 5 ft 98%	82	0				
			0			25.0-26.0' - pale brown, soft, slightly weathered, fine to medium grained 26.0-30.0' - light gray, very soft, slightly weathered, medium grained, clay matrix, red and yellow banding	SC-1 collected 27.7-28.6'
			1				
30 237.8	30.0			29.7' - Fracture, 60 deg, slickensided, stepped, black stains, tight fit		30.0-33.0' - moderately weathered	R5: 15:12-15:25
			0				
			0				
	R5NQ						

PROJECT NUMBER:	BORING NUMBER:
338884	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 ft bgs

START : 5/17/06 10:10

END : 5/18/06 11:30

LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, 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			
			3	32.9' - Fracture, horizontal, rough, undulating 33.0' - Fracture, horizontal, rough, undulating		**Siltstone** 33.0-37.8' - dark reddish brown, mottled green, very soft to soft, highly weathered, fine grained	
			2	33.4' - Fracture, 10 deg, smooth, stepped 33.9-40.0' - Fractures (2), horizontal and 60 deg, smooth, undulating		34.4-34.5' - clay seam	
35 232.8	35.0		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			
	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 37.8-38.0' - highly weathered 38.0-39.5' - moderately weathered	
			3				
40 227.8	40.0			39.5' - Fracture, 10 deg, smooth, undulating 39.7' - Fracture, 10 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	39.9' - Fracture, 10 deg, smooth, undulating 40.0' - Fracture, 11 deg, smooth, undulating		**Sandstone** At 39.9' - gray, soft, very thin to thick bedding, fine sand 39.9-40.0' - moderately weathered 40.0-46.7' - gray to greenish gray, soft, fine sand, fresh, scattered irregularly shaped silt inclusions increase with depth	
			0				
	R7NQ 5 ft 100%	100	0				
			0				
			0				
45 222.8	45.0					45.0-46.7' - fine sand to medium sand	R8: 08:55-09:15
			0				
			0				
						Conglomerate 46.7-47.3' - dark reddish brown & green, very thin bedding, fine sand to medium sand, fresh, siltstone lenses	
	R8NQ 5 ft 100%	100	0			**Sandstone** 47.3-48.2' - gray to greenish gray, soft, fine sand, fresh, silt inclusions	
			0			**Siltstone** At 48.2' - dark reddish brown, mottled green, soft, fine grained 48.2-50.0' - fresh 49.9-50.0' - very soft	
50 217.8	50.0		0				
			3	50.1' - Fracture, 60 deg, smooth, planar			R9: 09:10-09:23
				50.7-50.9' - Fractures (3), 10 deg and 50 deg		50.0-55.0' - moderately weathered	
			2				
	R9NQ			51.9' - Fractures (2), 50 deg and horizontal, smooth, undulating			

PROJECT NUMBER:	BORING NUMBER:
338884	BGA-7 SHEET 4 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 ft bgs

START : 5/17/06 10:10

END : 5/18/06 11:30

LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	5 ft 100%	78	1	52.9' - Fracture, horizontal, smooth, stepped		51.7-56.6' - dusky red, mottled yellow and purple, very soft, mica particles, scattered green mottling	
			1			53.6-53.8' - clay seam	
			1			54.0' - clay seam, 0.05' thick	
55	55.0					54.3-55.0' - very soft to soft	
212.8			0			55.0-56.0' - mottled black, fresh, 50% very fine to fine sand	R10: 09:45-10:00
			0			56.0-56.6' - mottled green, very soft to soft, fresh, much less sand	
	R10NQ 5 ft 102%	100	1	57.2' - Fracture, horizontal, rough, stepped		**Sandstone** 56.6-60.0' - dusky red, mottled green, fine sand, fresh, 20% silt	First water level = 8.4' bgs taken 5/18/06 at 17:52; second water level = 8.4' bgs taken 5/19/06 at 18:08
			0			57.2-57.5' - brown, mottled green, fine sand to medium sand	
			0			58.3-58.5' - dark brown to gray, some green mottling	
60	60.0					59.0-59.9' - dark reddish brown, mottled black and green, very fine sand to fine sand	R-Scale not performed on rock core samples
207.8						59.9-60.0' - brown	
						Bottom of Boring at 60.0 ft bgs on 5/18/06 11:30	
65							
202.8							
70							
197.8							

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
WATER LEVELS : 9.0 ft bgs
START : 5/15/06 13:35
END : 5/16/06 14:50
LOGGER : JS

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
263.6	0.0						
		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		
	2.0						
	2.5				**Lean Clay (CL)** 2.5-3.2' - brownish yellow, mottled dark orange, moist, medium stiff, low to medium plasticity, no to slow dilatancy		
		14.0	SS2SS	4-5-6-8 (11)	**Fat Clay (CH)** 3.2-3.7' - reddish brown, mottled white and red, moist, medium to high plasticity, no dilatancy		
	4.5						
5							
258.6	5.0				**Clay (CL)** 5.0-6.3' - reddish brown, moist, very stiff, low to medium plasticity, slow dilatancy, greenish white lenses throughout		
		15.0	SS3SS	7-8-12-20 (20)			
	7.0						
	7.5				**Clay (CL)** 7.5-8.8' - reddish brown, mottled greenish white, black, moist, hard		
		15.0	SS4SS	17-45-50/3 (95/9")			
	9.5						
10							
253.6	10.0				**Clay (CL)** 10.0-10.5' - reddish brown, mottled greenish white and black, moist, very hard, low to medium plasticity, slow dilatancy		
		6.0	SS5SS	30-50/3 (50/3")			
	12.0						
	12.5				**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		
		6.0	SS6SS	50/5 (50/5")			
	14.5						
15							Soil sampling completed at 14:46 on 5/15/06
248.6	15.0				**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 See the next sheet for the rock core log		
	15.2	2.0	SS7SS	50/1.5 (50/1.5")			
20							

PROJECT NUMBER:	BORING NUMBER:
338884	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 ft bgs

START : 5/15/06 13:35

END : 5/16/06 14:50

LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	15.2		2			**Siltstone** 15.2-18.2' - dark reddish brown, mottled green and black, very soft, slightly weathered, fine grained 16.0-16.9' - soft 16.9-18.2' - very soft	Rock coring began at 15:30 on 5/15/06 R1: 15:30-15:43 on 05/15/06
	R1NQ 3.8 ft 94%	75	1	15.6' - Fracture, horizontal, smooth, undulating, tight fit 15.9' - Fracture, horizontal, smooth, undulating, tight fit			
			0	16.0' - Fracture, horizontal, smooth, undulating, tight fit 16.1' - Fracture, 30 deg, smooth, undulating			
			0			**Sandstone** 18.2-19.9' - dark reddish brown, soft, very fine sand to fine sand, slightly weathered	
	19.0						R2: 16:10-16:23
20 243.6			1				
			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 102%	100	0				
			1	22.2' - Fracture, horizontal, smooth, undulating			
			2	23.5' - Fractures, horizontal and 50 deg, smooth, undulating			
	24.0					24.0-26.3' - a few white inclusions	R3: 16:29-16:42
			1	24.3' - Fracture, horizontal, smooth, undulating, tight fit			
25 238.6			0				
	R3NQ 5 ft 100%	50	10+	26.3' - Fracture, horizontal, smooth, stepped 26.6-26.9' - Fracture zone		26.3-28.0' - highly weathered, clay seam, a few white inclusions	
			10+	27.2-27.4' - Fracture zone			
			2	28.3' - Fracture, horizontal, smooth, undulating, loose fit		28.0-28.3' - mottled green, slightly weathered	
	29.0					**Sandstone** 28.3-28.5' - dark reddish brown, bedding, very fine sand to fine sand, slightly weathered	R4: 09:00-09:14 on 05/16/06
			0	28.5' - Fracture, 60 deg, smooth, stepped, loose fit			
30 233.6			1	30.1' - Fracture, horizontal, smooth, undulating, tight fit		**Siltstone** At 28.5' - dark reddish brown, mottled green, very soft 28.5-37.4' - slightly weathered 29.0-30.0' - scattered fine gravel sized inclusions, softer than rest of run	
	R4NQ 5 ft 94%	94	0				
			0			32.4-32.9' - soft, very fine to fine sand lens	
			0	32.7' - Fracture, 40 deg, thin white infilling, partial fracture, tightly healed			
	34.0					34.0-38.0' - mica particles	R5: 09:20-09:35
35			1				

PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-8	SHEET 3 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 ft bgs

START : 5/15/06 13:35

END : 5/16/06 14:50

LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	R5NQ 4 ft 98%	82	0				
			0				
			10+			37.4-41.0' - moderately weathered 37.4-37.9' - clay seam	
38.0							R6: No time recorded
			0				
			1	39.4' - Fracture, horizontal, smooth, undulating, 0.1' clay infilling		39.0-41.0' - very soft	SC-1 collected 38.0-39.1'
40 223.6	R6NQ 5 ft 98%	84	10+			40.3-41.0' - clay seam, 0.75' thick	
			0			41.0-45.2' - very soft to soft, fresh, coarse sand to fine gravel, scattered inclusions	
			0				
43.0							R7: No time recorded
44.0	R7NQ 1 ft 120%	100	0				R8: 10:35-10:53
			1	44.8' - Fracture, horizontal, smooth, undulating			
45 218.6			0			45.2-46.0' - fresh, grades to very fine and fine sand	
	R8NQ 5 ft 104%	100	0			**Sandstone** 46.0-49.0' - dark reddish brown, mottled green, soft, very fine sand to fine sand, fresh	
			1	47.4' - Fracture, 50 deg, smooth, undulating, thin quartz infilling		47.8-49.0' - grades to siltstone, soft	
			0				
49.0							R9: 11:30-11:38
			0			**Siltstone** 49.0-51.5' - dark reddish brown, fresh, soft	
50 213.6			0			49.8-51.5' - soft, begins picking up more sand and transitions in and out of siltstone and very fine to fine grained sandstone	
	R9NQ 5 ft 100%	96	0			**Sandstone** At 51.5' - dark reddish brown, fine sand, fresh, soft to hard, laminae silt seam	
			0				
			1			53.6-53.8' - very dark gray, soft	
54.0				53.9' - Fracture, 30 deg, smooth, undulating, black staining			R10: No time recorded
			0				
55							

PROJECT NUMBER:	BORING NUMBER:	
338884	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

WATER LEVELS : 9.0 ft bgs

START : 5/15/06 13:35

END : 5/16/06 14:50

LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			53.8-54.0' - very dark greenish gray, very soft, 0.1' lens fine grained, 0.1' medium grained with multicolored grains	
	R10NQ 5 ft 100%	100	0			**Conglomerate** 54.0-55.2' - dark greenish gray, soft to hard, fresh, multicolored grains, gray clay, coarse sand to fine gravel	
			1	57.1' - Fracture, 60 deg, smooth, stepped			
			0	57.8-58.0' - Clay seam, 40 deg, slickensided		**Sandstone** 55.2-58.0' - dark reddish gray, laminated to very thin bedding, fine sand to medium sand, fresh, with some coarser beds, multicolored grains 57.8-58.0' - clay seam	
	59.0						
			0				R11: 12:45-12:57
60 203.6			0			**Conglomerate** 58.0-59.4' - dark greenish gray, soft to hard, fresh, multicolored grains, coarse sand, fewer fine gravel, less fines, (gray clay)	
	R11NQ 5 ft 100%	100	0			**Sandstone** 59.4-59.5' - dark reddish gray, hard, very thin bedding, fine sand to medium sand, fresh	
			1	62.7' - Fracture, 20 deg, rough, undulating		**Conglomerate** 59.5-60.1' - dark reddish gray, soft, thin bedding, fresh, multicolored grains (red, white, gray) and staining, medium gravel	
			0			**Sandstone** 60.1-60.3' - dark reddish gray, hard, very thin bedding, fine sand to medium sand, fresh	
	64.0					**Conglomerate** 60.3-62.7' - dark reddish gray, soft to hard, fresh, multicolored grains (red, white, gray) and staining, medium gravel	R12: 13:04-13:23
			0			**Siltstone** At 62.7' - dark reddish brown, black and green mottling, fresh, fine grained, soft	
65 198.6			0			64.0-69.4' - no green mottling, fine grained	
	R12NQ 4.8 ft 100%	100	0			**Sandstone** 69.4-69.8' - dark reddish brown, soft to hard, very fine sand to fine sand, fresh	
			0			**Siltstone** At 69.8' - dark greenish gray, very soft to soft 69.8-71.1' - fresh 70.4-73.0' - dark reddish gray, mottled dark red, green, gray, very soft, fine grained	
	68.8						R13: 13:30-13:52
			0			71.1-74.3' - highly weathered 73.0-74.3' - dusky red, clay seams 73.1-73.3' - clay seam	
70 193.6			1	70.5' - Fracture, horizontal, smooth, undulating, loose fit		**Sandstone** 74.3-77.1' - greenish black, fresh	
	R13NQ 4.2 ft 76%	55	10+	71.1-73.0' - Fracture zone, horizontal			
	73.0						
	R14NQ 1 ft 74.0 100%	0	3	73.5' - Fracture, horizontal, smooth, undulating, 0.1' clay infilling			R14: 13:58-14:02
			1	73.7' - Fracture, 10 deg, smooth, undulating, tight fit			R15: 14:09-14:26
75				74.2' - Fracture, 20 deg, smooth, undulating			

PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-8	SHEET 5 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 ft bgs

START : 5/15/06 13:35

END : 5/16/06 14:50

LOGGER : JS

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			75.0-77.1' - dark reddish gray, hard, fine sand, coarsens with depth	
	R15NQ 5 ft 102%	96	0				
			0			**Conglomerate** 77.1-78.4' - gray, hard, fresh, multicolored grains and mottling, medium to coarse grained	SC-2 collected 77.0-78.6'
			0				
79.0						**Sandstone** 78.4-78.6' - gray, hard, fine sand, fresh, coarser with depth	R16: 14:30-14:45
			0			**Siltstone** 78.6-78.8' - dark gray, very soft to soft, laminated bedding, fresh, coal fragments	
80 183.6			0			**Sandstone** 78.8-84.0' - reddish gray, soft to hard, laminated bedding, fine sand to medium sand, fresh, some beds finer or coarser	First water level = 9.0' bgs taken 5/17/06 at 09:36; second water level = 9.4' bgs on 5/18/06 at 18:00
	R16NQ 5 ft 100%	100	0				
			0				
			1	83.3' - Fracture, horizontal, rough, stepped			R-Scale not performed on rock core samples
84.0							
85 178.6						Bottom of Boring at 84.0 ft bgs on 5/16/06 14:50	
90 173.6							
95							

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

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
253.3	0.0				**Organic Clay (OL)**		
		16.0	SS1SS	2-3-4-6 (7)	0.0-0.5' - dark reddish brown, moist, medium stiff, trace sand organics		
	2.0				**Fat Clay (CH)** 0.5-1.3' - yellowish red, moist, medium stiff, medium to high plasticity, trace fine sand		
	2.5	22.0	SS2SS	7-7-15-50/5 (22)	**Clay (CL)** 2.5-4.3' - dark reddish brown, moist, very stiff, low to medium plasticity		
	4.5						
5							
248.3	5.0				**Clay (CL)**		
		4.0	SS3SS	50/4 (50/4")	5.0-5.3' - dark reddish brown, very soft, some fine sand and clay		
	7.0						Soil sampling completed at 14:10 on 5/15/06
	7.5	3.0	SS4SS		**Clay (CL)**		
	7.8			50/3 (50/3")	7.5-7.8' - dark reddish brown, very soft, some fine sand and clay		Rock coring began at 14:20 on 5/15/06
					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

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 bgs

START : 5/15/06 12:40

END : 5/17/06 11:22

LOGGER : DT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND 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, micaceous	
			0				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			
	R1NQ 6.7 ft 103%	0	1	9.9' - Fracture, 10 deg, smooth, undulating, loose 10.6' - Fracture, horizontal, rough, undulating, loose			
			0				
			1	12.8' - Fracture, 65 deg, rough, stepped, tight			
			0				
	14.5						
15 238.3			NA			**Clay (CL)** 14.8-15.8' - dark reddish brown, mottled, low to medium plasticity, highly weathered	R2: 14:56-15:13 and 15:16-15:40 and 16:25-16:32 NA - Information Not Available
			NA				
			NA			**Fat Clay (CH)** 15.8-16.2' - reddish brown, moist, high plasticity, highly weathered	
			NA			**Clay (CL)** 16.2-19.5' - dark reddish brown, mottled, very soft, low plasticity, highly weathered	
	R2NQ 10 ft 90%	0	NA				
20 233.3			NA			**Clay (CL)** 19.5-22.5' - pale brown, mottled, low plasticity, highly weathered, some fine sand	
			NA				
			NA				
			NA			**Siltstone** 22.5-26.5' - bluish gray, very soft to soft, some fine sand 22.5-24.5' - highly weathered	
	24.5						
25 228.3			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 05/16/06
			7	25.6-26.5' - Fractures, 20 deg, slickensided, undulating, loose			
			1	26.7' - Fracture, 20 deg, slickensided, undulating, loose		**Sandstone** 26.5-35.4' - bluish gray, soft, fine sand to medium sand, some silt 26.5-34.5' - slightly weathered	

PROJECT NUMBER:	BORING NUMBER:
338884	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 bgs

START : 5/15/06 12:40

END : 5/17/06 11:22

LOGGER : DT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			1	27.7' - Fracture, 70 deg, rough, undulating, tight			
			0				
	R3NQ 10 ft 88%	65.5					
30 223.3			1	29.7' - Fracture, 30 deg, rough, stepped, tight			
			0				
			0				
			0				
	34.5					34.5-35.4' - moderately weathered	R4: 14:50-15:08 and 15:10-15:30
35 218.3			0			**Siltstone** 35.4-41.8' - dark reddish brown, soft to hard, moderately weathered	
			1	35.9-36.3' - Fracture, vertical			
			1	36.3' - Fracture, 30 deg, rough, undulating, tight			
			0	37.2' - Fracture, horizontal, rough, undulating, loose			SC-1 collected 37.4-38.5'
	R4NQ 10 ft 94%	76	1				
40 213.3			2	39.4' - Fracture, 10 deg, rough, undulating, loose			
			2	40.0' - Fracture, 10 deg, rough, undulating, loose			
			2	40.3' - Fracture, 10 deg, rough, undulating, loose			
			2	40.7' - Fracture, 20 deg, rough, stepped, tight			
			4	41.4' - Fracture, 10 deg, smooth, undulating, loose		**Siltstone** 41.8-45.5' - very dark greenish gray, soft to hard, fine grained	
			10+	41.9' - Fracture, 15 deg, rough, undulating, loose		41.8-44.5' - moderately weathered	
	44.5			42.3' - Fracture, 15 deg, smooth, undulating, loose		43.8-44.7' - dark bluish gray, very soft, fine grained, some clay	
				42.7-43.3' - Fracture, 15 deg, smooth, stepped, loose		44.5-45.5' - slightly weathered	R5: 08:16-08:40 and 08:42-09:04 on 05/17/06
45 208.3			4	43.5-43.9' - Fracture zone		44.7-45.5' - very dark bluish gray, soft, fine grained	
			4	44.5-45.4' - Fracture, 15 deg, rough, undulating, loose		**Siltstone** At 45.5' - dark reddish brown, soft, fine grained	
			0	44.6-44.7' - Fracture, 10 deg, rough, undulating, tight		45.5-55.5' - slightly weathered	
				45.4-45.5' - Fracture, 20 deg, rough, undulating, tight			
				45.9-46.1' - Fracture, 10 deg, rough, undulating, tight			
				46.4' - Fracture, 20 deg, rough, planar, loose			

PROJECT NUMBER:	BORING NUMBER:
338884	BGA-9 SHEET 4 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 bgs

START : 5/15/06 12:40

END : 5/17/06 11:22

LOGGER : DT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			47.9-51.7' - some fine sand	
	R5NQ 10 ft 98%	91	0				
50 203.3			0				
			0				
			0			51.7-52.7' - coarse pebbles within siltstone, subrounded	
			0			53.0-54.5'	
			2	53.6' - Fracture, 10 deg, slickensided, undulating			
	54.5			53.8' - Fracture, 10 deg, rough, undulating, loose			
55 198.3			1	54.9' - Fracture, horizontal, smooth, undulating, loose			R6: 09:30-09:57 and 10:01-10:35
			0			55.5-59.0' - fresh	
			1			56.2-57.3' - fine grained	
			0	57.2' - Fracture, horizontal, rough, undulating, tight			
			3	58.6' - Fracture, 60 deg, undulating, tight			
	R6NQ 10 ft 100%	87		58.9' - Fracture, 60 deg, undulating, tight		**Siltstone**	
			2	59.3-59.5' - Fracture, 15 deg, rough, undulating, loose		At 59.0' - very dark bluish gray, very soft to soft, fresh, some clay	
60 193.3				59.5-59.7' - Fracture, 15 deg, rough, undulating, loose		59.7-62.5' - bluish green & reddish brown, mottled, soft	
			2	60.4' - Fracture, 60 deg, rough, undulating, loose			
			1	60.6' - Fracture, 55 deg, rough, undulating, loose			
			1	60.9' - Fracture, 20 deg, smooth, undulating, tight			
			1	62.4' - Fracture, 20 deg, smooth, undulating, loose		**Siltstone**	
			1	63.1' - Fracture, horizontal, rough, undulating, loose		62.5-69.5' - dark reddish brown, soft to hard, fresh	
	64.5			64.2' - Fracture, horizontal, rough, undulating, loose			
65 188.3			0	64.5-69.5' - Fractures, microfractures			R7: 11:03-11:22
			0				First water level = 5.2' bgs taken 5/17/06 at 12:35; second water level = 4.3' bgs taken 5/18/06 at 18:05
	R7NQ 5 ft 96%	96	0				

PROJECT NUMBER:	BORING NUMBER:
338884	BGA-9 SHEET 5 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 bgs

START : 5/15/06 12:40

END : 5/17/06 11:22

LOGGER : DT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				R-Scale not performed on rock core samples
	69.5		0				
70 183.3						Bottom of Boring at 69.5 ft bgs on 5/17/06 11:22	
75 178.3							
80 173.3							
85 168.3							

PROJECT NUMBER:	BORING NUMBER:
338884	BGA-10 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
DRILLING EQUIPMENT AND METHOD : BK-51, Tricone Bit, 24" Split Spoon, 140 lb. Hammer and Cathead
ORIENTATION : Vertical
WATER LEVELS : 13.8 ft bgs
START : 5/17/06 14:05
END : 5/18/06 11:13
LOGGER : DT

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
246.2	0.0				**Fat Clay (CH)** 0.0-0.5' - reddish brown, mottling, moist, medium stiff, high plasticity, organics		
		13.0	SS1SS	2-2-5-6 (7)	**Sandy Clay (CL)** 0.5-1.1' - olive yellow, moist, medium stiff, fine grained, medium plasticity		
	2.0						
	2.5				**Sandy Clay (CL)** 2.5-3.6' - brownish yellow and light greenish gray, mottling, stiff, fine to medium grained		
		13.0	SS2SS	4-4-8-10 (12)			
	4.5						
5							
241.2	5.0				**Sandy Clay (CL)** 5.0-6.3' - brownish yellow and light greenish gray, mottling, stiff, fine to medium grained		
		16.0	SS3SS	4-4-9-13 (13)			
	7.0						
	7.5				**Sandy Clay (CL)** 7.5-8.8' - brownish yellow and light greenish gray, moist, very stiff, fine to coarse grained		
		16.0	SS4SS	4-6-11-14 (17)			
	9.5						
10							
236.2	10.0				**Sandy Clay (CL)** 10.0-10.5' - brownish yellow and light greenish gray, moist, very stiff, fine to coarse grained		
		9.0	SS5SS	7-50/3 (50/3")	**Clay (CL)** 10.5-10.8' - reddish brown and light greenish gray, mottling, moist, hard, low plasticity, some fine sand, micaceous		
	12.0						
	12.5				**Clay (CL)** 12.5-13.5' - reddish brown and light greenish gray, mottling, moist, hard, low plasticity, some fine sand		
		14.0	SS6SS	12-29-50/2 (79/8")	**Silty Sand (SM)** 13.5-13.7' - light greenish gray, moist, hard, fine grained, micaceous		
	14.5						
15							
231.2	15.0				**Clay (CL)** 15.0-16.1' - light greenish gray and brownish yellow, mottling, moist, black oxide zones, laminated		
		13.5	SS7SS	12-27-50/1.5 (77/7.5")			
	17.0						
	17.5				**Sandy Clay (CL)** 17.5-17.7' - dark brown, moist, fine grained, medium plasticity, trace sandstone fragments, micaceous		
		2.0	SS8SS	50/2 (50/2")			
	19.5						
20							

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
WATER LEVELS : 13.8 ft bgs
START : 5/17/06 14:05
END : 5/18/06 11:13
LOGGER : DT

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
226.2	20.0						
		17.0	SS9SS	10-19-50/5 (69/11")	**Silt (MH)** 20.0-21.5' - greenish gray, hard, fine grained, some fine sand and clay, slickensided, micaceous		
	22.0						Soil sampling completed at 16:25 on 5/17/06
	22.5 22.6	1.0	SS10SS	50/1 (50/1")	**Sand (SP)** 22.5-22.6' - reddish brown, micaceous Begin Rock Coring at 22.6 ft bgs See the next sheet for the rock core log		
25 221.2							
30 216.2							
35 211.2							
40							

PROJECT NUMBER:	BORING NUMBER:	
338884	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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	22.6		1			**Sandstone** At 22.6' - reddish brown, soft, fine sand, slightly weathered, micaceous, quartz	Rock coring began at 08:52 on 5/18/06
	R1NQ 1.9 ft 100%	90	1	23.2' - Fracture, 10 deg, rough, undulating, loose			R1: 08:52-09:07 on 5/18/06
	24.5			24.3' - Fracture, horizontal, rough, stepped, loose		24.5-24.9' - grayish green, some silt, fine sand, micaceous	R2: 09:15-09:28 and 09:30-09:42
25 221.2			0			**Siltstone** 24.9-25.7' - dark reddish brown, soft, slightly weathered, fine grained, some sand, micaceous	
			1	25.7' - Fracture, 10 deg, slickensided, undulating		**Sandstone** At 25.7' - dark bluish gray, fine sand, slightly weathered, some silt, micaceous 27.8-34.0' - soft, fine sand to medium sand, subrounded, feldspars, micaceous, quartz 27.8-27.9' - reddish brown siltstone clasts	
			0				
			0				
	R2NQ 10 ft 100%	100	0				
30 216.2			0				
			0				
			0				
			0				
			1	34.0' - Fracture, 10 deg, rough, undulating, loose		**Siltstone** At 34.0' - dark reddish brown, soft, fine grained, some fine sand, micaceous 34.0-40.0' - slightly weathered	R3: 09:48-10:22 and 10:23-10:42
	34.5						
35 211.2			0				
			0			36.0-36.5' - mottled greenish gray	
			0				
			0				
	R3NQ 10 ft 99%	95	0				
40 206.2			0			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

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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				
			0				
44.5							
45 201.2			0			44.5-45.8' - some fine to medium grained sand	R4: 10:54-11:14 and 11:17-11:35
			0				
			0				SC-1 collected 45.0-46.1'
			0				
			0				
			0				
50 196.2	R4NQ 10 ft 99%	96	0				
			0				
			0				First water level = 13.8' bgs taken 5/18/06 at 18:10; second water level = 2.5' bgs taken 5/19/06 at 13:19
			0				
			0				R-Scale not performed on rock core samples
			0	53.5' - Fracture, 10 deg, rough, undulating, tight		**Sandstone** 53.5-54.3' - greenish gray, soft, fine sand to medium sand, fresh, some silt, micaceous, feldspar	
54.5				54.2' - Fracture, 30 deg, rough, undulating, tight			
55 191.2						**Siltstone** 54.3-54.5' - dark reddish brown, soft, 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: 338884	BORING NUMBER: BGA-11 SHEET 1 OF 4

SOIL BORING LOG

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
DRILLING EQUIPMENT AND METHOD : CME-550, 2-15/16 Tricone Bit, 24" Split Spoon and 140 lb. Automatic Hammer
ORIENTATION : Vertical
WATER LEVELS : 3.9 ft bgs
START : 8/8/06 13:45
END : 8/9/06 10:55
LOGGER : JS/AT

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
246.8	0.0				**Top Soil** 0.0-0.1' - dry		
		4.0	SS1SS	8-8-8-5 (16)	**Sandy Silt (ML)** 0.1-0.3' - reddish brown, dry to moist, very stiff, very fine to medium grained, low plasticity, rapid dilatancy, micaceous		
	2.0						
	2.5				**Sandy Clay & Fat Clay With Sand (CH)** 2.5-2.7' - yellowish brown, white mottling, moist, medium to high plasticity, 10-30% sand, fill		
		14.0	SS2SS	6-9-12-34 (21)	**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		
	4.5						
5							
241.8	5.0				**Lean Clay (CL)** 5.0-5.8' - weak red to reddish brown, white mottling and black staining, moist, hard, medium plasticity, slow to rapid dilatancy		
		10.0	SS3SS	15-36-50/4 (86/10")			
	7.0						
							Soil sampling completed at 15:40 on 8/8/06
	7.5	2.0	SS4SS		**Clay (CL)**		
	7.7			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							
236.8							
15							
231.8							
20							

PROJECT NUMBER:	BORING NUMBER:
338884	BGA-11 SHEET 2 OF 4

ROCK CORE LOG

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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	7.7					**Siltstone** 7.7-9.8' - dark reddish brown, reddish-black and trace greenish-gray mottling, soft to hard, moderately weathered, 35% very fine to fine sand	Rock coring began at 15:42 on 8/8/06 R1: 15:42-15:56 At 8.4': R-Scale = R2
	R1NQ 1.8 ft 92%	83	0				
	9.5		0				
10 236.8			3	9.6' - Fracture, horizontal, smooth, planar		**Sandstone** At 9.8' - light brownish gray, soft, medium bedding, very fine sand to medium sand, multicolored sand 9.8-10.8' - moderately weathered	R2: 16:01-16:13
			1	10.4' - Fracture, horizontal, smooth, undulating 10.5' - Fracture, 10 deg, smooth, undulating		**Clay Seam** 10.5-10.8' 10.8-15.6' - slightly weathered 11.2-11.3' - dark reddish brown mottling 11.5-15.6' - gray, soft to hard, very fine sand to coarse sand, 20-25% silt	
	R2NQ 5 ft 97%	83	0				At 11.5': R-Scale = R2
			0				
			1				
	14.5			14.4' - Fracture, 15 deg, rough, undulating			
15 231.8			2	14.5-14.8' - Fracture, 60 deg, rough, undulating 14.8' - Fracture, 5 deg, rough, undulating			R3: 16:51-17:03
			2	15.6' - Fracture, 20 deg, rough, undulating 15.7' - Fracture, 10 deg, smooth, undulating		**Siltstone** 15.6-22.0' - dark reddish brown, greenish gray mottling, soft 15.6-15.7' - slightly weathered 15.7-22.0' - fresh	
	R3NQ 5 ft 98%	88	0				At 16.6': R-Scale = R2
			0	17.3' - Fracture, 15 deg, rough, undulating			
			1				
	19.5						
20 226.8			0				R4: 17:10-17:26
			1	21.1' - Fracture, horizontal, smooth, planar			
	R4NQ 5 ft 103%	97	0			**Sandstone** 22.0-23.4' - dark gray, soft to hard, fresh, 60-70% very fine to fine sand	At 22.5': R-Scale = R3
			0				
			1			**Siltstone** 23.4-33.5' - dark reddish brown, greenish gray mottling, soft to hard, fresh	
	24.5			24.4' - Fracture, 20 deg, smooth, undulating			
25 221.8			1	24.7' - Fracture, 15 deg, smooth, undulating 24.8' - Fracture, 45 deg, rough, undulating, tight fit			R5: 07:54-08:13 on 8/9/06
			0				
	R5NQ 5 ft 95%	92	0				

PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-11	SHEET 3 OF 4

ROCK CORE LOG

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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				
			0				
29.5							
30 216.8			0				R6: 08:19-08:34
			1			**Sandstone** 30.6-30.8' - light brownish gray, soft, very fine sand to medium sand, fresh, poorly laminated; multicolored sand	
	R6NQ 5 ft 101%	100	0	31.2' - Fracture, 25 deg, smooth, undulating, white/greenish staining		**Siltstone** 30.8-31.3' - dark reddish brown, greenish gray mottling, soft to hard, fresh	At 32.0': R-Scale = R3
			0			**Sandstone** 31.3-32.5' - light brownish gray, soft, very fine sand to medium sand, fresh, poorly laminated; multicolored sand	
			0				
34.5							
35 211.8			0			**Siltstone** 32.5-32.7' - dark reddish brown, greenish gray mottling, soft to hard, fresh	R7: 08:41-09:03
			0			**Sandstone** 32.7-33.0' - light brownish gray, soft, very fine sand to medium sand, fresh, poorly laminated; multicolored sand	
	R7NQ 5 ft 95%	78	2	36.6' - Fracture, 10 deg, rough, undulating 37.0' - Fracture, 15 deg, rough, undulating		**Siltstone** 33.0-33.3' - dark reddish brown, greenish gray mottling, soft to hard, fresh	At 37.5': R-Scale = R2
			1	37.8' - Fracture, horizontal, rough, undulating		**Sandstone** 33.3-34.0' - light brownish gray, soft, very fine sand to medium sand, fresh, poorly laminated; multicolored sand	
			4	38.6' - Fracture, 5 deg, rough, undulating 38.8' - Fracture, 5 deg, rough, undulating 38.9' - Fracture, 5 deg, rough, undulating			
39.5							
40 206.8			1	39.1' - Fracture, 60 deg, rough, undulating 40.0' - Fracture, horizontal, rough, undulating		**Siltstone** 33.5-34.5' - dark reddish brown, greenish gray mottling, soft to hard, fresh	R8: 09:21-09:43
			1				
				41.3' - Fracture, horizontal, rough, undulating		**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 coarse sand to fine gravel	
	R8NQ 5 ft 102%	83	2	41.7' - Fracture, 10 deg, rough, undulating 41.9' - Fracture, 5 deg, rough, undulating			At 42.2': R-Scale = R2-R3
			4	42.8' - Fracture, 20 deg, smooth, undulating 42.8' - Fracture, 45 deg, smooth and slickensided, greenish-gray staining			
			0	42.9' - Fracture, 5 deg, smooth, undulating 43.0' - Fracture, 5 deg, smooth, undulating		**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
44.5							
45 201.8			1	44.7' - Fracture, horizontal, smooth, undulating			R9: 09:51-10:04
			2	45.6' - Fracture, 5 deg, smooth, undulating 46.5' - Fracture, 5 deg, smooth, undulating			
	R9NQ 5 ft 101%	91	1	46.6' - Fracture, 20 deg, smooth, planar, tight fit			

PROJECT NUMBER:	BORING NUMBER:
338884	BGA-11 SHEET 4 OF 4

ROCK CORE LOG

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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				
			0				At 48.5': R-Scale = R3.5
49.5							
50 196.8			0				R10: 10:17-10:32
			1				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 mottling	
			0				R11: 10:42-10:55
54.5							
55 191.8			1			54.5-58.3' - dark reddish-black to red clasts <0.0002-0.0007'	SC-1 collected 54.7-55.7'
			1				First water level = 3.9' bgs taken 8/10/06 at 11:43
	R11NQ 5 ft 98%	76	1				At 56.1': R-Scale = R3
			0				R-Scale performed during rock core logging
			6			**Sandstone** 58.3-58.7' - fresh, multicolored very fine to fine sand; silt beds between sand layers	
59.5							
60 186.8						**Siltstone** 58.7-59.5' - dark reddish brown, greenish-gray mottling, soft to hard, fresh	
						Bottom of Boring at 59.5 ft bgs on 8/9/06 10:55	
65 181.8							

PROJECT NUMBER:	BORING NUMBER:
338884	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
WATER LEVELS : 8.0 ft bgs
START : 4/17/06 09:50
END : 4/18/06 16:30
LOGGER : DT

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
260.9	0.0						
		24.0	SS1SS	2-4-8-9 (12)	**Clay (CL)** 0.0-2.0' - reddish brown, moist, stiff, fine grained, low plasticity, some mica, black oxide nodules		
	2.0						
	2.5						
		23.0	SS2SS	6-9-14-12 (23)	**Clay (CL)** 2.5-4.5' - reddish brown, moist, very stiff, low to medium plasticity, trace organic debris, gray bands		
	4.5						
5							
255.9	5.0						
		23.0	SS3SS	12-14-18-29 (32)	**Clay (CL)** 5.0-7.0' - reddish brown, moist, hard, fine grained, low to medium plasticity, some mica, trace fine to medium sand, black and gray oxide nodules		
	7.0						
	7.5						
		18.0	SS4SS	20-22-33-39 (55)	**Clay (CL)** 7.5-9.4' - reddish brown, moist, hard, fine grained, low to medium plasticity, some mica, trace fine to medium sand, black and gray oxide nodules		
	9.5						
10							
250.9	10.0				**Clay (CL)** 10.0-11.0' - reddish brown, moist, hard, fine grained, some mica, trace fine sand, black oxide nodules		
		10.0	SS5SS	48-52/4 (52/4")			
	12.0						Soil sampling completed at 11:37 on 4/17/06
	12.5	2.5	SS6SS	50/2.5 (50/2.5")	**Clay (CL)** 12.5-12.7' - reddish brown, hard, fine grained, mica, trace of fine sand		
	12.7				Begin Rock Coring at 12.8 ft bgs See the next sheet for the rock core log		
15							
245.9							
20							

PROJECT NUMBER:	BORING NUMBER:
338884	BGA-12 SHEET 2 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

WATER LEVELS : 8.0 ft bgs

START : 4/17/06 09:50

END : 4/18/06 16:30

LOGGER : DT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	12.8		NA			**Silt (ML)** 12.8-14.0' - reddish brown, mottled gray, highly weathered, hard	Rock coring began at 13:15 on 4/17/06 R1: 13:15-13:33
			1	14.2' - Fracture, smooth, undulating		**Siltstone** At 14.0' - reddish brown, soft to hard, fresh, fine grained	Drillers Remark: Coring with recirculated water
15 245.9			0				
	R1/R2NQ 8.2 ft | 77 99%		1	16.5' - Fracture, rough, undulating			R2: 13:36-14:00
			0				
			1	18.6' - Fracture, undulating			
			1				
20 240.9			0				
	21.0		4	21.2' - Fracture, smooth, undulating 21.3' - Fracture, smooth, stepped 21.3' - Fracture, smooth, undulating 31.2' - Fracture, smooth, undulating		21.0-30.0' - occasional greenish gray mottling	R3: 08:05-08:36 on 4/18/06
			0				
			0				
			0				
25 235.9			0				
	R3/R4NQ 10 ft | 82.5 100%		0				R4: 08:36-08:57
			0			26.8-27.3' - bioturbation channels filled with finer grained more uniform material that gives the appearance of pebbles in core	
			0				
			1				
30 230.9			10+	29.7' - Fracture, smooth, undulating		**Sandstone** 30.2-30.6' - reddish brown to grayish red, fine sand to medium sand, poorly sorted, fresh, quartz, feldspar, mica grains, partly silty.	
	31.0		2	31.0' - Fracture zone, stepped, undulating 31.1' - Fracture, 80 deg, rough, undulating 31.3' - Fracture, horizontal, rough, undulating			R5: 09:12-09:31
			0			**Siltstone** At 30.6' - reddish brown, soft to hard	

PROJECT NUMBER:	BORING NUMBER:	
338884	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

WATER LEVELS : 8.0 ft bgs

START : 4/17/06 09:50

END : 4/18/06 16:30

LOGGER : DT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			30.6-47.1' - fresh 33.0-47.0' - reddish brown, mottled greenish gray, siltstone and sandstone interbedding with gradational contacts	
			0				
35 225.9			0				
	R5/R6NQ 10 ft 99%	91	1	36.8' - Fracture, horizontal, rough, undulating 36.9' - Fracture, horizontal, rough, undulating 37.0' - Fracture, horizontal, rough, undulating 37.6' - Fracture, horizontal, rough, undulating			R6: 09:32-09:53
			0				
			0				
			0				
40 220.9			0				
	41.0					41.0-47.0' - occasional (<3%) clasts of greenish gray fine silty sandstone decreases with depth	R7: 10:08-10:35
			0				
			1				
			1				
	R7/R8NQ 7.5 ft 101%	76.2	1	43.5-43.7' - Fracture, 55 deg, rough, undulating			
45 215.9			0	44.8' - Fracture, 60 deg, rough, undulating, undulating, rough			
			0				R8: 10:40-11:18
			1	47.1' - Fracture, rough, undulating, slickensides 47.2' - Fracture, rough, undulating, slickensides		47.0-48.5' - reddish brown to grayish red, soft, less indurate than above, soil-like 47.1-48.6' - moderately weathered	
	48.5		1	47.3' - Fracture, rough, undulating, slickensides 47.7' - Fracture, rough, undulating, slickensides		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
50 210.9			0	48.0' - Fracture, rough, undulating, slickensides 48.5' - Fracture, horizontal, smooth, undulating		48.6-81.0' - fresh	
			0				R10: 13:05-13:30
	R9NQ 7.5 ft 87%	85	0				

PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-12	SHEET 4 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

WATER LEVELS : 8.0 ft bgs

START : 4/17/06 09:50

END : 4/18/06 16:30

LOGGER : DT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				
			0				
			1				
55 205.9						55.0-56.0' - reddish brown to grayish red, soft, coarse sand sized feldspar grains (<1%)	
	56.0			55.8' - Fracture, rough, undulating 56.0-81.0' - Microfractures, capillary pattern			
			2	56.6' - Fractures (2), rough, undulating			
			0				
			0				
			0				
60 200.9							
	R10/R11NQ 10 ft 90.5 100%		1	60.7' - Fracture, rough, stepped			
			1	60.8' - Fracture, rough, stepped 61.2' - Fracture, horizontal, rough, undulating 61.3' - Fracture, horizontal, rough, undulating		61.0-68.0' - brown, soft, fine grained, quartz and feldspar inclusions grains, green inclusions	R11: 13:35-14:05
			0	61.48' - Fracture, horizontal, rough, undulating			
			1	63.2' - Fracture, horizontal, rough, undulating			
			0				
65 195.9			0				
	66.0						R12: 14:15-15:00
			0				
			1	67.3' - Fracture, horizontal, smooth, undulating, loose fit			
			0	67.6' - Fracture, horizontal, smooth, undulating, loose fit 68.5' - Fracture, horizontal, smooth, undulating, loose fit			
			1	68.6' - Fracture, horizontal, smooth, undulating, loose fit			
70 190.9				69.3' - Fracture, rough, undulating, tight fit			
	R12/R13NQ 10 ft 95.3 99%		1	70.5' - Fracture, rough, undulating, loose fit 70.9' - Fracture, rough, undulating, loose fit			
			0				R13: 15:10-15:45
			0			72.0-75.0' - reddish brown to grayish red, soft to hard	

PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-12	SHEET 5 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

WATER LEVELS : 8.0 ft bgs

START : 4/17/06 09:50

END : 4/18/06 16:30

LOGGER : DT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				
			0				
75 185.9			0			74.5-75.0' - coarse sand sized feldspar grains (<1%) 75.0-79.3' - grayish red to pale red, coarse siltstone, grades to sandstone in places, claystone pebbles (10-25% volume)	
	76.0			76.0-81.0' - Microfractures, capillary pattern 76.4' - Fracture, smooth, undulating, tight fit 76.6' - Fracture, smooth, undulating, tight fit			R14: 15:56-16:30
			0				
			0				
	R14NQ 5 ft 100%	97	0				First water level = 8.0' bgs taken 4/20/06 at 11:30
			0			79.2' - mottled greenish gray 79.3-81.0' - grayish red, fine grained, some white inclusions (0.5-1)	
80 180.9			0				R-Scale not performed on rock core samples
	81.0						
						Bottom of Boring at 81.0 ft bgs on 4/18/06 16:30	
85 175.9							
90 170.9							

PROJECT NUMBER:	BORING NUMBER:
338884	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

WATER LEVELS : 6.2 ft bgs

START : 7/26/06 16:00

END : 7/27/06 12:20

LOGGER : AT/LH/EM

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
260.6	0.0				**Gravel, Sand, And Clay (NA)** 0.0-0.2' - wet, loose, fill		
		20.4	SS1SS	2-4-6-9 (10)	**Clay (CL)** 0.2-0.6' - reddish brown, mottled pale olive, moist, stiff		
	2.0				**Clay (CL)** 0.6-1.7' - pale olive, olive gray, olive yellow, mottled black, moist, stiff		
	2.5	16.6	SS2SS	6-10-12-25 (22)	**Clay (CL)** 2.5-3.8' - pale olive, olive gray, olive yellow, mottled black, moist, very stiff		
	4.5						
5							
255.6	5.0	5.0	SS3SS	50/5 (50/5")	**Clay (CL)** 5.0-5.5' - reddish brown and strong brown, mottled greenish gray, moist, hard, laminated at bottom		
	7.0						
	7.5	2.4	SS4SS	50/2.5 (50/2.5")	**Clay (CL)** 7.5-7.7' - reddish brown and strong brown, mottled greenish gray, moist, hard, laminated at bottom		Soil sampling completed at 16:25 on 7/26/06
	7.7						
	8.7				Begin Rock Coring at 8.7 ft bgs See the next sheet for the rock core log		
10							
250.6							
15							
245.6							
20							

PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-13	SHEET 2 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

WATER LEVELS : 6.2 ft bgs

START : 7/26/06 16:00

END : 7/27/06 12:20

LOGGER : AT/LH/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	8.7						
	9.2 R1NQ 0.5 ft 90%	NA	1	8.8' - Fracture, horizontal, rough, planar 9.0' - Fracture, horizontal, rough, planar		**Siltstone** At 8.7' - dark reddish brown, mottled pale olive, very soft, laminated bedding, clay-like material 8.7-14.2' - highly weathered 9.7-10.7' - dark reddish brown, soft 10.7-11.6' - reddish brown, very soft, clay-like material 11.6-14.2' - dark reddish brown, mottled pale olive, soft 11.6-14.2' - soft, dark multicolored clasts	Rock coring began at 16:56 on 7/26/06 R1: 16:56-17:04 R2: 17:09-17:16 At 10.0': R-Scale = R1 At 10.1': PP: 3.5+ tsf
10 250.6			1	9.5' - Fracture, 10 deg, smooth, undulating, 0.005' relief			
			1	10.0' - Fracture, 5 deg, smooth, undulating, dark brown clay like, tight fit			
	R2NQ 5 ft 105%	0	1	10.7' - Fracture, horizontal, smooth, undulating, light gray greenish, concaved shaped, 0.01'relief			At 10.8': R-Scale = R2 At 10.9': PP: 4.5+ tsf At 11.3': PP: 3.25+ tsf At 11.6': PP: 2.25+ tsf At 12.0': R-Scale = R1
			5	11.4' - Fracture, horizontal, smooth, undulating 12.3' - Fracture, horizontal, smooth, undulating, tight fit			
			3	12.6' - Fracture, 15 deg, smooth, undulating, dark brown stains, 0.01' relief 12.9' - Fracture, 5 deg, smooth, undulating, 0.005' relief			
	14.2					14.2-19.0' - moderately weathered	
			4	13.0' - Fracture, 10 deg, smooth, undulating			
15 245.6			2	13.2' - Fracture, 20 deg, smooth, undulating, tight fit 13.4' - Fracture, 5 deg, smooth, undulating, dark brown stains, 0.01' relief			
			2	13.6' - Fracture, 10 deg, smooth, undulating 14.1' - Fracture, 15 deg, smooth, undulating, dark brown stains, 0.01' relief		15.6-16.7' - dark reddish brown to pale yellow, soft	R3: 17:20-17:27
	R3NQ 5 ft 95%	86	1	14.2' - Fracture, 15 deg, smooth, undulating, dark brown stains, 0.01' relief 14.3' - Fracture, 5 deg, smooth, undulating, dark brown stains, 0.01' relief, 0.01' relief			At 17.3': R-Scale = R1-R2
			1	15.2' - Fracture, horizontal, smooth, undulating, dark brown stains, 0.01' relief			At 18.5': R-Scale = R1-R2
	19.2			15.3' - Fracture, 5 deg, smooth, undulating, dark brown stains, 0.01' relief, 0.3' relief		19.0-24.2' - moderately weathered to slightly weathered 19.2-19.6' - 30% fine sand	R4: 10:15-10:33 on 7/27/06
20 240.6			2	15.6' - Fracture, horizontal, smooth, undulating, 0.005' relief, tight fit			
			1	16.5' - Fracture, horizontal, smooth, undulating, dark brown stains, 0.01' relief			
	R4NQ 5 ft 106%	58	1	16.7' - Fracture, horizontal, smooth, undulating, dark brown stains, 0.01' relief, tight fit			At 20.8': R-Scale = R1-R2
			1	18.2' - Fracture, 5 deg, smooth, undulating, dark brown stains, 0.01' relief, tight fit			At 22.0': R-Scale = R1-R2
			3	19.2-19.4' - Fractures (2), 5 deg, smooth, undulating 19.7' - Fracture, horizontal, smooth, undulating, 0.01 relief			
	24.2			20.3' - Fracture, horizontal, smooth, undulating, 0.005 relief		23.6-23.9' - pale olive, very soft	
			10+	21.5' - Fracture, 50 deg, rough, undulating, 0.01 relief		24.2-25.1' - dark reddish brown, very soft, interbedded clay layers 24.2-29.0' - slightly weathered 25.1-29.2' - light brown, soft to hard, poorly sorted, 40% very fine to fine sand	R5: No time recorded
25 235.6			4	22.6' - Fracture, horizontal, rough, undulating, 0.01 relief 24.3' - Fracture, horizontal, rough, undulating			
	R5NQ 5 ft 106%	84	4	24.6' - Fracture, horizontal, smooth, undulating 24.8' - Fracture, horizontal, smooth, undulating 24.9' - Fracture, horizontal, smooth, undulating			At 25.8': R-Scale = R1-R2 At 26.4': R-Scale = R1-R2
			3	25.1' - Fracture, horizontal, smooth, undulating 25.1' - Fracture, horizontal, smooth, undulating 26.9' - Fracture, horizontal, smooth, undulating			At 27.2': R-Scale = R2

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-13	SHEET 3 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

WATER LEVELS : 6.2 ft bgs

START : 7/26/06 16:00

END : 7/27/06 12:20

LOGGER : AT/LH/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			2				At 28.5': R-Scale = R2
	29.2					29.0-39.0' - moderately weathered	
				29.3' - Fracture, horizontal, smooth, undulating		29.2-34.2' - soft to hard, 40% very fine to fine sand	R6: No time recorded
			4	29.4' - Fracture, horizontal, smooth, undulating			
30 230.6				29.5' - Fracture, horizontal, smooth, undulating			
			1	30.0' - Fracture, 5 deg, smooth, undulating, 0.01' relief			At 30.5': R-Scale = R3-R4
	R6NQ 5 ft 92%	73		31.1' - Fracture, 15 deg, smooth, undulating			
			1	31.6' - Fracture, horizontal, smooth, undulating			At 31.4': R-Scale = R3-R4
							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
	34.2						At 33.4': PP: 1.0 tsf
						34.2-34.8' - mottled green, soft, <10% very fine to fine sand	R7: No time recorded
			3				At 34.4': R-Scale = R2
35 225.6				34.9' - Fracture, horizontal, smooth, undulating		35.0-35.5' - section was crushed in removal from rod	
			10+	35.0' - Fracture, horizontal, smooth, undulating, 0.005' relief		35.5-36.2' - dark brown, very soft, clay rich layer, poorly bedded	
				35.6' - Fracture, horizontal, smooth, undulating		35.7' - clay layer	
	R7NQ 5 ft 106%	62		35.8' - Fracture, horizontal, smooth, undulating		36.2-39.2' - mottled pale olive and reddish black, soft to hard, 25% gravel sized to coarse sand sized clasts	
			3	36.1' - Fracture, 5 deg, smooth, undulating, 0.01' relief			
				36.4' - Fracture, 5 deg, smooth, undulating, 0.01' relief			
			1				At 37.6': R-Scale = R3
				37.0-37.5' - Fractures (2), 80 deg, smooth, undulating, 0.01' relief			
			2	38.3' - Fracture, horizontal, smooth, undulating			
	39.2			38.6' - Fracture, horizontal, smooth, undulating			
						39.0-54.2' - fresh	At 39.0': R-Scale = R2
			1			39.2-44.2' - large irregular shaped white clasts from <1/4 to 1, harder than matrix	R8: No time recorded
40 220.6							
			0				
	R8NQ 5 ft 101%	97	0				
			0				
							At 42.9': R-Scale = R2
			0				
	44.2						At 43.8': R-Scale = R2
							R9: No time recorded
			0				
45 215.6							At 45.0': R-Scale = R3
			0				
	R9NQ 5 ft 104%	100	0				At 46.2': R-Scale = R3-R4
			1				

PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-13	SHEET 4 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

WATER LEVELS : 6.2 ft bgs

START : 7/26/06 16:00

END : 7/27/06 12:20

LOGGER : AT/LH/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			2				
49.2							
50 210.6			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
			2				
	R10NQ 5 ft 100%	88	2	51.4' - Fracture zone, 70 deg and 45 deg, smooth, undulating			
			1	52.0' - Fracture zone, 25 deg, rough, undulating, tight fit			At 52.3': R-Scale = R3
			2	52.7' - Fracture, 60 deg, rough, undulating			
54.2							
55 205.6			2			54.2-58.0' - gradational change in sand content to <10%	R11: No time recorded
			2			54.2-64.2' - moderately weathered	SC-1 collected 54.2-55.4'
	R11NQ 5 ft 103%	80	0				At 56.0': R-Scale = R3-R4
			3	57.1' - Fracture, horizontal, smooth, undulating, 0.03 inch clay infilling			
			2	57.4' - Fracture, 5 deg, smooth, undulating, 0.03 inch clay infilling			
59.2				57.5' - Fracture, 5 deg, smooth, undulating, 0.03 inch clay infilling		58.7-58.8' - clay seam	
			10+	57.6' - Fracture, horizontal, smooth, undulating, 0.02 inch clay infilling		59.2-64.2' - dark reddish brown, mottled black & greenish gray, trace fine sand	R12: No time recorded
60 200.6			1	59.2-59.3' - Fracture zone, horizontal, smooth, undulating			
			1	59.5-60.1' - Fracture zone, horizontal, smooth, undulating, 0.02 inch clay infilling			
	R12NQ 5 ft 98%	75	1				
			0				
			0				
64.2							
65 195.6			1	64.4' - Fracture, vertical, rough, undulating		64.2-69.2' - mottled black & greenish gray, very soft to soft, fresh	R13: No time recorded
			0				
	R13NQ 5 ft 102%	94	0				
			0				

PROJECT NUMBER:	BORING NUMBER:
338884	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

WATER LEVELS : 6.2 ft bgs

START : 7/26/06 16:00

END : 7/27/06 12:20

LOGGER : AT/LH/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				
69.2							
70 190.6	R14NQ 5 ft 102%	65	0	69.4-69.7' - Fracture, 5 deg, smooth, undulating, 0.02 inch clay infilling		69.2-71.2' - dark reddish brown, very soft to soft, moderately weathered, hardness increases with depth	R14: No time recorded
			10+	70.1' - Fracture, horizontal, rough, undulating, 0.01 inch clay infilling 70.4' - Fracture, horizontal, rough, undulating, 0.01 inch clay infilling		70.5-70.6' - clay seam	
			1	70.7' - Fracture, horizontal, rough, undulating		71.2-74.2' - moderately weathered, <10% fine sand	At 70.9': R-Scale = R3
			2	71.5' - Fracture, 60 deg and horizontal, slickensided, undulating			
			0				At 73.3': R-Scale = R3-R4
74.2							
75 185.6	R15NQ 5 ft 96%	30	10+	74.2-75.1' - Fracture zone, horizontal, smooth, undulating, 0.15 inch clay infilling		**Siltstone** At 74.2' - very dark greenish gray, mottled greenish gray, moderately weathered	R15: No time recorded
			1	75.3-75.5' - Fracture zone, horizontal, smooth, undulating, 0.04 inch clay infilling			
			1	75.9-77.4' - Fracture zone, horizontal, smooth, undulating, 0.03 inch clay infilling		76.5-79.2' - olive brown, mottled greenish gray, 15-20% light olive brown mottling concentrated near fractures with clay infilling.	
			10+	77.7-78.2' - Fracture zone, horizontal, smooth, undulating, 0.01 inch clay infilling			At 78.9': R-Scale = R3-R4
			2				First water level = 6.2' bgs taken 7/28/06 at 13:15
79.2							R-Scale performed during rock core logging
80 180.6						Bottom of Boring at 79.2 ft bgs on 7/27/06 12:20	
85 175.6							

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
DRILLING EQUIPMENT AND METHOD : CME-750, Tricone Bit, 24" Split Spoon, and 140 lb. Automatic Hammer
ORIENTATION : Vertical
WATER LEVELS : 15.4 ft bgs
START : 7/31/06 13:10
END : 8/1/06 16:10
LOGGER : AT

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
287.0	0.0	10.8	SS1SS A&B	9-8-5-5 (13)	**Silty Gravel (GM)** 0.0-0.7' - pinkish gray, dry, dense, well graded fine to coarse, angular gravel. 25% fine to coarse sand silt **Clay (CL)** 0.7-0.9' - pale brown, moist, soft, high plasticity		
	2.0						
	2.5	21.6	SS2SS	4-9-26-31 (35)	**Clay (CL)** 2.5-3.8' - pale brown, moist, soft, high plasticity, sharp contact between clay layers at 3.75' **Sandy Silt (ML)** 3.8-4.3' - brown, dry to moist, no plasticity, rapid dilatancy, 10-15% very fine to fine sand		
	4.5						
5							
282.0	5.0	18.0	SS3SS	17-39-50 (89)	**Sandy Silt (ML)** 5.0-5.5' - brown, dry to moist, no plasticity, rapid dilatancy, 10-15% very fine to fine sand **Silty Sand (SM)** 5.5-6.5' - pinkish gray, reddish yellow linear mottling, dry to moist, 70-75% very fine to fine sand		
	7.0						
	7.5	15.6	SS4SS	44-36-50 (86)	**Sandy Silt (ML)** 7.5-8.9' - pinkish gray, reddish yellow linear mottling, dry to moist, very fine to fine grained, 70-75% very fine to fine sand		
	9.5						
10							
277.0	10.0	13.2	SS5SS	32-50 (50")	**Sandy Silt (ML)** 10.0-10.5' - pinkish gray, dark brown mottling, dry to moist, very fine to fine grained		
	12.0						
	12.5	7.2	SS6SS	50 (50")	**Sandy Silt (ML)** 12.5-13.1' - pinkish gray, red and black mottling, dry to moist, very fine to fine grained, 70-75% very fine to fine sand		
	14.5						
15							
272.0	15.0	6.0	SS7SS	50/5 (50/5")	**Sandy Silt (ML)** 15.0-15.5' - pinkish gray, mottled red, black, very fine to fine grained, mottles <0.0002-0.0007, poorly graded sand, dark brown weathering stains, laminated		
	17.0						
	17.5	8.4	SS8SS	50 (50")	**Sandy Silt (ML)** 17.5-18.0' - pinkish gray, very soft, very fine to fine grained, mottles <0.0002-0.0007', poorly graded sand, dark brown weathering stains, laminated		
	19.5						
20							

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

WATER LEVELS : 15.4 ft bgs

START : 7/31/06 13:10

END : 8/1/06 16:10

LOGGER : AT

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
267.0	20.0	14.5	SS9SS	33-40-50/2 (90/8")	**Clay (CL)** 20.0-21.2' - dark reddish brown, mottled green, dry to moist, soft		
	22.0						Soil sampling completed at 15:20 on 7/31/06
	22.5 22.7	1.8	SS10SS	50/1.5 (50/1.5")	**Sandy Silt (ML)** 22.5-22.7' - red, dry to moist, 20% sand **Clay Seam** 22.5-22.6' Begin Rock Coring at 22.7 ft bgs See the next sheet for the rock core log		
25 262.0							
30 257.0							
35 252.0							
40							

PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-14	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 EQUIPMENT AND METHOD : CME-750, NQ Double Barrel

ORIENTATION : Vertical

WATER LEVELS : 15.4 ft bgs

START : 7/31/06 13:10

END : 8/1/06 16:10

LOGGER : AT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	22.7		2			**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
			4	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			
25 262.0	R1NQ 4.8 ft 63%	0	0	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			
	27.5					27.5-32.5' - soft	R2: 16:30-17:08
			1	28.1' - Fracture, horizontal, smooth, undulating, 0.005' relief			
			1	28.6' - Fracture, 20 deg, smooth, undulating, clay seam			At 29.0': R-Scale = R2
30 257.0	R2NQ 5 ft 88%	0	0				
			0				At 30.5': R-Scale = R2
			0				At 31.0': R-Scale = R2
	32.5					31.9-32.0' - clay seam	
			0			32.5-35.0' - soft to hard	R3: 8:16-8:23 on 8/1/06
			0				At 33.0': R-Scale = R2-R3
							At 34.0': R-Scale = R2-R3
35 252.0	R3NQ 5 ft 84%	70	0				At 34.6': R-Scale = R2-R3
			1				At 35.8': R-Scale = R3
				36.7' - Fracture, 20 deg, smooth, undulating, tight fit		36.1-36.6' - clay seam	
	37.5						
			0			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	R4: 8:38-8:51 At 37.8': R-Scale = R4 SC-1 collected 38.1-39.4
			0				
40 247.0	R4NQ 5 ft 100%	100	0				At 39.8': R-Scale = R4
			0				At 41.0': R-Scale = R4
			0				At 41.7': R-Scale = R4
	42.5						

PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-14	SHEET 4 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

WATER LEVELS : 15.4 ft bgs

START : 7/31/06 13:10

END : 8/1/06 16:10

LOGGER : AT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			42.5-47.5' - soft to hard	R5: 9:12-9:31
			2	43.8' - Fracture, 85 deg, smooth, undulating, tight fit to tightly healed			At 43.0': R-Scale = R3
45 242.0	R5NQ 5 ft 100%	100	0	44.6' - Fracture, 10 deg, smooth, undulating, fairly tight fit			At 44.3': R-Scale = R3
			0				
			0			46.9-47.5' - 5-10% white clasts	
47.5							
			0			47.5-52.5' - 25% gravel sized white clasts	R6: 9:47-10:03
			1				At 48.5': R-Scale = R3
50 237.0	R6NQ 5 ft 97%	87	0	49.4-49.7' - Fracture, 60 deg, smooth, undulating			
			2	50.6' - Fracture, 10 deg, smooth, undulating, 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			
			4	52.8' - Fracture, horizontal, rough, undulating 53.0' - Fracture, 5 deg, smooth, undulating, 0.05' relief		52.5-53.1' - soft to hard, gravel sized white clasts (0.001) 52.6-52.7' - clay seam	R7: 10:36-10:49
			1	53.1' - Fracture, 10 deg, smooth, undulating, 0.1' relief, 10% coverage		53.1-57.5' - green mottling, 30-35% coverage <0.0002-0.0004', same hardness as matrix	At 54.0': R-Scale = R3
55 232.0	R7NQ 5 ft 96%	72	0	53.3' - Fracture, 10 deg, smooth, undulating 53.6' - Fracture, 5 deg, smooth, undulating, tight fit			
			1				At 55.7': R-Scale = R3
			1	56.3' - Fracture, horizontal, rough, undulating, 0.2' relief			At 56.6': R-Scale = R3-R4
57.5				56.9' - Fracture, 25 deg, smooth, undulating, 0.005' relief, tight fit			
			0			57.5-58.3' - large linear-shaped green mottling to 4" in length by 1 1/3" wide	R8: 11:06-11:22
			0			**Sandstone** At 58.6' - dark gray, soft to hard, up to 80% very fine to coarse sand, fining upwards, poorly sorted, some silt	
60 227.0	R8NQ 5 ft 98%	98	0			59.1-63.6' - multi-colored, laminated to thin bedding, very fine sand to coarse sand	At 59.5': R-Scale = R3-R4
			1			60.4-60.4' - dark gray/ grayish - black layer ~ 1/7" thick	At 60.5': R-Scale = R3-R4
			0	61.2' - Fracture, 10 deg, rough, undulating, 0'.005' relief			At 61.7': R-Scale = R3-R4
62.5						62.0-62.5' - poorly laminated with red staining	

PROJECT NUMBER:	BORING NUMBER:	
338884	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

WATER LEVELS : 15.4 ft bgs

START : 7/31/06 13:10

END : 8/1/06 16:10

LOGGER : AT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			2	63.0' - Fracture, 10 deg, smooth, planar, tight fit		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	
65 222.0	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 clasts	At 64.3': R-Scale = R3
			0				At 66.0': R-Scale = R3-R4
			0			66.3-67.5' - small to large rounded and irregular shaped white clasts from <0.0004-0.0007', harder than matrix	
	67.5						
			0			67.5-77.5' - reddish black and purple mottling, 5-10%, <0.0002-0.0003', same hardness as matrix	R10: 13:15-13:40
			0				At 68.3': R-Scale = R3-R4
70 217.0	R10NQ 5 ft 101%	92	0				
			2	71.2' - Fracture, horizontal, rough, undulating			At 70.7': R-Scale = R3-R4
			3	71.2-71.5' - Fracture, 65 deg, rough, undulating			
	72.5			71.9' - Fracture, 15 deg, rough, undulating			
			3	72.0' - Fracture, 25 deg, rough, undulating		72.5-77.5' - laminated bedding, very fine sand to coarse sand, poorly sorted, 15% to 60% multicolored sand	R11:13:47-14:02
				73.2' - Fracture, 70 deg		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
			1	73.3' - Fracture, 70 deg 73.5' - Fracture, 70 deg		73.2-74.6' - 5-10% sand up to 0.0002'	
				73.8' - Fracture, 30 deg			
75 212.0	R11NQ 5 ft 102%	79	0			74.6-76.2' - up to 60% sand, to 0.0003', multicolored grains	At 74.6': R-Scale = R3-R4
			1				At 75.8': R-Scale = R3-R4 R-Scale performed during rock core logging
			1	76.3' - Fracture, 10 deg, smooth, undulating			
			2	76.8' - Fracture, 10 deg, smooth, undulating			
	77.5						
						Bottom of Boring at 77.5 ft bgs on 8/1/06 16:10	
80 207.0							

PROJECT NUMBER:	BORING NUMBER:
338884	BGA-15 SHEET 1 OF 4

SOIL BORING LOG

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
WATER LEVELS : ---
START : 8/2/06 15:10
END : 8/4/06 14:21
LOGGER : EM/LH

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
266.6	0.0						
		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		
	2.0						
	2.5				**Lean Clay (CL)** 2.5-3.8' - dark red & light gray, moist, stiff, medium to high plasticity, slow to rapid dilatancy		
		15.6	SS2SS	5-7-8-10 (15)			
	4.5						
5							
261.6	5.0				**Clay (CL)** 5.0-6.4' - dark red, moist, hard, low to medium plasticity, slow to rapid dilatancy		
		16.8	SS3SS	9-15-23-30 (38)			
	7.0						
	7.5				**Clay (CL)** 7.5-9.0' - dark red, moist, hard, low to medium plasticity		
		18.0	SS4SS	17-22-33-44 (55)			
	9.5						
10							
256.6	10.0				**Clay (CL)** 10.0-11.0' - dark red, mottled black & light olive brown, dry to moist, hard, low plasticity, rapid dilatancy		
		12.0	SS5SS	33-50/2 (50/2")			
	12.0						
	12.5				**Clay (CL)** 12.5-13.6' - dark red, mottled greenish gray, dry to moist, hard, low plasticity, slow to rapid dilatancy		
		13.2	SS6SS	10-50/5.5 (50/5.5")			
	14.5						
15							Soil sampling completed at 17:40 on 8/2/06
251.6	15.0	3.0	SS7SS		**Clay (CL)**		
	15.3			50/3 (50/3")	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		
20							

PROJECT NUMBER:	BORING NUMBER:
338884	BGA-15 SHEET 2 OF 4

ROCK CORE LOG

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 LEVELS : ---
START : 8/2/06 15:10
END : 8/4/06 14:21
LOGGER : EM/LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
15.4 16.0	R1NQ 0.6 ft 92%	0	1			**Siltstone** At 15.4' - dusky red, soft, 45-50% fine to medium sand 15.4-16.0' - highly weathered 16.0-17.9' - soft, laminated reddish black bedding 16.0-18.4' - slightly weathered 17.9-18.4' - clay seam	Rock coring began at 08:58 on 8/3/06 R1: 08:58-09:04 R2: 09:15-09:28
			1				
			0				At 17.3': R-Scale = R2
	R2NQ 5 ft 108%	97	0				
			0	19.1' - Fracture, horizontal and 5 deg, rough, undulating		**Sandstone** At 18.4' - light brownish gray, fine sand to coarse sand, <5% coarse sand in beds at 60 degree angles. overall fining upward sequence 18.4-21.0' - slightly weathered	At 19.6': R-Scale = R2
20 246.6			1				
21.0				20.7' - Fracture, horizontal and 5 deg, smooth, undulating		20.6' - small pebbles (up to .003') for .2' thick band 20.8' - fine sand to medium sand, trace sand 21.0-23.8' - slightly weathered to moderately weathered, trace small pebbles, siltstone/clay clasts up to 0.1' size	At 21.0': R-Scale = R2 R3: 09:35-09:52 At 21.5': R-Scale = R2
			1				
			2	21.8' - Fracture, 60 deg, rough, undulating, black stains 21.9' - Fracture, 5 deg, smooth, undulating, 0.02 thick clay infilling			
	R3NQ 5 ft 101%	77	3	22.1' - Fracture, 45 deg, rough, undulating 23.0' - Fracture, 5 deg, smooth, undulating, 0.05 thick clay infilling			
			2	23.2' - Fracture, 45 deg, smooth, undulating, 0.03 thick clay infilling		**Siltstone** 23.8-24.2' - gray, very soft, slightly weathered to moderately weathered, some fine sand to medium sand	
25 241.6			2	23.7' - Fracture, horizontal and 5 deg, smooth, undulating		**Sandstone** At 24.2' - gray, very soft to soft, siltstone beds up to 0.6' thick 24.2-26.0' - slightly weathered to moderately weathered 26.0-28.0' - mottled reddish brown, laminated bedding, slightly weathered, reddish brown clasts 0.01' in size	At 24.9': R-Scale = R2
26.0				23.8' - Contact between siltstone and sandstone, 20 deg			
			0	24.1' - Fracture, 20 deg, smooth, planar 24.6' - Fracture, horizontal and 5 deg, rough, undulating			R4: 10:32-10:52
			0	25.3' - Fracture, 5 deg, smooth, undulating 25.6' - Fracture, 5 deg, rough, undulating			
	R4NQ 5 ft 100%	100	1			28.0-29.3' - slightly weathered, coarser material	At 27.9': R-Scale = R2
			0	28.9' - Fracture, horizontal and 5 deg, smooth, undulating			
30 236.6			0	29.3' - Contact between siltstone and sandstone, 20 deg		**Siltstone** At 29.3' - dark reddish brown, very soft, laminated bedding 29.3-33.5' - slightly weathered 29.6-31.0' - mottled black, 10% fine sand 31.0-36.0' - mottled green gray, very soft	
31.0							At 30.5': R-Scale = R2 R5: 11:00-11:15
			0				
			1	32.4' - Fracture, horizontal and 5 deg, rough, undulating			At 32.9': R-Scale = R3
	R5NQ 5 ft 100%	50	0			33.5-36.0' - highly weathered	
			2	33.9' - Fracture, 60 deg, smooth, undulating 34.1' - Fracture, horizontal, smooth, undulating, 0.05' thick clay infilling			
35 231.6							At 34.9': R-Scale = R1-R2

PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-15	SHEET 3 OF 4

ROCK CORE LOG

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 LEVELS : ---

START : 8/2/06 15:10

END : 8/4/06 14:21

LOGGER : EM/LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, 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 medium to coarse sand 36.0-36.5' - clay seam, very soft 36.0-36.6' - laminated bedding	R6: 11:37-11:53
			1				
	R6NQ 5 ft 102%	82	0	37.9' - Fracture, horizontal, rough, planar			At 37.6': R-Scale = R2 (performed at later date)
			3	39.1' - Fracture, 35 deg, smooth, planar 39.5' - Fracture, horizontal, smooth, undulating		39.1-40.0' - laminated bedding	
40 226.6			4	39.9-40.0' - Fracture, 45 deg, rough, undulating			
	41.0			40.4' - Fracture, horizontal, rough, planar		40.7-50.0' - laminated bedding	
			0	40.7' - Fracture, horizontal, rough, planar 40.8' - Fracture, horizontal, rough, planar 41.0' - Fracture, horizontal, rough, planar		41.0-46.0' - soft, fresh, trace medium to coarse sand	R7: No time recorded
			0				
	R7NQ 5 ft 96%	96	0				
			0				
45 221.6			1				At 44.6': R-Scale = R3-R4 (performed at later date)
	46.0			45.8' - Fracture, 45 deg, rough, planar		46.0-47.7' - soft, fresh	R8: No time recorded
			0				
			0				
				47.7' - Contact between siltstone and sandstone		**Sandstone** At 47.7' - white, pale red, dark reddish gray, and dark greenish gray, soft to hard, very thin to medium bedding, very fine sand to coarse sand, angular to subrounded, poorly sorted, fresh, 0-20% gravel, coarsens with depth	
	R8NQ 5 ft 100%	100	0				At 48.4': R-Scale = R3 (performed at later date)
			1				
50 216.6			0	49.9' - Fracture, 70 deg, rough, undulating			
	51.0						R9: 13:00-13:17
			0				
			1	52.2' - Fracture, 50 deg, rough, undulating 52.4' - Fracture, 50 deg, rough, undulating			
	R9NQ 5 ft 98%	98	0				
			0				
55 211.6							

PROJECT NUMBER:	BORING NUMBER:
338884	BGA-15 SHEET 4 OF 4

ROCK CORE LOG

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 LEVELS : ---

START : 8/2/06 15:10

END : 8/4/06 14:21

LOGGER : EM/LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				At 55.0': R-Scale = R3-R4 (performed at later date)
56.0							R10: 13:33-13:52
			0			56.0-57.7' - fine sand	
			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	
			0				
60 206.6			1				At 59.6': R-Scale = R3-R4 (performed at later date)
61.0				60.8' - Fracture, horizontal, rough, undulating		**Sandstone** 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, fresh, very fine to coarse grained sand, 0-20% gravel 62.2-62.4' - trace medium to coarse grained sand 62.8-63.7' - trace medium to coarse grained sand	R11: 14:02-14:21 SC-1 collected 61.0-62.2'
			0				
	R11NQ 4.6 ft 100%	100	0				
			0				At 64.1': R-Scale = R3 (performed at later date) R-Scale performed during rock core logging
65 201.6			0				
65.6						Bottom of Boring at 65.6 ft bgs on 8/3/06 14:21	
70 196.6							
75 191.6							

PROJECT NUMBER:	BORING NUMBER:
338884	BGA-16 SHEET 1 OF 4

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

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
260.6	0.0						
		13.2	SS1SS	4-18-50/5 (68/11")	**Clay (CL)** 0.0-1.1' - red, gray mottling, dry to moist, hard, low plasticity, slow to rapid dilatancy, <5% reddish black and light gray mottling; 0-0.2' roots/organics		
	2.0						
	2.5						
		4.0	SS2SS	50/4 (50/4")	**Clay (CL)** 2.5-3.2' - red, reddish black to light gray mottling, dry to moist, hard, low plasticity, slow to rapid dilatancy, trace fine sand		
	4.5						
5							
255.6	5.0				**Clay (CL)** 5.0-5.4' - reddish brown, moist, hard, low plasticity, slow to rapid dilatancy, trace fine sand		
		5.0	SS3SS	50/5 (50/5")	**Clay (CL)** 5.4-5.5' - reddish brown, reddish black to light gray mottling, moist, hard, low to medium plasticity, slow to rapid dilatancy, trace fine sand		
	7.0						
	7.5	3.0	SS4SS				
	7.8			50/3 (50/3")	**Clay (CL)** 7.5-7.9' - red, light gray mottling, hard, low plasticity, 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:	BORING NUMBER:	
338884	BGA-16	SHEET 2 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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R.Q.D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	7.9		6	8.0-8.6' - Fracture zone (6), <5 deg and 40 deg, rough, undulating, black stains, higher angled fractures have slickensides		**Siltstone** At 7.9' - reddish brown, mottled light greenish gray and brownish yellow, very soft	Rock coring began at 10:40 on 7/17/06
	R1NQ 2.1 ft 100%	0	1	8.9' - Fracture, 20 deg, rough, undulating, black stains, and slickensided		7.9-10.0' - highly weathered	R1: 10:40-10:50
10	10.0		2	9.6' - Fracture, 40 deg, rough, undulating		8.6-9.2' - 0.01-0.04' thick white clasts	
250.6			2	9.8' - Fracture, <5 deg, rough, undulating 10.1' - Fracture, 10 deg, rough, undulating		10.0-15.0' - very soft to soft 10.0-15.2' - moderately weathered	R2: 10:58-11:12
			3	10.8' - Fracture, <5 deg, rough, undulating 11.1' - Fracture, <5 deg, rough, undulating 11.2' - Fracture, <5 deg, rough, undulating		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	
	R2NQ 5 ft 100%	72	0	11.8' - Fracture, <5 deg, rough, undulating			SC-1 collected 12.2-12.45'
			2	13.0' - Fracture, <5 deg, rough, undulating, black stains		13.2-14.1' - soft to hard	
			3	13.8' - Fracture, vertical, rough, undulating 14.1' - Fracture, 10 deg, smooth, undulating, black stains			
15	15.0			14.3' - Fracture, <5 deg, rough, undulating			
245.6			10+	14.7' - Fracture, 15 deg, rough, undulating, 0.1' thick clay infilling		15.0-20.0' - light greenish gray and reddish black mottling, black clasts 0.01-0.05' thick, or mottles - round to oblong	R3: 11:16-11:45
			1	15.0-15.3' - Fracture zone, <5 deg, rough, undulating, 0.02 thick clay infilling, black stains		15.0-18.5' - very soft	
	R3NQ 5 ft 97%	80	0	16.8' - Fracture, <5 deg, rough, undulating		15.2-25.8' - fresh	
			0			18.5-20.0' - soft	
			1	19.4' - Fracture, <5 deg, rough, undulating			
20	20.0						
240.6			0			20.0-25.0' - light greenish gray and brownish yellow mottling, soft, mottling throughout core	R4: 11:50-12:10
			0				
	R4NQ 5 ft 103%	100	1	22.5' - Fracture, <5 deg, rough, undulating			At 22.0': R-Scale = R3
			1	23.7' - Fracture, 60 deg, rough, undulating			
			0	23.8' - Joint, <0.01 thick clay infilling			
25	25.0					24.6' - white clasts	
235.6			0			25.0-30.0' - light greenish gray and brownish yellow mottling, soft	R5: 13:07-13:20
			0			25.8-29.3' - very soft, moderately weathered, white clasts up to 0.05'	At 26.0': R-Scale = R2
	R5NQ 5 ft	72	10+			27.6-27.8' - clay seam, very soft	

PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-16	SHEET 3 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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, 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	
			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	
30 230.6	30.0		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			32.0-32.9' - soft to hard, subrounded, ~30-40% fine to medium grained sand; 10% coarse	
			0				At 32.8': R-Scale = R3
			0				
35 225.6	35.0		1			35.0-40.0' - mottled yellowish brown, reddish black, light greenish gray, soft to hard 35.0-35.2' - ~30-40% fine to medium sand	R7: 13:50-14:13 Drillers Remark: Final 0.3' slipped out, unable to retrieve
			1	35.7' - Fracture, 5 deg, smooth, undulating			
			1	36.6' - Fracture, 5 deg, smooth, undulating			
	R7NQ 5 ft 94%	94	0				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.	
			0				
40 220.6	40.0		0				R8: 14:20-14:35
			3	41.1' - Fracture, <5 deg, smooth, undulating 41.4' - Fracture, vertical, rough, undulating 41.5' - Fracture, <5 deg, rough, undulating, 0.03' thick clay infilling			At 41.7': R-Scale = R2
	R8NQ 5 ft 104%	87	1			42.5-44.9' - moderately weathered, clay seams at bottom 42.8-44.9' - soft, white to pink clay clasts 0.01-0.04' thick 43.0-45.0' - 50-60% black mottling	At 42.2': R-Scale = R3
			0	43.4' - Fracture, <5 deg, smooth, undulating			
			10+	44.1-44.7' - Fracture zone, 0.01-0.02' thick clay infilling, highly fractured (crumbled)			
45 215.6	45.0		1	45.3' - Fracture, 15 deg, rough, undulating, 0.01' thick clay infilling, black stains		44.9-62.3' - fresh 44.9-49.9' - dark reddish brown, mottled yellowish brown, reddish black, and light greenish gray 44.9-46.1' - 50-75% reddish black mottling; large white clasts up to 0.1' thick	R9: 14:40-15:04 SC-2 collected 45.3-45.8'
			0				
	R9NQ 5 ft	100	0				

PROJECT NUMBER:	BORING NUMBER:	
338884	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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	100%		0			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	
			0				
50	50.0						
210.6			0			49.9-55.0' - dark reddish brown, mottled reddish black and greenish gray, soft	R10: 15:10-15:24
			0			50.1' - white clay clasts 0.02' thick	
	R10NQ 5 ft 102%	100	0			51.8-53.0' - coarse sand sized clast (white clay)	
			0				At 53.1': R-Scale = R2
			0				
55	55.0						
205.6			0			55.0-60.0' - dark reddish brown, mottled reddish black, greenish gray, and yellowish brown, soft	R11: 15:40-16:05
			0			56.3-60.0' - soft to hard	
	R11NQ 5 ft 100%	100	0			56.6-58.5' - 25% fine to medium sand 56.6-56.9' - trace coarse sand	
			1	58.8' - Fracture, 10 deg, rough, undulating			At 57.9': R-Scale = R2
			0				
60	60.0						
200.6			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'
			0				
	R12NQ 4.7 ft 100%	100	0				At 62.1': R-Scale = R2
			0				
			0				R-Scale performed after drilling on stored samples
	64.7						
65						Bottom of Boring at 64.7 ft bgs on 7/17/06 16:45	
195.6							

PROJECT NUMBER:	BORING NUMBER:
338884	BGA-17 SHEET 1 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

WATER LEVELS : 9.7 ft bgs

START : 7/24/06 10:59

END : 7/26/06 08:50

LOGGER : LH

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
261.6	0.0	24.0	SS1SS	3-4-8-10 (12)	**Clay (CL)** 0.0-2.0' - reddish brown, mottled black, dry to moist, stiff, low plasticity, medium dilatancy, trace wood and roots (at top 0.2')		
	2.0						
	2.5	21.6	SS2SS	5-6-12-14 (18)	**Clay (CL)** 2.5-4.3' - reddish brown, mottled black, dry, stiff, low plasticity, medium dilatancy 2.9-3.0' - reddish yellow, very stiff, fat clay pockets, nonlinear or horizontal black material (laminated) along fractures within clay at 60 degrees 3.3-3.5' - reddish yellow, very stiff, fat clay pockets, nonlinear or horizontal black material (laminated) along fractures within clay at 60 degrees		
	4.5						
5							
256.6	5.0	20.4	SS3SS	10-20-22-25 (42)	**Clay (CL)** 5.0-5.3' - reddish brown, mottled strong brown, moist, hard, low plasticity, medium dilatancy **Clay (CL)** 5.3-6.0' - pale yellow, mottled black, moist, hard		
	7.0						
	7.5	16.8	SS4SS	5-7-10-12 (17)	**Clay (CL)** 6.0-6.8' - dark reddish brown, mottled black, moist, hard, black material is in chunks (sand to fine gravel sized) **Clay (CL)** 7.5-7.9' - reddish brown, mottled black, very stiff, low plasticity, medium dilatancy, fat clay pocket, vertical at 7.6-6.9'		
	9.5						
10							
251.6	10.0	22.8	SS5SS	4-6-10-12 (16)	**Clay (CL)** 7.9-8.1' - very dark gray, mottled yellowish red, moist, very stiff **Clay (CL)** 8.1-8.5' - pale yellow, mottled black, moist, hard		
	12.0						
	12.5	20.4	SS6SS	10-12-15-18 (27)	**Clay (CL)** 8.5-8.9' - very dark gray, mottled yellowish red and light gray, moist, very stiff **Clay (CL)** 10.0-11.9' - light yellowish brown, mottled black (in fractures) and reddish yellow, moist, very stiff 11.3-11.9' - reddish yellow, clay pockets		
	14.5						
15							
246.6	15.0	23.4	SS7SS	2-2-4-12 (6)	**Clay (CL)** 12.5-13.4' - light yellowish brown, mottled black (in fractures) and reddish yellow, moist, very stiff, darker at the top **Clay (CL)** 13.4-14.2' - olive yellow, yellow, black and gray, moist, very stiff, trace medium to coarse sand **Clay (CL)** 15.0-17.0' - olive yellow, yellow, black and gray, moist, 24, trace medium to coarse sand 15.9' - coarse gravel sized piece of igneous rock from dike, discolored dark gray because of weathering		
	17.0						
	17.5	0.0	SS8SS	10-12-15-18 (27)	**Clay (CL)** 17.5' - lost sample		Driller Remark: Didn't have catcher, lost sample.
	19.5						
20							

PROJECT NUMBER:	BORING 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
WATER LEVELS : 9.7 ft bgs
START : 7/24/06 10:59
END : 7/26/06 08:50
LOGGER : LH

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND 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, moist, stiff, at 22.5-23.5' more clay than rest of same material (<50%), trace medium to coarse sand		
	24.5						
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 yellow, moist, hard		
	29.5						
30 231.6							Soil sampling completed at 15:10 on 7/24/06
	32.5 32.8	3.0	SS11SS	50/3 (50/3")	**Clay (CL)** 32.5-32.8' - dusky red, moist, hard, very fine sand to gravel sized pieces of ground up siltstone. Bake zone Begin Rock Coring at 32.8 ft bgs See the next sheet for the rock core log		
35 226.6							
40							

PROJECT NUMBER:	BORING NUMBER:
338884	BGA-17 SHEET 3 OF 6

ROCK CORE 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

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

ORIENTATION : Vertical

WATER LEVELS : 9.7 ft bgs

START : 7/24/06 10:59

END : 7/26/06 08:50

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R.Q.D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	32.8		4	32.9' - Fracture, 45 deg, rough, planar 32.9' - Fracture, 45 deg, rough, planar		**Partially Metamorphosed Siltstone** At 32.8' - dark reddish gray, hard 32.8-37.5' - slightly weathered	Rock coring began at 15:23 on 7/24/06 R1: 15:23-15:38 on 07/24/06
			2	33.2' - Fracture, 20 deg, rough, planar, dark gold/orange (hematite) and black stains 33.8-34.0' - Fracture, 70 deg, rough, undulating			
35 226.6	R1NQ 4.7 ft 101%	41	10+	34.3-34.8' - Fracture, vertical, rough, undulating 34.8-35.0' - Fracture zone, rough, undulating			At 32.5-37.5': R-Scale = R5
			10+	35.5-35.8' - Fracture zone, rough, undulating, some black stains			
	37.5		10+	36.2-36.5' - Fracture zone, rough, undulating, some black and hematite - dark gold/orange stains, sediment infilling			
	R2NQ 1.5 ft 100%	80	1	36.8-37.0' - Fracture zone, rough, undulating, hematite stains (dark gold/orange)		37.5-39.0' - fresh	R2: 08:58-09:03 on 07/25/06 At 37.5-39.0': R-Scale = R5
	39.0		0	37.6-37.9' - Fracture, 60 deg, rough, undulating, linear features oriented up and down in fracture			
			4	39.1' - Fracture, horizontal, rough, stepped, dark gold/orange stains		**Partially Metamorphosed Siltstone** At 39.0' - reddish black, hard, linear features may be weak foliations 39.0-49.2' - slightly weathered	R3: 09:10-09:25
40 221.6			10+	39.4' - Fracture, horizontal, smooth, stepped, linear features 39.6' - Fracture, 10 deg, rough, stepped, dark gold/orange stains			At 39.0-44.2': R-Scale = R5+
	R3NQ 5.2 ft 96%	0	10+	39.6-40.1' - Fracture, 80 deg, rough, undulating 40.1' - Fracture, 30 deg, rough, undulating		41.0-44.2' - trace fine to medium grained sand sized white crystals, vugs (<0.01-0.06' diameter)	
			10+	40.3-40.8' - Fracture zone, many different fractures deg, rough, undulating, black stains, slickensided (in two opposing directions, 55 deg and vertical		41.2-41.5' - gravel sized white hard material in rock	
			10+	40.8-41.3' - Fracture, vertical, rough, undulating, black, yellow and dark gold/orange stains (40.75-40.9'), slickensided at 40.75-40.85'			
	44.2					44.2-44.6' - mottled gray and yellow orange	R4: 09:38-10:10
45 216.6			10+	41.3-41.6' - Fractures (3), horizontal and 45 deg, rough, undulating, black and dark gold/orange stains, 45, horizontal = slickensided, rough		44.2-49.2' - gravel to coarse sand sized metamorphosed white clasts; foliated in some areas, linear features throughout.	Assuming full recovery, rock core is fractured so much that actually measuring it is impossible
			10+	41.6' - Fracture, 35 deg, rough, planar, black stains, possible foliation		44.2-83.4' - bluish black	
	R4NQ 5 ft 100%	18	10+	41.8-41.9' - Fractures (2), 50 deg and horizontal, rough, undulating, black and dark gold/orange stains, white material in patches		44.2-45.0' - vugs (0.01-0.03' thick) and greenish gray inclusion material is soft in inclusions; vugs have yellowish silt in them	At 44.2-49.2': R-Scale = R5+
			10+	41.9' - Fracture, 45 deg, rough, stepped, black stains, stepped/undulating, possible foliations		46.6-48.6' - Coarse sand sized white clasts in linear (vertical) feature	
			10+	42.2-44.2' - Fracture zone, 10 deg, rough, undulating, black stains, rough and smooth, undulating, planar, and stepped, *slickensided at 43.8-44.2			
	49.2					49.2-54.2' - mottled weak red, gravel and coarse sized white clasts with vertical linear features throughout; foliated, almost slate	R5: 10:19-10:40
50 211.6			10+	44.2-45.3' - Fracture, smooth, stepped, dark gold/orange stains (iron oxide), microfractures have white material (hard) in them, tightly healed (most of core run)			
			10+	44.7' - Fracture, horizontal, rough, undulating, black and dark gold/orange stains in one spot, foliated		49.2-57.7' - fresh	
	R5NQ 5 ft 100%	15	10+				

PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-17	SHEET 4 OF 6

ROCK CORE 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

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

ORIENTATION : Vertical

WATER LEVELS : 9.7 ft bgs

START : 7/24/06 10:59

END : 7/26/06 08:50

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			10+	45.2' - Fracture, 10 deg, rough, undulating, no stains, yellow, dark gold/orange and black		54.2-56.4' - gravel sized white clasts	
			10+	stains, few foliations			
	54.2			45.5' - Fracture, horizontal, smooth, stepped, yellow and dark gold/orange stains, foliated		54.2-57.5' - coarse sand sized white clasts in linear (vertical) feature	
55 206.6			10+	45.7-46.1' - Fracture zone, rough, undulating, dark gold/orange, lime, yellow and black stains, undulating and stepped, gray, foliations		54.2-59.2' - gravel sized white clasts	R6: 11:15-11:45
			3	46.1-46.5' - Fracture, vertical, rough, undulating, black, yellow and orange/gold stains			Driller Remark: Keep having to stop because of circulation problems.
	R6NQ 5 ft 100%	28	10+	46.5' - Fracture, rough, undulating, black and orange/gold stains, parabolic shaped		56.4-59.2' - very fine sand sized vugs appearing as darker spots	At 54.2-59.2': R-Scale = R5+
			6	46.9' - Fracture, horizontal and vertical, rough, planar, greenish gray and black stains, foliations		57.0' - trace weak red mottles	
			10+	47.3-48.0' - Fracture zone, rough, undulating, hard white infilling, black stains, foliations		**Partially Metamorphosed Siltstone** At 57.7' - bluish black, very hard, fresh, no foliations or linear features present	At 57.5' water turns gray from brown
	59.2			48.0-48.3' - Fracture, vertical, rough, undulating, hard greenish gray to white infilling, black, greenish gray and red stains			Driller's Remark: Rock is getting harder with depth
			10+	48.3' - Fracture, 10 deg, rough, undulating, hard white infilling, black stains		59.2-83.4' - vugs present	R7: 14:04-14:15
60 201.6			3	48.6' - Fracture, 35 deg, rough, undulating, hard white infilling			At 59.2-64.2': R-Scale = R5
	R7NQ 5 ft 84%	44	4	48.9' - Fracture, 45 deg, rough, undulating, hard white infilling			
			2	49.4-50.1' - Fracture zone, rough to planar, undulating to smooth, white, hard infilling, weak red stains, foliated			Driller's Remark: At 61.6' bgs rod dropped and bit kicked out, began losing 8-10 gallons a minute. Lost 0.3' out of the end of the core barrel
			2	50.9' - Fracture, horizontal, rough, stepped, hard white infilling			
				51.7' - Fracture, horizontal, rough, stepped, hard white infilling			
	64.2			51.9' - Fracture, horizontal, rough, undulating, hard white infilling, foliations			R8: 14:22-14:31
			2	52.1' - Fracture, 45 deg and 45 deg, rough, planar, hard white infilling, weak red stains, opposing angles, foliations			
65 196.6			1	52.4-53.8' - Fracture zone, rough, undulating, hard white infilling, rough and smooth, undulating and planar and stepped, foliations and linear features			Drilling mud is red now
	R8NQ 5 ft 93%	85	1	53.8-54.0' - Fracture, vertical, rough, undulating, hard white infilling			At 64.2-69.2': R-Scale = R5
			3	54.0' - Fracture, horizontal, rough, undulating, hard white infilling			
			1	54.2-54.5' - Fracture, vertical, rough, undulating, hard white infilling, foliated surface			
	69.2			54.5' - Fracture, 20 deg, smooth, stepped, hard white infilling, foliations			R9: 14:37-14:47
70 191.6			3	54.9-56.3' - microfractures, rough, undulating, tightly healed to loosely healed, white, hard infilling			
			1	54.9' - Fracture, 15 deg, rough, planar, hard white infilling, foliations			
	R9NQ 5 ft 100%	91	1	55.7-56.4' - Fracture, vertical, rough, undulating, hard white infilling, foliations and other linear features at 45 deg			
				56.4' - Fracture, horizontal, smooth, undulating, hard white infilling, foliations			

PROJECT NUMBER:	BORING NUMBER:
338884	BGA-17 SHEET 5 OF 6

ROCK CORE 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

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

ORIENTATION : Vertical

WATER LEVELS : 9.7 ft bgs

START : 7/24/06 10:59

END : 7/26/06 08:50

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			3	56.5' - Fracture, horizontal and horizontal, smooth, stepped, hard white infilling, undulating and planar, foliations			
			0	56.9' - Fracture, 20 deg, smooth, planar, hard white infilling			
	74.2						
75 186.6			1	57.0-57.3' - Fracture, 70 deg, rough, undulating, hard white infilling, foliations and linear features			R10: 08:21-08:30 on 07/26/06
			2	57.1' - Fracture, horizontal, smooth, planar, hard white infilling			
	R10NQ 5 ft 100%	100	1	57.3' - Fracture, horizontal, smooth, planar, hard white infilling, tightly healed, foliations and linear features= horizontal			
			2	57.5' - Fracture, 30 deg, rough, undulating, hard white infilling, foliations and linear features			SC-1 collected 77.5-78.2'
			0	57.7' - Fracture, horizontal, smooth, planar, hard white infilling			
	79.2			57.9' - Fracture, 10 deg, rough, planar, hard white infilling			
80 181.6			1	58.2' - Fracture, horizontal, rough, planar, hard white infilling			R11: 08:40-08:50
			2	58.4' - Fracture, 20 deg, rough, undulating, hard white infilling			First water level = 9.7' bgs taken 7/27/06 at 10:45
	R11NQ 4.2 ft 100%	100	2	58.5' - Fracture, 20 deg, smooth, undulating, hard white infilling, undulates once (concave)			
			3	59.0-59.1' - Fracture, smooth, stepped, hard white infilling, many angles, foliations on angle			R-Scale performed during rock core logging
	83.4			59.2-59.7' - Fracture zone, rough, undulating, some hard white infilling, stepped at bottom			
				60.5' - Fracture, horizontal, rough, undulating, hard white infilling			
				60.7' - Fracture, 20 deg, rough, undulating, ground up rock and hard white infilling		Bottom of Boring at 83.4 ft bgs on 7/26/06 08:50	
85 176.6				61.1' - Fracture, 45 deg, rough, undulating, hard white infilling			
				61.4' - Fracture, 20 deg, rough, undulating, ground up rock and hard white infilling			
				61.6' - Fracture, 20 deg, rough, undulating, hard white infilling			
				62.4' - Fracture, 45 deg, rough, undulating, hard white infilling			
				62.7' - Fracture, 20 deg, rough, planar, hard white infilling			
				63.5' - Fracture, 20 deg, rough, planar, hard white infilling			
				63.7' - Fracture, 20 deg, rough, undulating, hard white infilling, black stains			
				64.6' - Fracture, 45 deg, rough, undulating, hard white infilling, linear features			
90 171.6				64.9' - Fracture, horizontal, rough, undulating, hard white infilling, no linear features			
				65.8' - Fracture, 20 deg, rough, planar, hard greenish gray infilling			
				66.6' - Fracture, 45 deg, rough, planar, hard greenish gray infilling			
				67.4' - Fracture, 45 deg, rough, planar, hard greenish gray infilling			
				67.8' - Fracture, 45 deg, rough, planar, hard greenish gray infilling			

PROJECT NUMBER:	BORING NUMBER:
338884	BGA-17 SHEET 6 OF 6

ROCK CORE 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

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

ORIENTATION : Vertical

WATER LEVELS : 9.7 ft bgs

START : 7/24/06 10:59

END : 7/26/06 08:50

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION — DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	LITHOLOGY — ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	COMMENTS — SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
95 166.6				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, 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 73.0' - Fracture, 20 deg, rough, undulating, hard white infilling 74.8' - Fracture, 30 deg, rough, undulating, hard white infilling 75.4' - Fracture, horizontal, rough, undulating, hard white infilling 75.9' - Fracture, 45 deg, rough, undulating, hard white infilling			
100 161.6				77.1' - 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 79.8' - Fracture, 20 deg, rough, undulating, hard white infilling 80.6' - Fracture, horizontal, rough, undulating, hard white infilling 80.9' - Fracture, horizontal, rough, undulating, hard white infilling 81.2' - Fracture, horizontal, rough, undulating, hard white infilling 81.7' - Fracture, rough, undulating, hard white infilling 82.3' - Fracture, horizontal and 50 deg, rough, undulating, hard white infilling 83.3' - Fracture, horizontal, rough, undulating, hard white infilling			
105 156.6							
110 151.6							

PROJECT NUMBER:	BORING NUMBER:
338884	BGA-18 SHEET 1 OF 4

SOIL BORING 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
DRILLING EQUIPMENT AND METHOD : BK-51, Tricone Bit, 24 Split Spoon, 140 lb. Hammer and Cathead
ORIENTATION : Vertical
WATER LEVELS : 8.4 ft bgs
START : 7/25/06 08:20
END : 7/26/06 09:38
LOGGER : JS/AT

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
263.5	0.0				**Topsoil** 0.0-0.2' - grass, gravel		
		15.0	SS1SS	9-7-7-8 (14)	**Silty Gravel With Sand (GM)** 0.2-0.4' - light brown sand, light gray gravel, moist, hard, loose, 60% fine - coarse angular gravel, fine to medium sand, 15-20% low plastic fines		
	2.0				**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		
	2.5	12.0	SS2SS	7-5-6-11 (11)	**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 plasticity, rapid dilatancy, very fine to fine sand, content varies throughout		
	4.5						
5							
258.5	5.0				**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		
		16.0	SS3SS	7-21-25-36 (46)	**Clay (CL)** 5.5-6.3' - reddish brown, greenish white mottling, dry to moist, very hard, low plasticity, some bedrock pieces, friable		
	7.0						
	7.5	14.0	SS4SS	32-35-45-50/5 (80)	**Lean Clay (CL)** 7.5-8.7' - reddish brown, mottled weak red, green, olive yellow, moist, very hard, medium to high plasticity, no to slow dilatancy, very friable		
	9.5						
10							
253.5	10.0				**No Recovery** 10.0-12.0'		
		0.0	SS5SS	18-15-17-19 (32)			
	12.0						Soil sampling completed at 09:50 on 7/25/06 Drillers Remark: hard at 12.3' bgs
	12.5	3.0	SS6SS		**Clay (CL)** 12.5-12.8' - red, mottled purple and white, moist, very hard, low to medium plasticity, slow dilatancy		
	12.8			50/3 (50/3")	Begin Rock Coring at 12.8 ft bgs See the next sheet for the rock core log		
15 248.5							
20							

PROJECT NUMBER:	BORING NUMBER:	
338884	BGA-18	SHEET 2 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

WATER LEVELS : 8.4 ft bgs

START : 7/25/06 08:20

END : 7/26/06 09:38

LOGGER : JS/AT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	12.8		0			**Siltstone** 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 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	Rock coring began at 10:00 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
	R1NQ 2.6 ft 111%	86	NA				
15 248.5	15.4		10+				At 15.2': R-Scale = R2 R2: 12:38-12:48
			3	15.5' - Fracture, horizontal, rough, stepped, 0.01' clay infilling			
			1	15.6' - Fracture, horizontal, undulating, partial fracture (not open) 16.2-16.3' - Fractures (2), horizontal, smooth, undulating			At 16.7': R-Scale = R2
	R2NQ 5 ft 83%	77	0			**Sandstone** At 16.0' - dark reddish brown, soft, angular, poorly sorted, 70-80% fine to coarse sand to fine gravel 16.0-20.4' - fresh	
			0			16.3' - mottled faint green, black, and yellow, very fine sand to fine sand, 30% silt, trace scattered coarser grains to 0.02	At 18.8': R-Scale = R2
20 243.5	20.4		2	19.5' - Fracture, horizontal, rough, undulating 19.6' - Fracture, horizontal, rough, undulating, 0.05' relief		17.2' - becoming coarser with depth, picking up to 10-15% medium grained sand to .1	
			10+	19.6-20.4' - presume clay layer that was washed out		18.1' - soft to hard, fine sand to coarse sand, subrounded to subangular, well sorted, multicolored sand to 0.2, trace silt	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
			4	20.7-20.9' - Fractures (3), horizontal, smooth, undulating, 0.05' relief 21.2-21.4' - Fracture zone, horizontal, bedrock fragments		20.4-20.7' - moderately weathered 20.4-20.7' - clay seam, very soft	
	R3NQ 5 ft 100%	70	0	21.5' - Fracture, horizontal, smooth, planar, 0.5mm clay infilling 21.7' - Fracture, horizontal, smooth, planar		**Siltstone** At 20.7' - reddish brown, mottled black and green, very soft 20.7-25.4' - moderately weathered	At 22.6': R-Scale = R0-R1 At 23.3': R-Scale = R1-R2
			2	21.7' - Fracture, 40 deg, rough, stepped 21.9' - Fracture, horizontal, smooth, planar		22.5' - green mottling, very soft to soft, subrounded to subangular, 10-15% very fine sand / coarse silt and picking up medium sand, white and black	
25 238.5	25.4		1	22.4' - Fracture, horizontal, rough, undulating, black staining over ~30% of surface, 0.01' relief 22.5-25.4' - microfractures opening up as core dries			At 24.7': R-Scale = R1-R2
			0	23.8' - Fracture, 15 deg, rough, undulating, 0.05' relief		22.8' - less medium sand (<5%), trace rounded black clasts; becoming finer grained with depth	R4: 14:00-14:10
			2	24.3' - Fracture, 10 deg, rough, undulating, 0.02' relief		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	
	R4NQ 5 ft 92%	52	10+	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		27.0-27.4' - mottled dusky red, becomes a little harder	At 27.4': PP: 1.25 tsf At 28.2': R-Scale = R1-R2
			1	27.4' - Fracture, horizontal, smooth, undulating 27.7' - Fracture, horizontal, rough, undulating, 0.005' relief, a few black stains on face		27.0-30.4' - moderately weathered 27.4-27.7' - clay seam and very soft bedrock	
30 233.5	30.4		1	28.7-28.8' - Clay seam, horizontal, smooth, undulating 29.8' - Fracture, horizontal, smooth, undulating, 0.005' relief		27.4-27.7' - clay seam, very weak bedrock	At 29.3': R-Scale = R3-R4
			1	31.1' - Fracture, 5 deg, rough, undulating		27.7-30.4' - reddish brown, mottled green and black, very fine to fine grained	R5: 14:17-14:32 At 30.8': R-Scale = R2
			2	31.6' - Fracture, 2 deg, smooth, undulating, 0.01' relief		27.7-28.6' - soft, becoming coarser with depth, fine grained by 28.8' with 15-20% very fine sand	
	R5NQ						At 32.3': R-Scale = R1

PROJECT NUMBER:	BORING NUMBER:
338884	BGA-18 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

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

ORIENTATION : Vertical

WATER LEVELS : 8.4 ft bgs

START : 7/25/06 08:20

END : 7/26/06 09:38

LOGGER : JS/AT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	5 ft 99%	70	10+	31.8' - Fracture, 10 deg, rough, undulating, 0.01' thick clay infilling, 0.02' relief		30.4-31.6' - dusky red, mottled purple, green, coarse grained, 25% sand	
			3	33.3' - Fracture, 2 deg, smooth, undulating, 0.01' relief		30.4-64.2' - fresh	
						31.6-34.7' - very soft to soft, fine grained	
			1	34.4' - Fracture, 10 deg, rough, undulating, 0.02' relief		33.3-34.28' - clay seam, disconformity	
35 228.5	35.4					33.5-33.6' - clay seam	
						34.7-35.4' - 10% medium to coarse grained sand	At 35.0': R-Scale = R2
			2	35.7' - Fracture, 55 deg, rough, undulating, 0.005' of relief, tight fit		35.4-36.5' - trace green mottles, soft, very fine grained	R6: 16:18-16:26
			1	36.3-38.8' - Fracture, 80 deg, rough, undulating		36.5-40.3' - soft to hard, very fine to fine grained, up to 25% very fine to fine grained sand	At 36.0': R-Scale = R2
	R6NQ 5 ft 101%	94	0	37.4-37.7' - Fracture, 80 deg, rough, undulating			
			0				
40 223.5			2				
	40.4			40.0' - Fracture, 5 deg, rough, undulating, 0.02' relief		40.3-40.4' - soft, very fine grained	R7: No time recorded
			1	40.3' - Fracture, 5 deg, rough, undulating, 0.02' relief		40.4' - trace green mottles, large white clast covering 30% of length 0.1 to 1, clasts harder than surrounding material	At 40.9': R-Scale = R3-R4
			0	40.6' - Fracture, 20 deg, rough, undulating		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	At 42.0': R-Scale = R3-R4
	R7NQ 5 ft 98%	94	0				
			0				
45 218.5			0				
	45.4						At 44.9': R-Scale = R3
			0			45.4' - green mottling, very fine grained	R8: No time recorded
			0				At 46.1': R-Scale = R3-R4
	R8NQ 5 ft 100%	100	1				At 47.7': R-Scale = R3-R4
			1	48.3' - Fracture, 5 deg, smooth, undulating, 0.01' relief			At 48.4': R-Scale = R3-R4
				49' - Fracture, 20 deg, smooth, undulating, 0.02' relief			
50 213.5			1	50.0' - Fracture, 25 deg, smooth, undulating, 0.01' relief			At 50.0': R-Scale = R3-R4
	50.4					50.4-52.1' - trace green mottles, very fine to fine grained, 10% very fine sand/coarse silt, trace white coarse sand sized clasts	R9: No time recorded
			1	50.8-51.2' - Fracture, 80 deg, smooth, undulating, 0.05' relief, tight fit			
			1				At 51.9': R-Scale = R2
	R9NQ						

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:	
338884	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

WATER LEVELS : 8.4 ft bgs

START : 7/25/06 08:20

END : 7/26/06 09:38

LOGGER : JS/AT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND 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		52.1-53.2' - soft to hard, increasing sand content with depth, up to 50-60% very fine to fine grained	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	
55 208.5			0			53.8-53.9' - up to 50% green mottling around fracture	
	55.4					54.0-55.4' - green and purple mottling, 5-10% very fine to fine sand/coarse silt, est. 10% small up to 1/4 white clasts, harder than surrounding material	R10: No time recorded
			0				
			0			56.2-56.8' - scattered medium sand,10-15% coarse sand to fine gravel	At 56.6': R-Scale = R3-R4
	R10NQ 5 ft 101%	100	0			56.8-57.2' - 40% fine to coarse sand	At 57.7': R-Scale = R3
			1			57.2-58.1' - trace green mottles in streaks to 1/2 in length, trace medium grained sand	At 58.5': R-Scale = R3-R4
				59.3' - Fracture, 10 deg, rough, undulating, 0.03' relief		57.4-57.8' - sandy lens, up to 50% very fine to fine sand	SC-1 collected 59.3-60.4'
60 203.5			0			58.1-58.8' - green mottling, 30-40% fine to coarse sand	
	60.4					58.8-60.4' - purple mottles to 1/2, green mottles (15%) in streaks with some white mottling, white clasts throughout, varies from 5 to 30%	R11: No time recorded
			1	60.4-60.8' - Fracture, 70 deg, rough, undulating, 0.02' relief, tight fit		59.3-59.5' - large, irregular shaped white clast	At 61.2': R-Scale = R2
			0			60.4-65.4' - weak red, elongated green mottles (20-25%) up to 3 in length, trace purple mottles to 1, soft, very fine to fine sand, 5-10% sand	At 62.0': R-Scale = R2
	R11NQ 5 ft 94%	94	1	63.0-63.5' - Fracture, 70 deg, smooth, undulating, tight fit		63.6-65.4' - trace green mottles, soft to hard, increasing sand content, up to 50%	At 64.4': R-Scale = R3
			0			63.8-64.2' - trace small white clasts	First water level = 8.4' bgs taken 7/26/06 at 12:15; second water level = 8.1' bgs taken 7/27/06 at 10:35
65 198.5			0				
	65.4						R-Scale performed during rock core logging
						Bottom of Boring at 65.4 ft bgs on 7/26/06 09:38	
70 193.5							

PROJECT NUMBER:	BORING NUMBER:
338884	BCTA-1 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
DRILLING EQUIPMENT AND METHOD : CME-550, 3-5/8 and 2-7/8 Tricone Bit, 24 Split Spoon, and 140 lb. Automatic Hammer
ORIENTATION : Vertical
WATER LEVELS : 5.2 ft bgs
START : 7/18/06 15:25
END : 7/20/06 10:15
LOGGER : LH

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	PP (TSF)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
260.4	0.0				**Asphalt** 0.0-0.3' - asphalt mixed with fines			
		15.6	SS1SS	21-15-6-5 (21)	**Gravel With Sand (GM)** 0.3-0.9' - gray, dry, loose, looks like a CA-6 fill			
	2.0				**Clay (CL)** 0.9-1.2' - dark reddish brown, dry to moist, very stiff			
	2.5				**Silty Sand (SM)** 1.2-1.3' - pale brown, dry to moist, medium dense, <5% clay			PT-1 collected 2.0-4.0'
		24.0	SS2SS	5-9-16-22 (25)	**Sandy Clay (CL)** 2.5-3.4' - light greenish gray and very pale brown, moist, very stiff, little silt		3.5	
	4.5				**Silty Sand (SM)** 3.4-4.5' - pale brown, dry to moist, medium dense, little silt, <5% clay			
5								
255.4	5.0				**Silty Sand (SM)** 5.0-6.4' - very pale brown, light yellowish brown, and black, moist, very dense, very fine to coarse grained, laminations in black, well to poorly sorted, subangular to subrounded			PT-2 collected 6.0-8.0' Offset: 19.9' S54W of BCTA-1 Lab Result USCS: SC
		16.8	SS3SS	12-27-32-42 (59)				
	7.0							
	7.5				**Gravelly Sand (SW-SM)** 7.5-8.0' - pale brown, moist, dense, very fine grained, subangular to subrounded, little silt, poorly sorted			
		22.8	SS4SS	9-16-36-50/3 (52)	**Fine To Coarse Sand (SP-SM)** 8.0-8.5' - light gray, moist, very dense, little silt, laminated			
	9.5				**Silt (ML)** 8.5-9.4' - light gray and light brownish gray, moist, very dense, rapid dilatancy, laminations			
10								
250.4	10.0				**Silt (ML)** 10.0-10.9' - light gray, moist, very dense, very fine to fine grained, trace to little very fine to fine sand, trace clay at 10.0-10.1' bgs			
		10.8	SS5SS	28-50/4 (50/4")				
	12.0							
	12.5				**Clay (CL)** 12.5-14.1' - reddish brown, mottled reddish black and light greenish gray, moist, hard, laminated			
		19.2	SS6SS	20-28-50/3 (78/9")				
	14.1							
								Soil sampling completed at 09:06 on 7/19/06
15								
245.4	15.5							
					Begin Rock Coring at 15.5 ft bgs See the next sheet for the rock core log			
20								

PROJECT NUMBER:	BORING NUMBER:
338884	BCTA-1 SHEET 2 OF 5

ROCK CORE 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

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

ORIENTATION : Vertical

WATER LEVELS : 5.2 ft bgs

START : 7/18/06 15:25

END : 7/20/06 10:15

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	15.5					**Siltstone**	Rock coring began at 10:18 on 7/19/06
	R1NQ 1.5 ft 60%	0	3	15.8' - Fracture, 45 deg, smooth, planar 16.1' - Fracture, horizontal, smooth, planar		At 15.5' - dark reddish brown, mottled reddish black and greenish gray, very soft 15.7' - clay seam, very soft to medium stiff, friable material 15.5-17.0' - highly weathered	R1: 10:18-10:23 on 7/19/06 At 15.5-15.7': R-Scale = R0 R2: 10:30-10:34
	17.0						
	R2NQ 2.3 ft 100%	87	0			17.0-24.0' - slightly weathered	At 17.8': R-Scale = R1
			0				
	19.3		1	19.0-19.1' - Fracture, 45 deg, rough, 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
20 240.4			5	19.5' - Fracture, horizontal, rough, planar			
			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		22.4-22.5' - 0.01-0.05' thick vugs 22.5-24.7' - gravel sized white clasts	
			0	21.6' - Fracture, 10 deg, rough, planar 21.8' - Fracture, horizontal and 20 deg, rough, undulating			
	24.3					24.0-85.3' - fresh	
			4	22.2' - Fracture, horizontal and vertical, rough, planar		24.3-29.3' - very soft to soft	R4: 11:33-11:45
25 235.4				22.9' - Fracture, horizontal, rough, planar			
			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				
			0				
	29.3						
			3	29.4' - Fracture, horizontal, smooth, undulating 29.6' - Fracture, horizontal, smooth			R5: 11:51-12:02
30 230.4				29.7' - Fracture, horizontal, smooth, undulating			
			0				At 30.8': R-Scale = R3
	R5NQ 5 ft 97%	89	0			32.0-34.3' - coarse sand sized white clasts	
			0				
			0				
	34.3					34.3-35.3' - 0-40% very fine sand	R6: 12:07-12:15
35 225.4			0				

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

ROCK CORE 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

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

ORIENTATION : Vertical

WATER LEVELS : 5.2 ft bgs

START : 7/18/06 15:25

END : 7/20/06 10:15

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				At 35.6': R-Scale = R2
	R6NQ 5 ft 101%	100	0				
			0			37.5-38.5' - coarse sand sized white clasts	
			0				
	39.3						
40 220.4			0				R7: 14:02-14:11
			0				SC-1 collected 40.3-41.3'
	R7NQ 5 ft 95%	76	10+	41.8-42.1' - Fracture zone, rough, undulating		41.1-42.6' - trace <0.01 to 0.05' thick vugs	
			1	42.5' - Fracture, horizontal, rough, planar			At 42.8': R-Scale = R2-R3
			6	43.4' - Fracture, horizontal, rough, planar 43.5' - Fracture, horizontal, rough, planar 43.7' - Fracture, horizontal, rough, planar		43.4-44.3' - very soft, laminated bedding 43.8-44.3' - siltstone is almost black	
	44.3					44.3-67.7' - soft	
45 215.4			10+	43.8' - Fracture, horizontal, rough, planar 44.3' - Fracture, horizontal, rough, planar			R8: 14:16-14:25
			3	44.5' - Fracture, horizontal, rough, planar 44.5' - Fracture, horizontal, rough, planar 44.6' - Fracture, horizontal, rough, planar			
	R8NQ 5 ft 94%	67	1	45.0' - Fracture, horizontal, rough, planar 45.1' - Fracture, horizontal, rough, planar 45.2-45.4' - Fracture zone, horizontal, rough, planar			At 47.1': R-Scale = R3
			0	45.7' - Fracture, horizontal, rough, planar 46.5' - Fracture, horizontal, rough, planar 47.9' - Fracture, horizontal, rough, planar			
			3	48.3' - Fracture, horizontal, rough, planar 48.7' - Fracture, horizontal, rough, planar			
	49.3			48.9' - Fracture, horizontal, rough, planar 49.4' - Fracture, horizontal, rough, planar			R9: 14:33-14:41
50 210.4			3				
			0	50.3' - Fracture, rough, planar 50.3' - Fracture, rough, planar			
	R9NQ 5 ft 94%	92	1	51.5' - Fracture, horizontal, smooth, undulating			At 51.7': R-Scale = R2
			0				
			0				
	54.3						
55 205.4			1	54.4' - Fracture, horizontal, rough, planar			R10: 08:03-08:18 on 7/20/06

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

ROCK CORE 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

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

ORIENTATION : Vertical

WATER LEVELS : 5.2 ft bgs

START : 7/18/06 15:25

END : 7/20/06 10:15

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, 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				
			0				
	59.3						
60 200.4			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
			0				
	R11NQ 5 ft 101%	100	1	62.1' - Fracture, horizontal, rough, undulating			At 61.0': R-Scale = R3
			2	62.5' - Fracture, 45 deg, rough, undulating		62.5-64.3' - gravel sized white clasts	
			0	63.2' - Fracture, 20 deg, rough, undulating			
	64.3					64.3-69.3' - gravel sized white clasts	R12: 08:47-08:59
65 195.4			0				
			0			65.8-66.0' - 20% very fine sand	
	R12NQ 5 ft 105%	93	1	66.7' - Fracture, horizontal, rough, undulating			
			0			67.7-69.3' - very soft to soft	At 67.8': R-Scale = R3
			10+	68.3-68.9' - Fracture zone, horizontal, rough, undulating			
	69.3			68.4-69.0' - Fracture zone, horizontal and vertical, rough, undulating		69.3-72.9' - soft	R13: 09:10-09:27
70 190.4			0				
			0				
	R13NQ 5 ft 104%	92	0				At 72.0': R-Scale = R3-R4
			3	72.9' - Fracture, horizontal, smooth, planar		72.9-73.5' - very soft to soft, laminated bedding	
			3	73.2' - Fracture, horizontal, rough, planar 73.2' - Fracture, horizontal, rough, planar 73.4' - Fracture, horizontal, rough, planar, partially stepped			
	74.3						R14: 09:33-09:44
75 185.4			0	73.5' - Fracture, horizontal, rough, planar 73.5' - Fracture, horizontal, rough, planar			SC-2 collected 74.3-75.3'

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

ROCK CORE 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

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

ORIENTATION : Vertical

WATER LEVELS : 5.2 ft bgs

START : 7/18/06 15:25

END : 7/20/06 10:15

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0				
	R14NQ 5 ft 100%	100	0			76.6-79.3' - soft	At 76.4': R-Scale = R2-R3
			0				
			0				
	79.3						
			1			79.3-80.1' - very soft to soft	R15: 09:51-10:07
80 180.4							
			10+	80.3-81.3' - Fracture zone, horizontal, smooth, olive stains, mostly horizontal (almost every 0.05'), smooth to rough planar, stained olive		80.1-82.0' - laminated bedding	
	R15NQ 5 ft 101%	65	10+			81.3-81.8' - clay seam, 0.55' thick	At 81.3-81.8': R-Scale = R0
				82.0' - Fracture, horizontal, rough, undulating		82.0-84.3' - soft	
			3	82.3' - Fracture, horizontal, rough, undulating 82.4' - Fracture, horizontal, rough, undulating			
							R16: 10:12-10:15
			0				At 84.7': R-Scale = R2
	84.3						First water level = 5.2' bgs taken 7/20/06 at 14:05
	R16NQ 1 ft 140%	100	0			84.3-85.3' - very soft to soft	
85 175.4	85.3						R-Scale performed after drilling on stored samples
						Bottom of Boring at 85.3 ft bgs on 7/20/06 10:15	
90 170.4							
95 165.4							

PROJECT NUMBER:	BORING NUMBER:
338884	BCTA-2 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

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

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	PP (TSF)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
261.0					**Asphalt** 0.0-0.3'			
	0.8	16.8	SS1SS	2-3-5-7 (8)	**Base Gravel** 0.3-0.8' - fill **Clay (CL)** 0.8-2.2' - reddish brown, mottled yellow and light gray, moist, stiff, slow dilatancy, 10-15% fine to coarse sand, subrounded to subangular, pockets of fine to medium grained sand			PT-1 collected 2.0-4.0'
	2.8							
	3.3	21.6	SS2SS	5-5-7-10 (12)	**Sandy Clay & Clay (CL)** 3.3-4.5' - olive yellow, mottled light gray and reddish brown, moist, stiff, up to 30% fine to medium sand		3.0	
5					**Clay (CL)** 4.5-5.1' - reddish brown, mottled yellow and light gray, moist, stiff, slow dilatancy, 10-15% fine to coarse sand, subrounded to subangular, pockets of fine to medium grained sand			
256.0	5.3							
	5.8	20.4	SS3SS	5-8-11-11 (19)	**Clay (CL)** 5.8-6.5' - reddish brown, mottled yellow and light gray, moist, very stiff, low to medium plasticity, slow dilatancy, 10-15% fine to coarse sand, subrounded to subangular grains, pockets of fine to medium grained sand, trace coarse sand			
	7.8							
	8.3	18.6	SS4SS	5-7-8-6 (15)	**Lean Clay (CL)** 8.3-9.8' - reddish brown and olive yellow, moist, stiff, medium plasticity, slow dilatancy, alternating laminated color change with top reddish brown becoming olive yellow, 10% fine to medium grained sand		1.5-2.5	PT-2 collected 8.0-10.0' Offset: 12.5' S38E of BCTA-2 Lab Results USCS: CH w/Sand
10								
251.0	10.3							
	10.8	22.2	SS5SS	3-6-14-20 (20)	**Fat Clay (CH)** 10.8-11.7' - olive yellow, mottled light gray and light red, dry to moist, very stiff, high plasticity, no dilatancy			PT-3 collected 11.0-13.0'
					Clay (CL) 11.7-12.6' - reddish brown, moist, very stiff, rapid dilatancy, trace (<5%) very fine and coarse sand		2.0-2.75	
	12.8							
	13.3	16.8	SS6SS	11-19-50/4 (69/10")	**Clay (CL)** 13.3-14.7' - reddish brown, moist, very stiff, slow to rapid dilatancy, trace (<5%) very fine and coarse sand, pockets of fat clay (CH) light gray		3.0	
15								
246.0	15.3							
	15.8	19.2	SS7SS	6-14-25-50/4 (39)	**Clay (CL)** 15.8-17.4' - reddish brown, black mottling, moist, hard, slow to rapid dilatancy, trace (<5%) very fine and coarse sand, pockets of light gray fat clay to 16.5'		5.0+	
	17.8							
	18.3	11.0	SS8SS	35-50/5 (50/5")	**Clay (CL)** 18.3-19.4' - red, dry to moist, hard, low to medium plasticity, slow to rapid dilatancy, lessens with depth, trace very fine sand			
20								

PROJECT NUMBER:	BORING NUMBER:
338884	BCTA-2 SHEET 2 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

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

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	PP (TSF)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
241.0	20.3							
	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 into horizontal 0.01' beds			Drillers Remark: Lost ~250 gallons of water during drilling and soil sampling Soil sampling completed at 09:40 on 7/14/06
	22.8							
	23.3	3.0	SS10SS	50/3 (50/3")	**Sandy Silt (ML)** 23.3-23.5' - dark reddish brown, light gray and olive mottling, moist, hard, low plasticity, rapid dilatancy, fine to medium grained, subrounded to subangular, micaceous, 20-25% sand, very fine to fine grained			
	23.5				Begin Rock Coring at 23.5 ft bgs See the next sheet for the rock core log			
25 236.0								
30 231.0								
35 226.0								
40								

PROJECT NUMBER:	BORING NUMBER:
338884	BCTA-2 SHEET 3 OF 6

ROCK CORE 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

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

ORIENTATION : Vertical

WATER LEVELS : 8.5 ft bgs

START : 7/13/06 16:55

END : 7/18/06 12:17

LOGGER : LH/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R.Q.D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
23.5	R1NQ 0.3 ft 67%	0	4			**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	Rock coring began at 10:30 on 7/14/06
24.5	R2NQ 0.7 ft 86%	0	0			**Siltstone** At 23.8' - dark reddish brown, mottled reddish black and olive yellow, very soft, highly weathered	R1: 10:33-10:40 on 7/14/06
25 236.0			3	24.8' - Fracture, horizontal, smooth, stepped 25.0' - Fracture, horizontal, smooth, undulating			At 23.5-24.5': R-Scale = R0 R2: 11:10-11:15
			2				R3: 11:37-11:55
				26.3' - Fracture, horizontal, smooth, planar			At 24.5-27.0': R-Scale = R0-R1
	R3NQ 5 ft 106%	0	1	26.8-26.9' - Vug, 0.08' thick , extends <0.05' into core, 0.12' wide in clayey material.		24.5-27.0' - reddish black and greenish gray mottling 25.3-25.5' - clay seam, 0.25' thick, medium stiff to stiff, friable	At 27.0-28.4': R-Scale = R3
			0	27.0' - Contact between siltstone and sandstone, horizontal, smooth, planar, stained black in sandstone, with 45 deg clipped off area		**Sandstone** 27.0-28.4' - dark reddish brown, soft, medium bedding, highly weathered	At 28.4-34.5': R-Scale = R0-R1
			10+	28.3' - Fracture, 10 deg, smooth, planar, black stains		**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, stiff, 0.6' thick 32.9-33.3' - clay seam, with breaks, stiff, 0.4' thick	
29.5							
30 231.0			10+	28.4' - Contact between siltstone and sandstone, 10 deg, smooth, planar, black stains			R4: 12:08-12:15 and 13:02-13:07
			10+	28.7' - Fracture, horizontal, smooth, undulating 29.0' - Fracture, horizontal, smooth, undulating			
				29.7' - Fracture, horizontal, rough, undulating 29.8' - Fracture, horizontal, rough, undulating			
	R4NQ 5 ft 97%	0	10+				
			10+				
			1	33.7' - Fracture, horizontal, smooth, planar			
34.5							
35 226.0			1	34.6' - Fracture, horizontal, smooth, planar		34.5-34.9' - soft, fresh	R5: 09:36-09:42 and 09:47-09:50 on 7/18/06
			1			**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	
			0				
	R5NQ 5 ft 96%	94	0				At 37.4': R-Scale = R4-R5
			0			38.2-38.3' - 30-40% silt lense	
			0				
39.5							
40 221.0			1				R6: 10:00-10:07
			1	40.2-40.6' - Fracture, 70 deg, rough, undulating		**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	
				41.1' - Fracture, 70 deg, rough, undulating			
	R6NQ 5 ft 97%	90	4	42.1-42.1' - Fracture (3), horizontal, rough, planar			At 41.5': R-Scale = R2
			0	42.3' - Fracture, horizontal, rough, planar			

PROJECT NUMBER:	BORING NUMBER:
338884	BCTA-2 SHEET 4 OF 6

ROCK CORE 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

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

ORIENTATION : Vertical

WATER LEVELS : 8.5 ft bgs

START : 7/13/06 16:55

END : 7/18/06 12:17

LOGGER : LH/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			1	44.1' - Fracture, horizontal, rough, planar		**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 SC-1 collected 45.3-46.1'
44.5							
45 216.0			1	45.3' - Fracture, horizontal, rough, undulating			
			1	46.1' - Fracture, 30 deg, rough, undulating			
	R7NQ 5 ft 104%	80	4	46.7' - Fracture, 10 deg, rough, undulating 46.7' - Fracture, horizontal, rough, undulating, parabolic shaped		**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	At 47.7': R-Scale = R3-R4
			4	46.9' - Fracture, horizontal, rough, planar 47.5' - Fracture, horizontal, rough, undulating			
			2	48.0' - Fracture, horizontal, smooth, planar 48.3' - Fracture, horizontal, smooth, planar 48.4' - Fracture, horizontal, smooth, planar 48.6' - Fracture, horizontal, smooth, stepped			
49.5							
50 211.0			0	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.		**Sandstone** 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
			0				
	R8NQ 5 ft 98%	98	0				At 51.6': R-Scale = R2-R3
			0			53.1-54.5' - becomes coarse grained	
			0				
54.5							
55 206.0			0			54.5-59.2' - dark gray, white, and reddish brown, soft, subrounded, poorly sorted, very fine to coarse grained 54.9-58.2' - 0-30% fine gravel	R9: 10:40-10:47
			0				
	R9NQ 5 ft 105%	100	0				At 56.2': R-Scale = R2
			0				
			0			**Shale** 58.8-59.2' - black, laminated bedding, fresh	
59.5							
60 201.0			0			**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
			0				At 60.8': R-Scale = R3
	R10NQ 5 ft 100%	100	0				SC-2 collected 62.0-63.0'
			0				

PROJECT NUMBER:	BORING NUMBER:
338884	BCTA-2 SHEET 5 OF 6

ROCK CORE 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

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

ORIENTATION : Vertical

WATER LEVELS : 8.5 ft bgs

START : 7/13/06 16:55

END : 7/18/06 12:17

LOGGER : LH/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (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 sandstone, 40 deg, tight fit		**Siltstone** At 67.1' - dark reddish brown, mottled greenish gray and reddish black, soft, fresh	
			0				At 68.2': R-Scale = R3.5-R4
69.5			0				
70 191.0			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				
			0				At 72.7': R-Scale = R2
74.5			0				
75 186.0			0				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 76.9' - Fracture, horizontal, smooth, planar			
			1	77.0' - Fracture, horizontal, smooth, planar			At 77.4': R-Scale = R2-R3
79.5			0				
80 181.0			0				R14: 11:57-12:08
			0				
	R14NQ 5 ft 105%	100	0				
			0				At 82.3': R-Scale = R3

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

ROCK CORE 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

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

ORIENTATION : Vertical

WATER LEVELS : 8.5 ft bgs

START : 7/13/06 16:55

END : 7/18/06 12:17

LOGGER : LH/EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION — DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	LITHOLOGY — ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	COMMENTS — SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
			0				First water level = 8.5' bgs taken 7/18/06 at 14:34; second water level = 11.7' bgs taken 7/19/06 at 09:25
	84.5						R-Scale performed after drilling on stored samples
85 176.0	85.0 R15NQ 0.5 ft 130%	100	0			Bottom of Boring at 85.0 ft bgs on 7/18/06 12:17	R15: 12:13-12:17
90 171.0							
95 166.0							
100 161.0							

PROJECT NUMBER:	BORING NUMBER:
338884	BCTA-3 SHEET 1 OF 3

SOIL BORING LOG

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 LEVELS : 12.4 ft bgs
START : 7/21/06 14:34
END : 7/21/06 17:36
LOGGER : LH

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
260.3	0.0						
		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		
	2.0						
	2.5						
		21.6	SS2SS	5-8-12-13 (20)	**Clay (CL)** 2.5-4.3' - reddish brown, mottled white and reddish black, dry, very stiff, trace gravel and roots		PT-1 collected 3.0-5.0'
	4.5						
5							
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 6.0-8.0'
	7.0						
	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		
	9.5						
10							
250.3	10.0						
	10.3	3.0	SS5SS	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				Begin Rock Coring at 13.6 ft bgs See the next sheet for the rock core log		
15							
245.3							
20							

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:	
338884	BCTA-3	SHEET 2 OF 3

ROCK CORE LOG

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

WATER LEVELS : 12.4 ft bgs

START : 7/21/06 14:34

END : 7/21/06 17:36

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
13.6	R1NQ 0.8 ft 81%	50	2	13.8' - Fracture, horizontal, rough, undulating		**Siltstone**	Rock coring began at 16:10 on 7/21/06
14.4				14.1' - Fracture, horizontal, rough, undulating		13.6-14.4' - dark reddish brown, very soft, moderately weathered, laminated beds, grades to sandstone	R1: 16:10-16:19 on 7/21/06
15 245.3			1	14.6' - Fracture, horizontal, smooth, planar		**Sandstone**	At 13.6-24.4': R-Scale = R0-R1
			1			14.4-19.4' - very dark reddish gray, some black, dark reddish brown and white, very soft to soft, laminated to medium bedding, very fine sand to coarse sand, subangular to subrounded, moderately weathered, well to poorly sorted	R2: 16:28-16:33
	R2NQ 5 ft 94%	84	2	16.0' - Fracture, horizontal, rough, undulating 16.5' - Fracture, horizontal, rough, undulating		16.5-17.4' - beds on 45 degree angle 17.4-17.6' - clay seam, firm, 0.15' thick, friable, black stains	
			1	117.7' - Fracture, horizontal, rough, undulating			
			0				
19.4							Drillers Remark: Rod dropped at 18.9-19.4'
20 240.3			10+			**Siltstone**	R3: 16:40-16:51
			3	20.2' - Fracture, horizontal, smooth, undulating 20.5' - Fracture, horizontal, rough, undulating		19.4-20.5' - dark reddish brown and reddish black, mottled light gray and pale yellow, very soft, laminated bedding 19.4-19.9' - firm, 0.5' thick with a few breaks, friable 19.4-20.2' - highly weathered 20.2-20.5' - moderately weathered	
	R3NQ 5 ft 97%	45	4	21.0' - Fracture, parabolic shaped, smooth, undulating, little black stains 21.2' - Fracture, horizontal, smooth, undulating 21.5' - Fracture, horizontal, rough, undulating		**Sandstone** At 20.5' - very dark reddish gray, black, dark reddish brown and white, mottled pale yellow, very soft to soft, laminated to medium bedding, very fine sand to coarse sand, subangular to subrounded, well to poorly sorted 20.5-24.4' - moderately weathered	
			3	21.7' - Fracture, horizontal, smooth, undulating 21.8' - Fracture, parabolic shaped, smooth, undulating, little black stains 22.1' - Fracture, horizontal, rough, planar			
			2	22.6' - Fracture, horizontal, smooth, undulating 23.1' - Fracture, horizontal, rough, undulating			
24.4				23.4' - Fracture, horizontal, rough, undulating			R4: 16:55-17:01
25 235.3			0	23.8' - Fracture, horizontal, rough, undulating			At 24.4-31.9': R-Scale = R1-R2
			0			24.4-29.4' - light red, dark reddish gray, and white, soft, very fine sand to coarse sand, subangular to subrounded, poorly sorted, trace fine to coarse gravel	
	R4NQ 5 ft 99%	99	0			24.4-31.9' - slightly weathered	
			0				
			0				
29.4							
30 230.3			0			29.4-36.6' - light gray, dark gray, and dark greenish gray, soft, very fine sand to coarse sand, subangular to rounded, poorly sorted, some laminated beds	R5: 17:08-17:16
			0				
	R5NQ 5 ft 100%	100	0			31.9-36.6' - fresh	
			0				At 32.5': R-Scale = R3

PROJECT NUMBER:	BORING NUMBER:
338884	BCTA-3 SHEET 3 OF 3

ROCK CORE LOG

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

WATER LEVELS : 12.4 ft bgs

START : 7/21/06 14:34

END : 7/21/06 17:36

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	34.4		0			33.3-33.6' - laminated beds on 45 degree angle	
35 225.3			0				R6: 17:19-17:26
			3				At 35.6': R-Scale = R3
	R6NQ 5 ft 102%	81	3	36.6' - Contact between sandstone and siltstone, pieces of siltstone mixed in with sandstone above, tightly healed 37.0' - Fracture, 20 deg, rough, undulating 37.2' - Fracture, 20 deg, rough, planar 37.4' - Fracture, horizontal, smooth, planar 37.5' - Fracture, horizontal, rough, undulating 37.6' - Fracture, horizontal, rough, undulating 37.8' - Fracture, horizontal, smooth, planar 37.9' - Contact between sandstone and siltstone, horizontal, tightly healed		**Siltstone** 36.6-37.8' - dark reddish brown, reddish black mottling, soft, fresh, trace medium grained sand	
			0			**Sandstone** 37.8-40.5' - light gray, dark gray, and dark greenish gray, soft, laminated to medium bedding, very fine sand to coarse sand, subangular to rounded, poorly sorted, fresh 38.6-39.1' - laminated beds on 35 degree angle	At 39.0': R-Scale = R3 R7: 17:33-17:36 First water level = 12.4' bgs taken at 7/22/06 at 17:17 SC-1 collected 39.4-40.5' R-Scale performed after drilling on stored samples
	39.4		0				
40 220.3	R7NQ 1.1 ft 100%	100	0				
	40.5					Bottom of Boring at 40.5 ft bgs on 7/21/06 17:36	
45 215.3							
50 210.3							

PROJECT NUMBER:	BORING NUMBER:
338884	BCTA-4 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

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

ORIENTATION : Vertical

WATER LEVELS : 19.0 ft bgs

START : 7/20/06 14:30

END : 7/21/06 12:04

LOGGER : LH

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	PP (TSF)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
262.8	0.0				**Topsoil** 0.0-0.2'			
		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 0.4' - black piece of vesicular rock with iron oxide on out side			
	2.0							
	2.5				**Clay (CL)** 2.5-4.0' - reddish brown, mottled light greenish gray, white and brownish yellow, moist, trace roots 2.9-3.3' - 0-40% very fine to fine sand 3.7-4.0' - 0-40% very fine to fine sand			PT-1 collected 3.0-5.0'
		18.0	SS2SS	3-4-8-10 (12)				
	4.5							
5								
257.8	5.0				**Clay (CL)** 5.0-6.8' - reddish brown, mottled light greenish gray, white and brownish yellow, moist, trace roots 5.3-5.4' - sand pocket 5.5-5.6' - sand pocket 5.6-5.7' - sand pocket 6.0' - sand pocket 6.2-6.4' - large gravel, siltstone			
		21.0	SS3SS	4-7-14-16 (21)				
	7.0							
	7.5				**Clay (CL)** 7.5-8.7' - reddish brown, mottled light greenish gray, white and brownish yellow, moist, very stiff, trace roots			PT-2 collected 8.0-10.0'
		14.0	SS4SS	6-7-10-14 (17)				
	9.5							
10								
252.8	10.0				**Clay (CL)** 10.0-11.5' - reddish brown, mottled light greenish gray, white and brownish yellow, moist, trace roots 10.2-10.6' - dark gray and very pale brown, moist, soft			PT-3 collected 13.0-15.0' Offset: 9.6' N53W of BCTA-4 Lab Results USCS: CL
		17.4	SS5SS	3-6-8-10 (14)				
	12.0							
	12.5				**Clay (CL)** 12.5-13.8' - reddish brown, mottled light greenish gray, white and brownish yellow, moist, trace roots		1.8	
		19.2	SS6SS	5-8-10-11 (18)	**Fat Clay (CH)** 13.8-14.1' - brownish yellow, red mottling, moist, stiff			
	14.5							
15								
247.8	15.0				**Fat Clay (CH)** 15.0-16.1' - yellowish red, yellow mottling, moist, soft to medium stiff, becomes clay with depth		2.2	
		21.0	SS7SS	5-9-16-18 (25)	**Clay (CL)** 16.1-16.8' - reddish brown, mottled light greenish gray, white and brownish yellow, moist, trace roots			
	17.0							
	17.5				**Clay (CL)** 17.5-19.2' - reddish brown, mottled light greenish gray, white and brownish yellow, moist, trace roots 18.5-19.2' - black mottling			
		20.4	SS8SS	8-10-12-20 (22)				
	19.5							
20								

PROJECT NUMBER:	BORING NUMBER:
338884	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 LEVELS : 19.0 ft bgs

START : 7/20/06 14:30

END : 7/21/06 12:04

LOGGER : LH

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	PP (TSF)	COMMENTS: DEPTH OF CASING, DRILLING RATE, 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 and light greenish gray, moist, hard		4.5+	
	22.0							
	22.5							
		22.8	SS10SS	28-38-39-45 (77)	**Clay (CL)** 22.5-24.4' - reddish brown, mottled reddish black and light greenish gray, moist, hard, laminated horizontal beds 23.6-23.8' - fractured area in hard clay			PT-4 collected 23.0-25.0' Offset: 9.6' N53W of BCTA-4 Lab Results USCS: CL w/Sand
	24.5							
25								
237.8	25.0							
		21.6	SS11SS	15-20-25-30 (45)	**Clay (CL)** 25.0-26.8' - reddish brown, mottled light olive gray, olive, light greenish gray and dark reddish gray, moist, very stiff to hard, laminated in areas			
	27.0							
	27.5							
		24.0	SS12SS	5-10-38-50/4 (48)	**Clay (CL)** 27.5-29.5' - reddish brown, mottled light olive gray, olive, light greenish gray and dark reddish gray, moist, very stiff to hard, laminated in areas			
	29.5							
30								
232.8	30.0							
		6.0	SS13SS	50/6 (50/6")	**Clay (CL)** 30.0-30.5' - reddish brown, mottled reddish black, light greenish gray, and olive yellow, moist, hard, laminated			
	32.0							
	32.5	1.2	SS14SS					Soil sampling completed at 10:12 on 7/21/06
	32.7			50/2 (50/2")	**Clay (CL)** 32.5-32.6' - reddish brown, moist, hard, laminated			
	33.4				Begin Rock Coring at 33.4 ft bgs See the next sheet for the rock core log			
35								
227.8								
40								

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:	
338884	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

WATER LEVELS : 19.0 ft bgs

START : 7/20/06 14:30

END : 7/21/06 12:04

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	33.4 R1NQ 0.7 ft 100% / 34.1	100	0			**Siltstone** At 33.4' - dark reddish brown, mottled reddish black and greenish gray, soft, slightly weathered to fresh	Rock coring began at 11:04 on 7/21/06 R1: 11:04-11:08
35 227.8			0			34.1-39.1' - dark reddish brown, mottled olive yellow, soft	
			0				R2: 11:13-11:29 At 35.0': R-Scale = R3-R4
	R2NQ 5 ft 98%	96	10+				
			0			36.9-37.0' - clay seam, firm, 0.14' thick, friable	
			0				
	39.1						
			0			39.1-44.1' - 0-40% very fine sand throughout	R3: 11:35-11:49
40 222.8			0				At 39.8': R-Scale = R2-R3
	R3NQ 5 ft 102%	96	5				SC-1 collected 40.5-41.5'
			0	42.3' - Fracture, horizontal, rough, planar 42.3' - Fracture, 55 deg, smooth, planar, tightly healed		42.6-42.9' - clay seam, firm, 0.42' thick, friable	
			0	42.6' - Fracture, horizontal, rough, undulating 43.0' - Fracture, horizontal, rough, undulating			At 43.5': R-Scale = R3-R4
	44.1					44.1-45.3' - 0-40% very fine sand	R4: 11:54-12:04
45 217.8			0				
			0				At 46.9': R-Scale = R3-R4
	R4NQ 5 ft 101%	100	0				First water level = 19.0' bgs taken 7/21/06; second water level = 22.9' bgs taken 7/22/06 at 17:20
			1	47.5' - Fracture, 60 deg, rough, undulating			
			0				R-Scale performed after drilling on stored samples
	49.1						
50 212.8						Bottom of Boring at 49.1 ft bgs on 7/21/06 12:04	

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

SOIL BORING LOG

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

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
243.5	0.0				**Top Soil** 0.0-0.1' - dark brown, moist, stiff, roots/organics		
		7.2	SS1SS	4-7-9 (16)	**Clay (CL)** 0.1-0.6' - brown, dry to moist, low to medium plasticity, rapid dilatancy, 10-15% fine to medium sand		
	2.0						
	2.5				**Fat Clay (CH)** 2.5-3.2' - strong brown, light gray mottling, moist, stiff, high plasticity, slow dilatancy		PT-1 collected 3.0-5.0'
		10.8	SS2SS	4-6-8-10 (14)	**Clay (CL)** 3.2-3.4' - yellowish red, medium plasticity, slow to rapid dilatancy		
	4.5						
5							
238.5	5.0				**Clay (CL)** 5.0-6.5' - dark reddish brown, light greenish gray mottling, moist, very stiff, medium plasticity, slow to rapid dilatancy, <5% fine sand, mottles have 5'-10% fine sand		PT-2 collected 6.0-8.0' Offset: 2.0' S33W of BCTA-5 Lab Results USCS: CL
		18.0	SS3SS	10-12-15-18 (27)			
	7.0						
	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							
233.5	10.0	2.0	SS5SS	50/2 (50/2")	**Clay (CL)** 10.0-10.2' - dark red, light gray mottling, moist, hard, low to medium plasticity, slow to rapid dilatancy		Soil sampling completed at 11:30 on 7/31/06
	10.2				Begin Rock Coring at 10.4 ft bgs See the next sheet for the rock core log		
15 228.5							
20							

PROJECT NUMBER:	BORING NUMBER:	
338884	BCTA-5	SHEET 2 OF 5

ROCK CORE LOG

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

WATER LEVELS : 1.2 ft bgs

START : 7/31/06 09:35

END : 8/1/06 16:15

LOGGER : EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	10.4		3	10.4' - Fracture, <5 deg, rough, undulating, black stains		**Siltstone** At 10.4' - dark reddish brown 10.4-11.6' - highly weathered 10.4-14.4' - greenish gray and black mottling, 15% fine sand 10.6-10.7' - clay seam, 0.15' thick 10.7-11.3' - voids 11.3-11.7' - very soft to soft, white clasts ~0.01' thick, hardness increases down core 11.6-19.5' - slightly weathered	Rock coring began at 11:35 on 7/31/06 R1: 11:35-11:53 on 7/31/06 At 10.6-10.7': PP: 1.0 tsf At 11.2': R-Scale = R1
	R1NQ 4 ft 103%	50	5	10.7' - Fracture, horizontal and <5 deg, rough, undulating 10.8' - Fracture, horizontal and <5 deg, rough, undulating			
			0	11.1' - Fracture, horizontal and <5 deg, rough, undulating 11.2' - Fracture, horizontal and <5 deg, rough, undulating			At 13.6': R-Scale = R2
	14.4		0	11.3' - Fracture, horizontal and <5 deg, rough, undulating			
15 228.5			1	11.6' - Fractures (2), horizontal and <5 deg 14.8' - Fracture, 70 deg, rough, undulating, 10-15% limonite		14.4-19.4' - trace greenish gray mottling, soft, 10% fine to medium sand gradually increases to 30-35% down core with 10% coarse grained sand (subrounded grains)	R2: 08:00-08:16 on 8/1/06
			0				At 15.5': R-Scale = R3
	R2NQ 5 ft 100%	94	0				
			2				
			1	18.1' - Fracture, 20 deg, smooth, undulating, 20% black stains, 10% limonite 18.3' - Fracture, 20 deg, smooth, undulating, 20% black stains, 10% limonite			At 18.6': R-Scale = R3
	19.4						
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 seen in 0.05' bands at 20.2' and 21.4' at 20 degree angles 19.5-24.4' - moderately weathered	R3: 08:40-09:00
			2	20.0' - Fracture, 20 deg, smooth, undulating, white 20.4' - Fracture, 10 deg, smooth, undulating 21.0' - Fracture, 20 deg, smooth, undulating			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 sand and small pebbles, subrounded grains, some fine grained rip up clasts scattered throughout	At 22.5': R-Scale = R3-R4
			2	22.9' - Fracture, <5 deg, rough, undulating			
			10+	23.3-23.5' - Fracture zone, 60 deg and 5 deg, 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 grained, large pebble sized voids or weathering 24.4-29.4' - dusky red, greenish gray mottling, soft, 10% fine grained sand 24.4-46.1' - fresh 25.7-26.2' - up to 15-20% fine to medium grained sand	
	24.4						
25 218.5			0	23.6' - Fracture, 60 deg, smooth, undulating 24.1' - Fracture, 45 deg, smooth, undulating, V-shaped, also contact between coarse material with fine material			R4: 09:05-09:21
			0				
	R4NQ 5 ft 103%	100	0				At 26.0': R-Scale = R2 SC-1 collected 26.7-27.6'
			0				At 27.6': R-Scale = R3
	29.4		0				
30 213.5			0				R5: 09:30-09:47 At 30.0': R-Scale = R3-R4

PROJECT NUMBER:	BORING NUMBER:
338884	BCTA-5 SHEET 3 OF 5

ROCK CORE LOG

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
WATER LEVELS : 1.2 ft bgs
START : 7/31/06 09:35
END : 8/1/06 16:15
LOGGER : EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, 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 of run	
	R5NQ 5 ft 98%	98	0				
			1	32.4' - Fracture, 5 deg, smooth, undulating			
			0			33.6' - white to pink clasts 0.02'-0.03'	
	34.4						At 34.0': R-Scale = R5
35 208.5			1	34.4-39.4' - Microfractures throughout core with white and greenish gray infilling		34.4-39.4' - trace greenish gray mottling, soft, fine to medium grained sand increases gradually down run, hard white clasts up to 0.1' thick at bottom and top of run	R6: 09:58-10:15
			1	34.8' - Fracture, 5 deg, rough, undulating, V-shaped 35.4' - Fracture, 5 deg, rough, undulating			
	R6NQ 5 ft 98%	91	0				At 36.6': R-Scale = R3-R4
			1	37.1' - Fracture, <5 deg, rough, undulating			
			2				
	39.4			39.1' - Fracture, <5 deg, rough, undulating			
40 203.5			1	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				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
			0				
	44.4						
45 198.5			0			44.4-46.1' - grades to sandstone	R8: 11:25-11:45
			0				
	R8NQ 5 ft 102%	100	0			**Sandstone** 46.1-49.4' - gray, soft to hard, medium to thick bedding, fine sand to medium sand, fresh, 40-50% silt	
			0				
			0				
	49.4						
50 193.5			0				R9: 13:20-13:35

PROJECT NUMBER:	BORING NUMBER:
338884	BCTA-5 SHEET 4 OF 5

ROCK CORE LOG

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

WATER LEVELS : 1.2 ft bgs

START : 7/31/06 09:35

END : 8/1/06 16:15

LOGGER : EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	R9NQ 5 ft 100%	100	0			**Siltstone** 49.4-66.6' - dusky red, mottled greenish gray and black, soft to hard, fresh, gravel sized white clasts, 5-15% fine to medium sand, coarser grained and finer grained areas	
			0				
			0				
			0				At 53.9': R-Scale = R3
	54.4						
55 188.5			0				R10: 13:39-13:58
	R10NQ 4.5 ft 100%	100	0				
			0				
			0				At 58.0': R-Scale = R3
	58.9						
			0			58.9-66.6' - 10-15% fine to medium sand	R11: 14:04-14:20
60 183.5			0				At 60.2': R-Scale = R3-R4
	R11NQ 5.3 ft 100%	100	0				
			0				
			0				
	64.2						R12: 14:28-14:40
65 178.5			0				
			0				
	R12NQ 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 medium bedding, fine sand to coarse sand, fresh, reddish brown sand sized clasts	
			0				At 67.9': R-Scale = R3-R4
			0				
	69.4						
70 173.5			0			69.4-74.1' - trace small pebbles	R13: 14:48-14:58

PROJECT NUMBER:	BORING NUMBER:
338884	BCTA-5 SHEET 5 OF 5

ROCK CORE LOG

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

WATER LEVELS : 1.2 ft bgs

START : 7/31/06 09:35

END : 8/1/06 16:15

LOGGER : EM

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (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
			2			73.8' - grain size decreases to fine to medium sand	
74.4				74.1' - Contact between siltstone and sandstone, 20 deg, smooth, undulating, <0.01' thick clay infilling		**Siltstone**	R14:15:30-15:43
75 168.5			0	74.2' - Fracture, 20 deg, rough, undulating		At 74.1' - dusky red, mottled greenish gray, very soft to soft, fresh, very fine grained	
			0			74.4-84.1' - 0-10% fine sand	
	R14NQ 5 ft 102%	100	0			75.5-79.4' - mottled yellowish brown and black	
			0			75.5-84.1' - soft to hard	At 76.9': R-Scale = R3-R4
			0				SC-2 collected 78.5-79.4'
79.4							R15: 15:50-16:02
80 163.5			0	79.9' - Fracture, 60 deg, smooth, undulating			
			1				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
	R15NQ 4.7 ft 100%	94	0				
			0				
			0				
84.1							R16: 16:08-16:15
85 158.5	R16NQ 2.2 ft 100%	100	1	84.6' - Fracture, <5 deg, smooth, undulating to planar			
			0				At 85.5' R-Scale = R3 (performed at a later date) R-Scale performed during rock core logging
86.3						Bottom of Boring at 86.3 ft bgs on 8/1/06 16:15	
90 153.5							

PROJECT NUMBER:	BORING NUMBER:
338884	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

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

ORIENTATION : Vertical

WATER LEVELS : 9.0 ft bgs

START : 7/26/06 14:40

END : 7/27/06 15:46

LOGGER : JS/LH

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	PP (TSF)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
239.8	0.0							
		7.0	SS1SS	4-5-6-10 (11)	**Sandy Silt (ML)** 0.0-0.4' - pale brown, dry to moist, soft in spoon, 35% very fine to fine sand, non-plastic fines, leaves, roots			
	2.0				**Sandy Silt (ML)** 0.4-0.6' - yellowish red, heavily mottled, moist, stiff, 35-40% very fine to medium sand, non-plastic			
	2.5							
		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			
	4.5				**Sandy Silt (ML)** 3.3-3.5' - reddish brown, trace white mottling, moist, stiff, low plasticity, rapid dilatancy, 25-30% very fine to fine sand			
5								
234.8	5.0							
		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		4.5	PT-1 collected 6.0-8.0'
	7.0							
	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							
10								Soil sampling completed at 16:00 on 7/26/06
229.8	10.0	2.0	SS5SS	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			
	10.2				Begin Rock Coring at 10.2 ft bgs See the next sheet for the rock core log			
15								
224.8								
20								

PROJECT NUMBER:	BORING NUMBER:	
338884	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

WATER LEVELS : 9.0 ft bgs

START : 7/26/06 14:40

END : 7/27/06 15:46

LOGGER : JS/LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	10.2		10+			**Sandstone** 10.2-10.7' - dusky red, very soft, very fine sand to fine sand, highly weathered, 35% fines (silt)	Rock coring began at 16:30 on 7/26/06 R1: 16:30-16:46 on 7/26/06 At 10.7-11.5': PP: 1.75-2.0 tsf
	R1NQ 4.8 ft 100%	0	10+			**Siltstone** 10.7-12.0' - dusky red, trace green and black mottling, very soft, highly weathered, very fine grained 10.7-11.5' - clay seam	At 10.7-11.5': R-Scale = R0 At 12.0-12.6': PP: 1.75 tsf At 12.0-12.6': R-Scale = R0
			10+	12.9-14.5' - Sandy silt seam			At 12.9-14.5': R-Scale = R0
			10+			**Clay (CL)** 12.0-12.6' - highly weathered, some bedrock pieces	
15	15.0		10+	14.5' - Contact between siltstone and sandstone, 5 deg, rough and stepped, black mottling on 50% of surface		**Siltstone** 12.6-12.9' - dusky red, trace green and black mottling, very soft, highly weathered, very fine grained	
224.8			0	14.9' - Fracture, 20 deg, rough, undulating, 0.005' relief		**Sandy Silt (ML)** 12.9-14.5' - highly weathered	R2: 08:10-08:23 on 7/27/06
			2	16.1' - Fracture, 45 deg, rough, planar 16.2' - Fracture, horizontal, smooth, planar		**Sandstone** 14.5-15.0' - dark gray, black mottling, soft, very fine sand to fine sand, highly weathered	
	R2NQ 5 ft 90%	86	2	17.2' - Fracture, horizontal, smooth, planar 17.5' - Fracture, horizontal, smooth, planar		**Siltstone** At 15.0' - dark reddish brown, mottled greenish gray and reddish black, very soft to soft, fresh	
			0				
			0				
20	20.0						
219.8			0			20.0-22.4' - soft	R3: 08:40-08:56
			0				At 20.0-25.0': R-Scale = R2 (performed during rock core logging)
	R3NQ 5 ft 101%	100	0			**Sandstone** 22.4-23.8' - white, dark gray, and dark greenish gray, mottled dark reddish brown and greenish gray, soft, medium bedding, subangular to subrounded, fresh, very fine to fine sand, well sorted, trace medium sand	
			1				
			1	23.9' - Fracture, 60 deg and 30 deg, rough, planar 24.2' - Fracture, 45 deg, rough, undulating		**Siltstone** At 23.8' - dark reddish brown, mottled greenish gray and reddish black, very soft to soft, fresh, gravel sized white clasts throughout 25.0-30.0' - coarsening with depth 25.0-27.9' - very soft	R4: 09:03-09:17 At 25.0-30.0': R-Scale = R2
25	25.0						
214.8			0				
			0				
	R4NQ 5 ft 100%	100	0				
			0			27.9-30.0' - soft, 0-30% very fine to fine sand	
			0				
30	30.0						

PROJECT NUMBER:	BORING NUMBER:
338884	BCTA-6 SHEET 3 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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			2	30.4' - Fracture, 20 deg, rough, undulating		29.8-30.0' - <10% medium to coarse sand	R5: 09:26-09:30 and 09:31-09:39
				30.8' - Fracture, 10 deg, rough, undulating		**Conglomerate**	
			4	31.2' - Fracture, horizontal, rough, undulating		30.0-30.3' - moderately weathered, on 45 degree bed, coarse sand and fine to medium gravel	
	R5NQ 5 ft 96%	72		31.3-31.4' - Fractures (2), horizontal and 45 deg, rough, undulating		**Sandstone**	
			4	31.5' - Fracture, 45 deg, rough, planar		At 30.3' - white, dark gray, and dark greenish gray, mottled dark reddish brown and greenish gray, soft, laminated to thin bedding, moderately weathered	
				32.2' - Fracture, horizontal, rough, undulating			
				32.3' - Fracture, horizontal, rough, undulating			
			1	32.3' - Fracture, horizontal, rough, undulating, contact between sandstone and siltstone			At 33.3-33.4': R-Scale = R0 At 33.4-33.8': PP: 2.9 tsf At 33.4-33.8': R-Scale = R0
				33.0' - Fracture, horizontal, rough, undulating			
			1	33.9' - Fracture, 45 deg, rough, undulating		30.7-31.3' - 30-40% coarse sand to medium gravel	
35	35.0					31.6-32.0' - laminated to thin beds	
204.8				34.8' - Fracture, 45 deg, rough, undulating, 0.03' thick, very soft, friable			At 34.8-34.8': R-Scale = R0 R6: 09:50-10:05
			0			**Siltstone**	
						At 32.3' - dark reddish brown, mottled greenish gray and reddish black, very soft, laminated bedding	
			0			32.3-35.0' - moderately weathered	
	R6NQ 5 ft 93%	93				33.3-33.4' - clay seam, 0.03' thick, friable, very soft, has siltstone in it	
			0			33.4-33.8' - clay seam, 0.35' thick, very soft	
						33.9-34.8' - <5% gravel and coarse sand sized white clasts	
			0			35.0-40.0' - fresh	
						35.0-55.0' - very soft to soft	
			0				
40	40.0						
199.8			10+	40.3' - Fracture, horizontal, rough, planar 40.3-40.9' - Fracture zone, rough, undulating		40.0-50.0' - moderately weathered	R7: 11:57-12:08
			1				
				41.7' - Fracture, horizontal, rough, undulating		41.4-41.6' - trace gravel sized white clasts	
	R7NQ 5 ft 103%	84	0				
						43.0-45.0' - gravel sized white clasts	
			0				
			0				
45	45.0						
194.8							R8: 12:15-12:28
			0				
			0				
	R8NQ 5 ft 103%	99	0			47.3-47.8' - coarse sand and fine gravel sized white clasts	
				48.1' - Fracture, horizontal, rough, undulating		48.1-48.3' - laminated bedding 48.2-48.3' - clay seam, very soft, 0.08' thick, friable	At 48.2-48.3': R-Scale = R0
			1				
			0				
50	50.0						

PROJECT NUMBER:	BORING NUMBER:	
338884	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

WATER LEVELS : 9.0 ft bgs

START : 7/26/06 14:40

END : 7/27/06 15:46

LOGGER : JS/LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			50.0-66.9' - fresh	R9: 12:41-12:57
			1			50.8-52.4' - laminated beds	At 50.0-55.0': R-Scale = R2 (performed during rock core logging)
	R9NQ 5 ft 106%	100	1	51.9' - Fracture, horizontal, rough, planar			SC-1 collected 50.9-51.9'
			1	52.6' - Fracture, 15 deg, rough, planar			
			0				
			10+	54.3-54.5' - Fracture zone, 60 deg, rough, planar			
55	55.0						
184.8						55.0-60.0' - soft, coarse grained silt	R10: 13:12-13:28
			0				
			0				
	R10NQ 5 ft 94%	94	0				
			0				
			0				
60	60.0						
179.8							R11: 13:50-14:00
			0				
			0				
	R11NQ 5 ft 98%	98	0				
			0				
			0				
65	65.0						
174.8							R12: 14:07-14:21
			0				
			0				
	R12NQ 5 ft 102%	100	0	66.9' - Contact between sandstone and siltstone, horizontal, mixed up siltstone pockets in sandstone and vice versa		**Sandstone** At 66.9' - white, dark gray, and dark greenish gray, stained dark reddish brown, soft, laminated to medium bedding, very fine sand to coarse sand, subangular to subrounded, poorly sorted, bedding on 15-20 degree angle	
			0				
			0				SC-2 collected 69.0-70.0'
70	70.0					66.9-80.0' - fresh	
						66.9-68.6' - 20-50% silt	

PROJECT NUMBER:	BORING NUMBER:
338884	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

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, 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				At 71.0': R-Scale = R2 (performed during rock core logging)
	R13NQ 5 ft 101%	100	0				
			0				
			0				
75 164.8	75.0						
			0				R14: 15:26-15:31
			0				First water level = 9.0' bgs taken 7/28/06 at 14:45
	R14NQ 5 ft 102%	100	0				
			0				
			0				
80 159.8	80.0						
			5			80.0-82.4' - slightly weathered 80.2' - 1/2 orange stained clast	R15: 15:37-15:46
			1				At 81.4': R-Scale = R2 (performed during rock core logging)
	R15NQ 5 ft 102%	82	2	82.4' - Fracture, horizontal, rough, undulating, 0.02' relief		81.8-82.0' - dark gray to black silty laminae 82.1-82.4' - rust colored stains at 30 degrees, 1 mm thick	
			0	82.8' - Fracture, horizontal, smooth, undulating, 0.01' relief		**Siltstone** 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)
			0				R-Scale performed after drilling on stored samples unless otherwise specified
85 154.8	85.0					Bottom of Boring at 85.0 ft bgs on 7/27/06 15:46	
90							

PROJECT NUMBER:	BORING NUMBER:
338884	BCTA-7 SHEET 1 OF 3

SOIL BORING LOG

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

WATER LEVELS : 3.2 ft bgs

START : 8/2/06 10:32

END : 8/2/06 16:40

LOGGER : AT

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND 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** 2.5-4.5' - tree bark/wood, possibly backfill		
		0.0	SS2SS	11-13-15-18 (28)			
	4.5						
5							
227.8	5.0				**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'		
		7.8	SS3SS	12-25-36-44 (61)			
	7.0						
	7.5				**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		
		10.2	SS4SS	23-28-50/4 (78/10")			
	9.5						
10							Soil sampling completed at 14:48 on 8/2/06
222.8	10.0	2.0	SS5SS	50/2 (50/2")	**Clay (CL)** 10.0-10.2' - dark reddish brown, moist, hard, low to medium plasticity, slow to rapid dilatancy, trace very fine sand		
	10.2				Begin Rock Coring at 10.2 ft bgs See the next sheet for the rock core log		
15							
217.8							
20							

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:	
338884	BCTA-7	SHEET 2 OF 3

ROCK CORE LOG

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

WATER LEVELS : 3.2 ft bgs

START : 8/2/06 10:32

END : 8/2/06 16:40

LOGGER : AT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, 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 10.2-15.0' - slightly weathered to moderately weathered	Rock coring began at 15:10 on 8/2/06 R1: No time recorded
			1	11.8-12.1' - Fracture			
	R1NQ 4.8 ft 67%	48	1	12.5' - Fracture, 25 deg, smooth, undulating			At 12.3': R-Scale = R2-R3 (performed during rock core logging)
			0				At 13.0': R-Scale = R2-R3 (performed during rock core logging)
				13.5' - Fracture, 10 deg, smooth, undulating			At 14.0': R-Scale = R2-R3 (performed during rock core logging)
				14.2' - Fracture, 10 deg, smooth, undulating			
15	15.0			14.7' - Fracture, 30 deg, smooth, undulating			
217.8			3	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 black, reddish black, and white, harder than matrix	At 14.7': R-Scale = R2-R3 (performed during rock core logging) R2: No time recorded
				15.3' - Fracture, horizontal, smooth, undulating		15.0-20.0' - moderately weathered	
			0	15.9' - Fracture, horizontal, smooth, undulating		15.7-40.0' - dark reddish brown, green mottling, 10% very fine sand, 10% white clasts, harder than matrix	At 16.8': R-Scale = R3-R4 (performed during rock core logging)
	R2NQ 5 ft 95%	69	0			17.2-17.5' - clay seam 17.9-18.2' - clay seam	At 17.2-17.5': R-Scale = R0 At 17.9-18.2': R-Scale = R0
			0				
			0				At 19.0': R-Scale = R3-R4 (performed during rock core logging)
20	20.0						
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			At 21.0': R-Scale = R2
	R3NQ 5 ft 103%	92	1	21.5' - Fracture, 10 deg, smooth, undulating, loose		21.5-21.6' - soft to hard, large irregular shaped green mottling	
			0	22.3' - Fracture, 20 deg, smooth, undulating, fairly tight			SC-1 collected 23.6-24.7'
			0				
25	25.0						
207.8			0				R4: 8:49-9:09
			1	26.5' - Fracture, 60 deg, rough, planar, secondary fracture 10 deg, smooth and undulating		26.0-26.9' - soft to hard, 25% very fine to fine sand, harder than overlying and underlying material	
	R4NQ 5 ft 98%	98	1	27.3' - Fracture, 65 deg, rough, planar, secondary fracture horizontal, smooth and undulating			At 26.9': R-Scale = R2-R3
			1	28.5' - Fracture, horizontal, rough, undulating, 0.02' relief			
			0				
30	30.0						

PROJECT NUMBER:	BORING NUMBER:
338884	BCTA-7 SHEET 3 OF 3

ROCK CORE LOG

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

WATER LEVELS : 3.2 ft bgs

START : 8/2/06 10:32

END : 8/2/06 16:40

LOGGER : AT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			2	30.1' - Fracture, horizontal, smooth, undulating		30.0-35.0' - very dusky red, soft to hard	R5: 9:18-9:32
			1	30.9' - Fracture, horizontal, smooth, undulating			
	R5NQ 5 ft 93%	93	0	31.6' - Fracture, horizontal, smooth, undulating			
			0				At 33.0': R-Scale = R2
			0				
35 197.8	35.0						R6: 9:41-9:55
			0			35.9-36.2' - laminated beds in matrix	
			1	36.2' - Fracture, 20 deg, rough, planar			
	R6NQ 5 ft 99%	99	0			36.8-40.0' - fining upwards sequence, well graded, very fine to coarse sand, multicolored, laminated beds	At 37.7': R-Scale = R4-R5
			0				First water level = 3.2' bgs taken 8/3/06 at 18:30; second water level = 3.6' bgs taken 8/4/06 at 15:46
			1	39.0' - Fracture, 20 deg, rough, planar, greenish-gray stains		**Sandstone** 38.8-40.0' - dark reddish brown, fresh, very fine to coarse sand, banded	R-Scale performed after drilling on stored samples
40 192.8	40.0					Bottom of Boring at 40.0 ft bgs on 8/2/06 16:40	
45 187.8							
50							

PROJECT NUMBER:	BORING NUMBER:
338884	BCTA-8 SHEET 1 OF 3

SOIL BORING LOG

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
WATER LEVELS : 2.1 ft bgs
START : 8/10/06 08:23
END : 8/10/06 13:29
LOGGER : AT

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND 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		
	2.0						
	2.5						
		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		
	4.5				**Sandy Silt (ML)** 3.5-3.9' - reddish yellow, moist, soft, 40% very fine to medium sand, black organics		
5							
222.0	5.0				**Sandy Silt (ML)** 5.0-5.4' - reddish yellow, moist, soft, 40% very fine to medium sand, black organics		
		16.8	SS3SS	17-22-27-50/4 (49)	**Clay (CL)** 5.4-6.4' - dark reddish brown, dry to moist, stiff to hard, low to medium plasticity, slow to rapid dilatancy		
	7.0						PT-1 collected 6.0-8.0'
	7.5				**Clay (CL)** 7.5-8.1' - dark reddish brown, dry to moist, stiff to hard, low to medium plasticity, slow to rapid dilatancy		
		7.2	SS4SS	36-26-20-25 (46)			
	9.5						
10							
217.0	10.0				**Clay (CL)** 10.0-10.9' - dark reddish brown, mottled greenish gray, dry to moist, hard, slow to rapid dilatancy		
		10.8	SS5SS	45-50/3 (50/3")			
	12.0						
	12.5				**Clay (CL)** 12.5-12.9' - dark reddish brown, mottled greenish gray, dry to moist, hard, slow to rapid dilatancy		
		4.8	SS6SS	50/4 (50/4")			
	14.5						Soil sampling completed at 10:58 on 8/10/06
15							
212.0	15.0	0.5	SS7SS	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		
	15.1				Begin Rock Coring at 15.1 ft bgs See the next sheet for the rock core log		
20							

PROJECT NUMBER:	BORING NUMBER:	
338884	BCTA-8	SHEET 2 OF 3

ROCK CORE LOG

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

WATER LEVELS : 2.1 ft bgs

START : 8/10/06 08:23

END : 8/10/06 13:29

LOGGER : AT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	15.1		1			**Siltstone** 15.1-21.4' - dusky red, mottled greenish gray, soft to hard, 10-15% very fine to fine sand 15.1-19.5' - slightly weathered	Rock coring began at 11:09 on 8/10/06 R1: 11:09-11:33
	R1NQ 4.4 ft 98%	93	0	16.1' - Fracture, 50 deg, rough, undulating, greenish white staining, 0.2' relief			At 16.7': R-Scale = R3
			1	17.7' - Fracture, 30 deg, rough, undulating, 0.05' relief			
			1	18.9' - Fracture, 16 deg, white infilling			
	19.5		0	18.9' - Clay seam, 16 deg, white infilling, 0.05' thick		19.5-21.4' - moderately weathered 19.7-21.4' - small (<0.25 to 0.375") sandstone lineations	R2: No time recorded
20 207.0			1				
			1	20.4' - Fracture, 20 deg, smooth, undulating, 0.2' relief 21.0' - Fracture, 5 deg, smooth, undulating, 0.05' relief			At 20.7': R-Scale = R3
	R2NQ 5 ft 94%	60	4	21.4' - Contact between siltstone and sandstone, sharp 21.9' - Fracture, 10 deg, smooth, undulating		**Sandstone** 21.4-24.5' - reddish gray, soft to hard, moderately weathered, 60% very fine to medium, poorly graded, dark reddish brown silt lenses; poorly laminated	
			5	22.2' - Fracture, 25 deg, rough, undulating 22.5' - Fracture, horizontal, smooth, undulating, 0.3 gray clay infilling			At 23.0': R-Scale = R3-R4
			2	22.6' - Fracture, 10 deg, smooth, planar 23.2-23.6' - Fracture, 20 deg, smooth, undulating			
	24.5						
25 202.0			2	23.4-23.5' - Fracture, 25 deg, smooth, undulating		**Siltstone** At 24.5' - dusky red, mottled greenish gray and dark reddish-black, soft to hard, 10-15% very fine to fine sand 24.5-29.5' - slightly weathered	R3: No time recorded
			0	23.5' - Fracture, 15 deg, smooth, planar 23.8' - Fracture, 15 deg, smooth, planar 23.9' - Fracture, 10 deg, smooth, planar			
	R3NQ 5 ft 103%	98	0	26.1' - Fractures (2), horizontal and 50 deg, smooth, undulating 26.3' - Fracture, 25 deg, smooth, undulating			
			0				At 28.0': R-Scale = R3
			0				
	29.5						
30 197.0			2			29.5-34.5' - fresh, red clasts, from <0.0002-0.0007', harder than matrix	R4: No time recorded
			0	30.3' - Fracture, 60 deg, smooth, undulating 30.6' - Fractures (2), 10 deg and 50 deg, smooth, undulating			
	R4NQ 5 ft 99%	93	0	31.6' - Contact between siltstone and sandstone, sharp		31.9-34.5' - poorly bedded, slight laminations visible	
			0				SC-1 collected 32.8-33.7'
			0				At 33.8': R-Scale = R3-R4
	34.5						
35							R5: No time recorded

PROJECT NUMBER:	BORING NUMBER:
338884	BCTA-8 SHEET 3 OF 3

ROCK CORE LOG

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

WATER LEVELS : 2.1 ft bgs

START : 8/10/06 08:23

END : 8/10/06 13:29

LOGGER : AT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0			34.5-37.6' - fresh, 30-40% very fine to fine sand	At 35.5': R-Scale = R3-R4
	R5NQ 5 ft 100%	91	0			36.5-37.6' - well bedded, highly laminated silt and sand layers	First water level = 2.1' bgs taken 8/10/06 at 18:14; 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 37.9' - Fracture, 20 deg, smooth, undulating		**Sandstone** At 37.6' - gray, soft to hard, fresh, well graded , well laminated beds, red stain at contact of beds, 39.0-39.5' cross bedding	
	39.5		0				At 38.5': R-Scale = R3-R4
40 187.0	R6NQ 1.5 ft 100%	100	0			39.5-41.0' - laminations disappear with depth, becomes poorly graded with depth	R6: No time recorded
	41.0		0				R-Scale performed during rock core logging
						Bottom of Boring at 41.0 ft bgs on 8/10/06 13:29	
45 182.0							
50 177.0							
55							

PROJECT NUMBER:	BORING NUMBER:
338884	BCA-1 SHEET 1 OF 6

SOIL BORING 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
DRILLING EQUIPMENT AND METHOD : BK-51, 2-15/16 Tricone Bit, 24 Split Spoon, 140 lb. Hammer and Cathead
ORIENTATION : Vertical
WATER LEVELS : 26.6 ft bgs
START : 8/2/06 08:11
END : 8/3/06 09:14
LOGGER : LH

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	PP (TSF)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
256.2	0.0	18.0	SS1SS	6-9-10-10 (19)	**Clay (CL)** 0.0-1.5' - reddish brown, mottled yellow and reddish black, dry, stiff, medium to low plasticity, slow dilatancy			
	2.0							
	2.5	13.0	SS2SS	5-7-8-9 (15)	**Clay (CL)** 2.5-3.6' - reddish brown, mottled yellow and light gray, dry, stiff, medium to low plasticity, fill			
	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, light gray and yellow, moist, stiff, sand pockets and clay pockets			ST-1 collected 6.0-8.0'
	7.0							
	7.5	6.5	SS4SS	3-3-5-5 (8)	**Clay (CL)** 7.5-8.0' - light yellowish brown, mottled reddish brown, moist, trace organics and sand			
	9.5							
10								
246.2	10.0	8.0	SS5SS	2-1-2-1 (3)	**Clay (CL)** 10.0-10.7' - light yellowish brown, mottled reddish brown, moist, soft			ST-2 collected 11.0-13.0'
	12.0							
	12.5	10.0	SS6SS	2-1-1-2 (2)	**Clay (CL)** 12.5-13.4' - light yellowish brown and reddish brown, moist, very soft, fill			
	14.5							
15								
241.2	15.0	10.0	SS7SS	2-1-2-2 (3)	**Clay (CL)** 15.0-15.9' - light yellowish brown and reddish brown, moist, soft, fill			
	17.0							
	17.5	14.0	SS8SS	2-2-2-2 (4)	**Clay (CL)** 17.5-18.7' - reddish brown, light olive brown, and light yellowish brown, soft, mixture of all previous soils, fill		1.0	ST-3 collected 18.0-20.0'
	19.5							
20								

PROJECT NUMBER:	BORING NUMBER:
338884	BCA-1 SHEET 2 OF 6

SOIL BORING 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
DRILLING EQUIPMENT AND METHOD : BK-51, 2-15/16 Tricone Bit, 24 Split Spoon, 140 lb. Hammer and Cathead
ORIENTATION : Vertical
WATER LEVELS : 26.6 ft bgs
START : 8/2/06 08:11
END : 8/3/06 09:14
LOGGER : LH

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	PP (TSF)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
236.2	20.0	14.0	SS9SS	2-2-2-3 (4)	**Clay (CL)** 20.0-21.2' - soft, mixture of all previous soils, fill		0.5	
	22.0							
25								
231.2	25.0	14.0	SS10SS	2-3-3-3 (6)	**Clay (CL)** 25.0-26.2' - medium stiff, mixture of all previous soils		0.9	
	27.0							ST-4 collected 27.0-29.0'
30								
226.2	30.0	0.0	SS11SS	3-4-4-4 (8)	**No Recovery** 30.0-32.0'			
	32.0							
35								
221.2	35.0	9.0	SS12SS	11-24-26-36 (50)	**Clay (CL)** 35.0-37.5' - dark reddish brown, moist, hard, low plasticity, slow dilatancy			
	37.0							
40	39.5							

PROJECT NUMBER:	BORING NUMBER:
338884	BCA-1 SHEET 3 OF 6

SOIL BORING 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
DRILLING EQUIPMENT AND METHOD : BK-51, 2-15/16 Tricone Bit, 24 Split Spoon, 140 lb. Hammer and Cathead
ORIENTATION : Vertical
WATER LEVELS : 26.6 ft bgs
START : 8/2/06 08:11
END : 8/3/06 09:14
LOGGER : LH

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	PP (TSF)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
216.2		2.0	SS13SS	50/4 (50/4")	**Clay (CL)** 39.5-39.7' - dark reddish brown, moist, hard, low plasticity, laminated			Drillers Remark: refusal at 39.5' bgs will try to sample at 39.5-41.5'
	41.5							
45								Soil sampling completed at 11:43 on 8/2/06
211.2	45.0 45.3	0.0	SS14SS	50/2 (50/2")	**No Recovery** 45.0-45.3' Begin Rock Coring at 45.3 ft bgs See the next sheet for the rock core log			
50 206.2								
55 201.2								
60								

PROJECT NUMBER:	BORING 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 ft bgs

START : 8/2/06 08:11

END : 8/3/06 09:14

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	45.3		10+	45.3' - Fracture zone, rough, undulating		**Sandstone** 45.3-46.4' - dark reddish gray, mottled reddish black and light greenish gray, very soft to soft, very fine sand, subangular to subrounded, well sorted, highly weathered	Rock coring began at 14:36 on 8/2/06
			10+	46.2-46.4' - Fracture zone, rough, undulating			R1: 14:36-14:46 on 8/2/06
	R1NQ 5 ft 94%	34	1	47.0' - Fracture, 45 deg and horizontal, smooth, undulating 47.8' - Fracture, horizontal, rough, undulating		**Siltstone** 46.4-69.5' - dark reddish brown, mottled reddish black and greenish gray, very soft to soft	
			1	48.6' - Fracture, horizontal, rough, undulating		46.4-46.7' - clay seam, very soft, friable 46.4-46.8' - highly weathered	At 48.2': R-Scale = R1
50 206.2	50.3		2			46.8-50.3' - moderately weathered to highly weathered	
			2	50.3' - Fracture, horizontal and 45 deg, rough, planar		48.5-48.7' - laminated 48.6-48.7' - laminated 47.8-47.9' - laminated 49.3-49.5' - laminated 49.4-49.9' - clay seams alternating with siltstone, very soft, friable, 0.01-0.02' thick each 49.8-50.0' - laminated 50.3-50.8' - laminated 50.3-61.3' - moderately weathered	R2: 14:57-15:05
			5				
	R2NQ 5 ft 98%	72	3	52.1' - Fracture, horizontal, smooth, planar, black stains 52.4' - Fracture, rough, planar, black stains 52.6' - Fracture, rough, planar, black stains			At 53.5': R-Scale = R3
			0			51.8-51.9' - clay seams with siltstone, very soft, friable, 0.01' thick each 51.8-52.6' - laminated	
55 201.2	55.3		0			53.3-55.3' - gravel sized white clasts	
			0				R3: 15:12-15:21
			0				At 56.1': R-Scale = R3-R4
	R3NQ 5 ft 101%	86	2	57.2-57.8' - Series of vertical and angled fractures, some tightly healed, rough, undulating		57.5-58.0' - white clasts	
			0	58.4' - Fracture, 60 deg, slickensided, undulating, black stains 58.9' - Fracture, horizontal, rough, planar		59.2-59.7' - vugs	
60 196.2	60.3		4	59.2' - Fracture, horizontal, rough, planar, black stains 59.7-59.8' - Fractures (2), horizontal, rough, planar, black stains		59.8-59.9' - clay seam, 0.07' thick, very soft, some siltstone in it 60.3-65.3' - soft	R4: 15:28-15:40
			8	60.3-60.6' - Fractures (4), horizontal, rough, planar, black stains		60.6-60.8' - clay seam, very soft, friable material, some siltstone within	
			3	60.6' - Fracture (0), rough, planar, black stains 60.8-60.9' - Fractures (2), 45 deg, rough, planar, black stains		61.3-69.5' - fresh	
	R4NQ 5 ft 90%	68	0	61.1-61.2' - Fractures (2), 40 deg, rough, planar, black stains		62.2-62.4' - 0.05' thick, 0.1' long vugs	
			0	62.0-62.2' - Fractures (2), horizontal, rough, planar, black stains			
			0				
65 191.2	65.3						

PROJECT NUMBER:	BORING 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 LEVELS : 26.6 ft bgs

START : 8/2/06 08:11

END : 8/3/06 09:14

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, 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				
			0				SC-1 collected 68.6-69.4'
			1	69.1' - Contact between siltstone and sandstone, horizontal, smooth, planar, slightly gradational, tightly healed		**Sandstone**	
70 186.2	70.3			69.4' - Fracture, horizontal, rough, undulating		69.5-72.9' - dark reddish brown, dark gray and white, soft to hard, very fine sand to coarse sand, subangular to rounded, poorly sorted, fresh	At 70.1': R-Scale = R5
			0	69.8' - Fracture, horizontal, rough, planar		70.3-72.9' - soft to hard, very fine sand to coarse sand, subangular to rounded, poorly sorted	R6: 16:28-16:35
			1	71.8-72.0' - Fracture, rough, undulating			
	R6NQ 5 ft 64%	44	3	72.2-72.4' - Fracture, rough, undulating			
				72.9' - Contact between siltstone and sandstone, horizontal, rough, undulating		**Siltstone**	
75 181.2	75.3			73.0-73.5' - Fractures (2), rough, undulating		At 72.9' - dark reddish brown, mottled reddish black and greenish gray, very soft, fresh	
						73.5-75.0' - no recovery	
			2	75.4' - Fracture, horizontal and vertical, rough, undulating		75.3-80.3' - soft	R7: 08:00-08:08 on 8/3/06
			3	76.3-76.4' - Fractures (2), 30 deg, rough, planar			At 75.8': R-Scale = R3
	R7NQ 5 ft 98%	92	0	76.8' - Fractures (2), horizontal, rough, planar			
			0				
			1				
80 176.2	80.3			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 to subrounded, poorly sorted, fresh, trace fine gravel coarsens with depth	
			0				
	R8NQ 5 ft 100%	100	0	82.6' - Contact between siltstone and sandstone			At 82.9': R-Scale = R3
			1				
			0	84.3' - Fracture, 35 deg, rough, undulating			
85 171.2	85.3						

PROJECT NUMBER:	BORING NUMBER:
338884	BCA-1 SHEET 6 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 ft bgs

START : 8/2/06 08:11

END : 8/3/06 09:14

LOGGER : LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			0	86.0' - Fracture, horizontal, rough, undulating		85.3-90.3' - 0-20% gravel at 85.3-85.5', 87.2-87.6, 88.1-89.1, and 89.5-90.3'.as 80.3-85.3'	R9: 08:32-08:38
			1				
	R9NQ 5 ft 100%	100	0	87.2' - Fracture, 35 deg, rough, undulating, in shale pockets 87.7' - Fracture, horizontal, rough, planar			At 88.0': R-Scale = R3
			0				
			0				
90 166.2	90.3		1	89.9' - Fracture, horizontal, rough, undulating 90.2' - Fracture, 10 deg, rough, planar		90.3-92.2' - trace <0.01' thick vugs	R10: 08:43-08:53
			0				
			10+	91.1' - Fracture, horizontal, rough, undulating 91.9' - Fracture zone, horizontal, rough, undulating			At 91.9': R-Scale = R4
	R10NQ 5 ft 98%	96	0	92.2' - Contact between siltstone and sandstone, horizontal, rough, planar		**Siltstone** At 92.2' - dark reddish brown, mottled reddish black and greenish gray, soft to very soft, fresh 92.2-92.3' - laminated 92.7-95.3' - gravel sized white clasts	SC-2 collected 92.3-93.2'
			0	92.3' - Fractures (2), horizontal, rough, planar 92.8' - Fracture, 10 deg, rough, undulating 93.2-94.9' - Fractures (3)			
			0	94.5' - Fracture, horizontal, rough, undulating			
95 161.2	95.3						
			10+	95.3' - Fracture zone, horizontal, rough, undulating 95.9' - Fracture, 10 deg, rough, planar		95.3-100.3' - soft	R11: 09:01-09:14
			0	96.2' - Fracture, horizontal, rough, undulating 96.3' - Fracture, horizontal, rough, undulating			
	R11NQ 5 ft 102%	82	0	96.4-96.5' - Fracture zone, horizontal, rough, undulating, 0.05' thick 96.6' - Fracture, 10 deg, rough, undulating			
			0	98.2' - Fracture, horizontal, rough, undulating			At 99.4': R-Scale = R3-R4 First water level = 26.6' bgs taken 8/3/06 at 18:19
100 156.2	100.3		0				R-Scale performed during rock core logging.
						Bottom of Boring at 100.3 ft bgs on 8/3/06 09:14	
105 151.2							

PROJECT NUMBER:	BORING NUMBER:
338884	BCA-2 SHEET 1 OF 3

SOIL BORING 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
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

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
244.4	0.0						
		6.0	SS1SS	6-10-6-5 (16)	**Sandy Silt (ML)** 0.0-0.5' - brownish yellow, moist to dry, medium stiff, 40% very fine to fine grained sand		
	2.0						
	2.5				**Clay (CL)** 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				**Clay (CL)** 5.0-5.4' - brown, moist to dry, soft, low to medium plasticity, slow to rapid dilatancy		
		4.8	SS3SS	50/4 (50/4")			
	7.0						Soil sampling completed at 15:42 on 8/10/06
	7.5	3.0	SS4SS		**Clay (CL)**		
	7.8			50/3 (50/3")	7.5-7.8' - brown, moist to dry, soft, low to medium 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:
338884	BCA-2 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 EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

ORIENTATION : Vertical

WATER LEVELS : 2.7 ft bgs

START : 8/10/06 14:48

END : 8/10/06 17:10

LOGGER : AT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
7.8	R1NQ 1.7 ft 97%	68	0			**Siltstone** At 7.8' - reddish brown, soft, 30% very fine to fine sand, soil like appearance	Rock coring began at 15:52 on 8/10/06 R1: No time recorded
			3	8.9' - Fracture, 60 deg, black stains 9.1' - Fracture, 60 deg, rough, planar, black stains			At 8.0': R-Scale = R1-R2
9.5						7.8-10.5' - moderately weathered	R2: No time recorded
10 234.4			2	9.5' - Fracture, vertical, smooth, undulating			
			1	10.4' - Fracture, smooth, undulating		10.5-10.8' - highly weathered 10.5-10.7' - clay seam, 0.15' thick, brown 10.7-10.8' - white, highly plastic fat clay seam	At 10.7-10.8': PP: 1.0 tsf
	R2NQ 5 ft 100%	20	0			**Sandstone** 10.8-11.5' - pale olive, very soft, very fine sand to fine sand, highly weathered 11.1-11.2' - clay seam, yellowish brown	
			3	12.7' - Fracture, 10 deg, rough, undulating 13.0-13.3' - Fracture, very soft sandstone crushed into soil			
14.5			2	13.5' - Fracture, horizontal, smooth, undulating, 0.2' relief			
15 229.4			0	14.0' - Fracture, 30 deg, rough, stepped, 0.3' relief 14.3' - Fracture, 30 deg, rough, undulating, 0.05' relief		**Siltstone** 11.5-12.5' - reddish brown, soft, highly weathered, 30% very fine sand, soil-like appearance 11.5-11.8' - clay seam, brown	R3: No time recorded
			4	16.1' - Fracture, 40 deg, rough, undulating, 0.3' relief		**Sandstone** 12.5-14.5' - light olive gray, soft to hard, highly weathered, 70% very fine sand to coarse sand	
	R3NQ 5 ft 98%	32	5	16.8' - Fracture, 15 deg, rough, undulating, brown stains			At 16.5': R-Scale = R1
			3	17.3' - Fracture, 5 deg, rough, undulating, olive stains, 0.2' relief 17.4' - Fracture, 45 deg, smooth, undulating		**Siltstone** At 14.5' - dark reddish brown, very soft, intermittent clay seams, 30% very fine to fine sand, soil-like appearance 14.5-17.1' - highly weathered 14.8-15.1' - clay seam, brown stains 15.3-15.4' - clay seam, brown stains 15.5-17.5' - olive 15.6-15.7' - clay seam, brown stains 16.0' - clay seam, brown stains, 0.05' thick 16.3-16.4' - clay seam, olive, 0.15' thick 16.8-17.1' - clay seam, olive 17.1-17.5' - slightly weathered	At 17.9': R-Scale = R5
			1	17.5' - Fracture, 5 deg, rough, undulating 17.8' - Fracture, 10 deg, smooth, undulating, strong brown stains, water stain			
19.5							
20 224.4			2	18.2' - Fracture, 10 deg, rough, undulating 18.4' - Fracture, 10 deg, rough, undulating, strong brown stains			R4: No time recorded
			2	18.7' - Fracture, 20 deg, smooth, undulating 19.7' - Fracture, horizontal, smooth, undulating 20.4' - Fracture, horizontal, rough, undulating			At 20.8': R-Scale = R3-R4
	R4NQ 5 ft 100%	81	1	20.6' - Fracture, 20 deg, rough, undulating 21.3' - Fracture, 40 deg, rough, undulating, strong brown stains			At 22.0': R-Scale = R3-R4
			0	21.5' - Fracture, 30 deg, rough, undulating 21.8' - Fracture, 85 deg, smooth, planar		**Sandstone** At 17.5' - light olive gray, soft to hard, slightly weathered, 70% very fine sand to coarse sand 17.9-19.5' - light gray, soft to hard, poorly sorted, 70-80% very fine to medium sand, well bedded	First water level = 2.7' bgs taken 8/10/06 at 18:22; second water level = 4.5' bgs taken 8/11/06 at 14:08
			0				
24.5							
25 219.4	R5NQ 1 ft 85%	60	2	25.1' - Fracture, 10 deg, 0.2' relief 25.3' - Fracture, 30 deg, 0.2' relief		**Siltstone** 19.5-19.7' - reddish brown, soft, slightly weathered, 30% very fine to fine sand, soil-like appearance	R5: No time recorded At 24.9': R-Scale = R3-R4 R-Scale performed during rock core logging.
25.5						**Sandstone** At 19.7' - light olive gray, soft to hard, very fine sand to coarse sand, trace gravel 19.7-20.5' - slightly weathered	

PROJECT NUMBER:	BORING NUMBER:
338884	BCA-2 SHEET 3 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 EQUIPMENT AND METHOD : CME-550, NQ Double Barrel

ORIENTATION : Vertical

WATER LEVELS : 2.7 ft bgs

START : 8/10/06 14:48

END : 8/10/06 17:10

LOGGER : AT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION — DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	LITHOLOGY — ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	COMMENTS — SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
						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	
30 214.4						Bottom of Boring at 25.5 ft bgs on 8/10/06 17:10	
35 209.4							
40 204.4							
45 199.4							

PROJECT NUMBER:	BORING NUMBER:
338884	BCA-3 SHEET 1 OF 3

SOIL BORING 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

DRILLING 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 bgs

START : 7/26/06 14:36

END : 7/27/06 09:00

LOGGER : LH/JS/AT

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
262.6	0.0				**Clayey Gravel With Little Sand (GC)** 0.0-0.9' - dry, clay, gravel, and sand. dry, medium stiff, fill		
		15.6	SS1SS	9-16-9-20 (25)	**Clay (CL)** 0.9-1.3' - reddish brown, dry, stiff, fine grained, trace coarse sand and fine gravel		
	2.0						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		
5 257.6							
10 252.6							
15 247.6							
20							

PROJECT NUMBER:	BORING 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

WATER LEVELS : 6.6 ft bgs

START : 7/26/06 14:36

END : 7/27/06 09:00

LOGGER : LH/JS/AT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	2.9		10+	2.9-3.3' - Fracture zone, smooth, undulating 3.3-3.8' - Fracture, rough, undulating, tightly healed		**Siltstone** At 2.9' - dark reddish brown, mottled greenish gray, very soft to soft, coarse sand to gravel sized white clasts 2.9-15.3' - moderately weathered 3.3-4.5' - <0.01-0.02' thick vugs	Rock coring began at 14:59 on 7/26/06 R1: 14:59-15:04
	R1NQ 2.4 ft 100%	75	1	3.8' - Fracture, horizontal, rough, undulating 4.0' - Fracture, 10 deg, rough, planar			At 4.4': R-Scale = R3
5 257.6	5.3		0				
			0				R2: 15:11-15:25
			0	6.4' - Fracture, 45 deg, rough, undulating 6.8' - Fracture, horizontal, rough, undulating		7.0-9.6' - <0.01-0.05' thick vugs	
	R2NQ 5 ft 95%	82	0	7.3' - Fracture, 45 deg, rough, undulating 7.8-7.9' - Fracture zone, rough, undulating, black stains			
			0	8.2' - Fracture, 45 deg, rough, undulating 8.7-8.8' - Fractures, horizontal, rough, undulating, black stains, clay seam (0.07' thick)			
10 252.6	10.3		0				At 9.5': R-Scale = R3-R4
			1	10.5' - Fracture, 5 deg, smooth, undulating		10.3-10.7' - soft 10.7-11.3' - gravel sized white clasts	R3: 15:30-15:40
			2	11.5' - Fracture, 5 deg, smooth, undulating			At 11.2': R-Scale = R1-R2
	R3NQ 5 ft 100%	81	6	12.4' - Fracture, 10 deg, smooth, undulating, 0.02' relief 12.9' - Fracture, 20 deg, smooth, undulating, 0.01' relief, very tight		12.5-12.8' - clay seam, 20 deg orientation	
			4	13.5' - Fracture, 20 deg, smooth, undulating, 0.02' relief			
15 247.6	15.3		3	13.9' - Fracture, 10 deg, smooth, undulating, 0.03' thick clay infilling 14.4' - Fracture, 10 deg, smooth, undulating, 0.02' relief		15.3-16.5' - fresh	R4: 16:18-16:28
			1	14.6' - Fracture, 20 deg, smooth, undulating, 0.03' relief			
			0	15.6' - Fracture, 5 deg, smooth, undulating		**Sandstone** At 16.5' - multi-colored, soft to hard, fresh, 80% fine to medium sand, medium bedding 16.7-17.2' - clay rich layer	
	R4NQ 5 ft 100%	95	0				At 18.1': R-Scale = R2
			0				
20 242.6	20.3		0				
			0			20.3-20.9' - white, dark gray, and dark greenish gray, soft, very fine sand to medium sand, angular to subrounded, fresh, siltstone pockets 20.7-20.9' - dark reddish brown	R5: No time recorded
			2	20.9' - Contact between siltstone and sandstone, tightly healed 21.7' - Contact between siltstone and sandstone, horizontal, rough, undulating, tightly healed		**Siltstone** At 20.9' - dark reddish brown, mottled greenish gray, very soft to soft, fresh	At 22.6': R-Scale = R1-R2
	R5NQ						

PROJECT NUMBER:	BORING NUMBER:
338884	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 bgs

START : 7/26/06 14:36

END : 7/27/06 09:00

LOGGER : LH/JS/AT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R.Q.D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	5 ft 101%	98	0	21.8' - Fracture, 20 deg, rough, undulating		21.6-21.7' - laminated bedding **Sandstone** At 21.7' - white, dark gray, and dark greenish gray, soft, massive bedding, very fine sand to medium sand, angular to subrounded, fresh 21.7-22.4' - 20% coarse grained 23.2-23.4' - 20% coarse grained 24.2-25.0' - greenish gray mottles 24.4-24.9' - 20% coarse grained 25.3-26.5' - mottled dark gray to dark brown, soft to hard, well sorted 26.5-27.1' - soft to hard, fine sand to coarse sand, rust colored mottling 27.4-28.2' - soft to hard, fine sand to medium sand, poorly graded 27.9-28.1' - rust colored mottling 28.2-28.2' - clay and sandstone pieces 28.3-28.6' - 5% irregular white clasts harder than matrix	
			1	24.1' - Fracture, 30 deg, rough, undulating			
25 237.6	25.3		1	24.9' - Fracture, rough, undulating			R6: No time recorded
			0				
			1				At 26.8': R-Scale = R3-R4
	R6NQ 5 ft 99%	74	2	27.2' - Fracture, 50 deg 27.9' - Fracture, 60 deg, rough, undulating			
			6	28.2' - Fracture, horizontal, rough, undulating 28.4-28.6' - Fracture zone (3), smooth, undulating			
30 232.6	30.3		0	28.7' - Fracture, 5 deg, rough, undulating, gray stains 28.8' - Fracture, horizontal, smooth, undulating			At 29.6': R-Scale = R2
			1	29.2' - Fracture, 5 deg, smooth, undulating 31.0' - Fracture, smooth to rough, stepped		30.3-35.5' - green and purple mottling, very fine to fine grained, 10-15% mottles in scattered threads	R7: No time recorded on 07/27/06
			0				
	R7NQ 5 ft 100%	100	1	32.4' - Fracture, 10 deg, some white infilling			
			1	33.5' - Fracture, horizontal, some white infilling			
							At 34.0': R-Scale = R2
35 227.6	35.3		0				
			0			35.5-40.3' - mottled green, 25-30% fine sand, harder in sandy areas	R8: No time recorded
			0				
	R8NQ 5 ft 100%	100	0				First water level = 6.6' bgs taken 7/27/06 at 09:30; second water level = 8.3' bgs taken 7/28/06 at 13:05
			0				At 38.6': R-Scale = R3-R4
40 222.6	40.3		0				R-Scale performed after drilling on stored samples
						Bottom of Boring at 40.3 ft bgs on 7/27/06 09:00	

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)
ELEVATION : 262.9 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
WATER LEVELS : 6.8 ft bgs
START : 7/28/06 11:00
END : 8/1/06 14:33
LOGGER : JS/AT/LH

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
262.9	0.0				**Topsoil** 0.0-0.1' - Grass		Driller reports gravel fill for ~1.5' @surface
		13.2	SS1SS	20-23-15-6 (38)	**Silty Gravel (GM)** 0.1-1.1' - pinkish gray, dry to moist, dense, fine to coarse grained, angular, well sorted, with dark gray gravel, 30% fine to coarse sand, 15% silt, fill		
	2.0						
	2.5	2.4	SS2SS	5-5-8-9 (13)	**Clay (CL)** 2.5-2.7' - reddish brown, moist, soft, low to medium plasticity, slow to rapid dilatancy		
	4.5						
5							
257.9	5.0	7.2	SS3SS	9-10-19-26 (29)	**Sandy Silt (ML)** 5.0-5.6' - reddish brown, moist, very stiff, low plasticity, orange mottling, 25-30% very fine to medium sand		
	7.0						
	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						
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 at 12.5'
	12.0						
	12.5	16.2	SS6SS	10-12-9-50/4 (21)	**Clayey Sand (SC)** 12.5-13.5' - light gray and brownish yellow, moist, very stiff **Clay (CL)** 13.5-13.9' - reddish brown, reddish black mottling, dry, very stiff, medium plasticity, trace gravel and fine to coarse sand, laminated		
	14.5						
15							Soil sampling completed at 13:12 on 8/1/06
247.9	15.0 15.1	2.0	SS7SS	50/2 (50/2")	**Clay (CL)** 15.0-15.1' - reddish brown, moist, stiff, 0-5% fine to coarse sand Begin Rock Coring at 15.2 ft bgs See the next sheet for the rock core log		
20							

PROJECT NUMBER:	BORING 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 ft bgs

START : 7/28/06 11:00

END : 8/1/06 14:33

LOGGER : JS/AT/LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, 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, rough, undulating		**Siltstone** At 15.2' - dark reddish brown, mottled greenish gray and reddish black, soft 15.2-16.6' - very soft, moderately weathered 16.6-20.2' - soft, gravel sized and medium to coarse sized white clasts 16.6-40.2' - fresh	Rock coring began at 13:35 on 8/1/06 R1: 13:35-13:46 on 8/1/06 At 15.2-16.4' R-Scale = R1-R2
			1	16.4' - Fracture, 20 deg, rough, undulating			
	R1NQ 5 ft 97%	78	1	17.8' - Fracture, 50 deg, rough, undulating			
			0				At 18.4': R-Scale = R3
20 242.9	20.2		0				
			0			20.2-25.2' - trace medium to coarse sand throughout	R2: 13:50-13:59
			1	21.5' - Fracture, horizontal, rough, planar			
	R2NQ 5 ft 103%	95	1	22.5-22.8' - Fracture (1), 60 deg, rough, undulating			At 22.3': R-Scale = R3-R4
			0			23.4-25.2' - gravel sized white clasts	
			2				At 24.5': R-Scale = R3
25 237.9	25.2					24.9-25.0' - clay seam, very soft, friable, alternates siltstone, <0.02' thick each	R3: 14:04-14:10
			0				
			0				
	R3NQ 5 ft 98%	98	0				At 27.7': R-Scale = R3
			0			28.0-30.2' - gravel and medium to coarse sand sized white clasts	
			0				
30 232.9	30.2					30.2-33.4' - white clasts	R4: 14:14-14:21
			0				
			0				At 31.6': R-Scale = R3-R4
	R4NQ 5 ft 101%	94	0				
			10+	33.4-33.7' - Fracture zone, rough, undulating			
			3	34.4' - Fracture, horizontal, rough, undulating			
35	35.2						At 34.8': R-Scale = R3-R4

PROJECT NUMBER:	BORING NUMBER:	
338884	BCA-4	SHEET 3 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 ft bgs

START : 7/28/06 11:00

END : 8/1/06 14:33

LOGGER : JS/AT/LH

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION — DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	SYMBOLIC LOG	LITHOLOGY — ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	COMMENTS — SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
	R5NQ 5 ft 101%	90	2	34.4-34.6' - Fracture, 60 deg, rough, undulating 34.5' - Fracture, horizontal, rough, undulating 36.0' - Fracture, 30 deg, rough, undulating 36.2' - Fracture, horizontal, rough, undulating 36.7' - Fracture, 30 deg, smooth, stepped		35.6-35.9' - white clasts 35.9-36.2' - very soft, laminated bedding 36.2-37.7' - soft	R5: 14:25-14:33
			1				
			2			37.5-40.2' - trace medium to coarse sand 37.7-38.3' - very soft, laminated bedding 37.9-38.1' - clay seam, very soft, friable, 0.08' thick 38.1-38.2' - clay seam, very soft, friable, 0.08' thick	At 37.8-38.2': R-Scale = R0-R1 First water level = 6.8' bgs taken 8/1/06 at 16:14; second water level = 8.1' bgs taken 8/2/06 at 08:55
			2	38.3' - Fracture, horizontal, rough, undulating			
40 222.9	40.2		0			Bottom of Boring at 40.2 ft bgs on 8/1/06 14:33	R-Scale performed after drilling on stored samples
45 217.9							
50 212.9							
55							

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

SOIL BORING 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
DRILLING EQUIPMENT AND METHOD : BK-51, 4-1/2 Tricone Bit, 24 Split Spoon, 140 lb. Hammer and Cathead
ORIENTATION : Vertical
WATER LEVELS : 5.8 ft bgs
START : 7/27/06 11:40
END : 7/28/2006
LOGGER : JS/AT

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
260.3	0.0				**Fill** 0.0-0.1' - grass and fine to coarse gravel		
		12.0	SS1SS	7-10-10-7 (20)	**Silty Sand (SM)** 0.1-0.6' - dark reddish gray, moist, dense, fine to coarse sand, fine to medium sand, 15% non-plastic fines		
	2.0				**Sandy Silt (ML)** 0.6-1.0' - reddish brown, white mottling, moist, very stiff, low plasticity, very rapid dilatancy, 25% very fine to fine sand		
	2.5	17.0	SS2SS	8-38-38-50/4 (76)	**Sandy Silt (ML)** 2.5-2.8' - reddish brown, white mottling, moist to wet, stiff, low plasticity, rapid dilatancy, up to 25% very fine sand, friable, reworked native material		
	4.5				**Sandy Silt (ML)** 2.8-3.9' - reddish brown, white mottling, dry to moist, very stiff, low plasticity, rapid dilatancy, up to 25% very fine sand, varies in sample, friable		
5							
255.3	5.0	5.0	SS3SS	50/4 (50/4")	**Sandy Silt (ML)** 5.0-5.4' - reddish brown, white mottling, dry to moist, very stiff, low plasticity, rapid dilatancy, up to 25% very fine sand, varies in sample, friable		Too friable for PP
	7.0						Soil sampling completed at 13:10 on 7/27/06
	7.5	2.0	SS4SS	50/2 (50/2")	**Sandy Silt (ML)** 7.5-7.6' - reddish brown, black and yellow mottling, dry to moist, very stiff, low plasticity, rapid dilatancy, up to 25% very fine sand, varies in sample, friable		
	7.6				Begin Rock Coring at 7.6 ft bgs See the next sheet for the rock core log		
10							
250.3							
15							
245.3							
20							

PROJECT NUMBER:	BORING 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

WATER LEVELS : 5.8 ft bgs

START : 7/27/06 11:40

END : 7/28/2006

LOGGER : JS/AT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	7.6					**Siltstone**	Rock coring began at 13:20 on 7/27/06
	R1NQ 2.4 ft 102%	100	0			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	R1: No time recorded on 7/27/06
			0	8.7' - Fracture, 5 deg, rough, undulating, black streaks		7.6-19.0' - slightly weathered	At 9.0': R-Scale = R3
10	10.0						
250.3			0			10.0-12.6' - trace very fine to fine sand, very fine grained	R2: Finished at 13:50
			0	10.7' - Fracture, 5 deg, smooth, stepped			
			0	11.3' - Fracture, 5 deg, smooth, undulating			
	R2NQ 5 ft 98%	94	0	12.2' - Fracture, 60 deg, smooth to rough and undulating, ~10% of surface covered in white coating		12.6-13.2' - 15% very fine sand/silt	
			0	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	At 13.6': R-Scale = R3-R4
			0			14.0-14.7' - trace to 10% irregular shaped white clasts, harder than matrix	
15	15.0						
245.3			3	14.8' - Fracture, 70 deg, rough, undulating, dark gray coating		15.0-16.8' - reddish brown, trace black, green mottling, fine grained with 20% very fine sand	R3: 13:53-14:05
			1	15.3' - Fracture, horizontal, rough, undulating 15.5' - Fracture, 60 deg, undulating, smooth to rough, black and orange staining (40% of surface)			At 16.0': R-Scale = R4
	R3NQ 5 ft 102%	94	1	16.9-17.5' - Fracture, 85 deg, rough, undulating, orange stains, partial fracture		16.8-17.5' - 35-40% very fine to fine black and white sand grains	
			0	18.2' - Fracture, horizontal, rough, undulating, 0.05' relief		17.5-18.3' - fine grained with 20% very fine sand	At 17.6': R-Scale = R3
			0			18.3-19.8' - fine grained with 5-10% very fine sand 19.0-22.0' - highly weathered	
20	20.0						At 19.6-22.7': R-Scale = R0-R1
240.3			10+			20.0-20.8' - clay seams, 20.0-20.4' washed out, clay-like bedrock	R4: 14:32-14:36
			1			20.4-20.9' - very soft, very fine to fine grained, trace very fine sand, too friable for PP	
	R4NQ 5 ft 92%	60	1	22.7' - Fracture, horizontal, smooth, undulating		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	
			0			22.7-23.1' - 15-20% very fine to fine grained sand	
			0			23.1-24.7' - soft to hard, 40-50% very fine to fine sand	
25	25.0						At 24.5': R-Scale = R3-R4
235.3			0			24.7-25.0' - soft, 10% very fine to fine sand	R5: 14:45-14:52
			0			24.9-25.0' - clay seam, very soft, friable, alternates siltstone, <0.02' thick each	
	R5NQ			27.1' - Fracture, horizontal, rough, stepped			

PROJECT NUMBER:	BORING NUMBER:
338884	BCA-5 SHEET 3 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

WATER LEVELS : 5.8 ft bgs

START : 7/27/06 11:40

END : 7/28/2006

LOGGER : JS/AT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
	5 ft 100%	100	1			25.0-26.1' - dark reddish brown, green, purple mottling, very fine to fine grained with trace very fine sand, trace medium grained white sand	At 27.5': R-Scale = R3-R4
			0			25.0-39.0' - fresh	
			0			26.1-28.6' - medium grained sand, increases with depth, multicolored up to 20%, subangular	
30 230.3	30.0						
			0			28.6-30.0' - very fine to fine grained, trace very fine sand / coarse silt	R6: 08:22-08:35
			0				
							At 31.5': R-Scale = R3-R4
	R6NQ 5 ft 100%	93	0				
			0	33.5' - Fracture, 50 deg, smooth, undulating			
			3				
35 225.3	35.0			34.7' - Fracture, 20 deg, smooth, undulating			
			0			35.0-39.0' - 20% gravel sized white clasts harder than matrix	R7: 09:02-09:15
			3	36.1-36.2' - Fracture, 10 deg, smooth, undulating, partially crushed			At 35.7': R-Scale = R3
	R7NQ 5 ft 99%	87	1	36.9' - Fracture, horizontal, smooth, undulating			At 38.8': R-Scale = R3-R4
			0				First water level = 5.8' bgs taken 7/28/06 at 12:45; second water level = 6.8' bgs taken 7/31/06 at 09:05
			2	39.7' - Fracture, 15 deg, smooth, undulating		**Sandstone**	
40 220.3	40.0			39.7' - Fracture, 35 deg, smooth, undulating, tight		39.0-40.0' - multi-colored, medium sand to coarse sand, subangular, poorly sorted, fresh, poorly laminated	R-Scale performed after drilling on stored samples
						Bottom of Boring at 40.0 ft bgs on 7/28/2006	
45 215.3							

PROJECT NUMBER:	BORING NUMBER:
338884	BCA-6 SHEET 1 OF 3

SOIL BORING LOG

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

WATER LEVELS : 4.8 ft bgs

START : 8/3/06 12:45

END : 8/4/2006

LOGGER : AT

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
245.4	0.0						
		3.6	SS1SS	13-16-10-12 (26)	**Sandy Silt (ML)** 0.0-0.2' - yellowish brown, dry to moist, hard, 30% very fine to fine sand, fine to coarse gravel		
	2.0						
	2.5						
		8.4	SS2SS	5-5-6-8 (11)	**Sandy Silt (ML)** 2.5-3.2' - yellowish brown, dry to moist, soft, 30% very fine to fine sand, fine to coarse gravel		
	4.5						
5							
240.4	5.0						
		13.2	SS3SS	2-2-4-6 (6)	**Clay (CL)** 5.0-6.1' - grayish brown, moist, low to medium plasticity, slow to rapid dilatancy, black organic layer, root casts		PT-1 collected 5.0-7.0'
	7.0						
	7.5						
		12.0	SS4SS	7-14-17-21 (31)	**Clay (CL)** 7.5-7.9' - grayish brown, moist, low to medium plasticity, slow to rapid dilatancy, black organic layer, root casts **Clay (CL)** 7.9-8.5' - reddish brown, dry to moist, hard, low to medium plasticity, slow to rapid dilatancy		
	9.5						
10							
235.4	10.0						
		10.8	SS5SS	15-22-50/2 (72/8")	**Clay (CL)** 10.0-10.9' - reddish brown, moist, hard, low to medium plasticity, slow to rapid dilatancy		Soil sampling completed at 14:35 on 8/3/06
	10.9						
	11.5				Begin Rock Coring at 11.5 ft bgs See the next sheet for the rock core log		
15							
230.4							
20							

PROJECT NUMBER:	BORING NUMBER:	
338884	BCA-6	SHEET 2 OF 3

ROCK CORE LOG

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

ORIENTATION : Vertical

WATER LEVELS : 4.8 ft bgs

START : 8/3/06 12:45

END : 8/4/2006

LOGGER : AT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: RQD (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, 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 11.5-15.7' - moderately weathered 13.0-13.1' - clay seam 13.5-15.0' - hard, much harder (less weathered)	Rock coring began at 14:50 on 8/3/06 R1: No time recorded on 8/4/06 At 11.5-19.4': R-Scale = R0-R1
	R1NQ 4 ft 79%	38	2	13.0' - Fracture, 20 deg, smooth, undulating			
			3	13.4' - Fracture, 10 deg, smooth, undulating, dark grayish black stains 13.6' - Fracture, 5 deg and 60 deg, smooth, undulating			
15 230.4				13.8' - Fracture, 30 deg, smooth, undulating 14.2' - Fracture, 10 deg, smooth, undulating		15.0-15.5' - soft	
	15.5		1	15.9' - Fracture, 5 deg, smooth, undulating		15.7-19.4' - highly weathered 15.7-15.8' - clay seam 16.4-16.7' - clay seam 16.8-17.3' - clay seam	R2: No time recorded
			10+				
	R2NQ 5 ft 102%	20	0	17.3-17.6' - Fracture zone, very soft			
			1				
20 225.4			3	19.4' - Fracture, 25 deg, smooth, undulating 19.5' - Fracture, 5 deg, smooth, undulating 19.7' - Fracture, 15 deg, rough, undulating		19.2-19.7' - fining upward sequence 25-60% sand 19.4-19.7' - slightly weathered	
	20.5		10+	20.4-20.5' - Fracture zone, rough, planar, sample crushed - brittle 20.5' - Fracture, horizontal, rough, planar		**Sandstone** 19.7-20.7' - multicolored, soft to hard, very fine sand to coarse sand, poorly sorted, slightly weathered, some light brown mottling	At 20.1': R-Scale = R2 R3: No time recorded
			0			**Siltstone** 20.7-20.9' - dark reddish brown, 15% green mottling, slightly weathered, 10% very fine to fine sand	
	R3NQ 5 ft 102%	100	0			**Sandstone** 20.9-26.3' - multicolored, soft to hard, very fine sand to coarse sand, poorly sorted, slightly weathered, some light brown mottling	At 23.5': R-Scale = R2-R3
			0				
25 220.4			0				At 24.7': R-Scale = R2
	25.5		0				R4: No time recorded
			0			**Siltstone** 26.3-30.5' - dark reddish brown, 15% green mottling, fresh, 10% very fine to fine sand 26.3-26.4' - clayey sand layer	
	R4NQ 5 ft 99%	97	0				At 28.0': R-Scale = R3-R4
			0			28.2-30.0' - hard to soft	
30 215.4			0				
	30.5		1	30.7' - Fracture, horizontal, smooth		30.5-32.3' - hard to soft, 10-15% purple mottling	R5: No time recorded

PROJECT NUMBER:	BORING NUMBER:
338884	BCA-6 SHEET 3 OF 3

ROCK CORE LOG

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

ORIENTATION : Vertical

WATER LEVELS : 4.8 ft bgs

START : 8/3/06 12:45

END : 8/4/2006

LOGGER : AT

DEPTH AND ELEVATION BELOW SURFACE (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES: R Q D (%)	DISCONTINUITIES: FRACTURES PER FOOT	DISCONTINUITIES: DESCRIPTION (DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS)	SYMBOLIC LOG	LITHOLOGY (ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS)	COMMENTS (SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.)
			1				At 31.7': R-Scale = R3-R4
	R5NQ 5 ft 100%	97	1	32.3' - Fracture, 5 deg, rough, undulating		32.3-35.5' - hard to soft, 15% very fine to fine sand	
			0	33.4' - Fracture, horizontal, smooth, planar			
35 210.4			0				
	35.5						
			1			35.5-37.3' - small to large <0.003-0.2' rounded to irregular shaped white to brown clasts	R6: No time recorded
				36.4' - Fracture, horizontal, smooth, undulating			At 36.0': R-Scale = R3-R4
			2	37.0' - Fracture, 10 deg, rough, undulating, 0.02' relief			
	R6NQ 5 ft 95%	70	1	37.3' - Fracture, 20 deg, rough, undulating, 0.005' relief			First water level = 4.8' bgs taken 8/4/06 at 14:30
				37.7' - Fracture, 30 deg, rough, undulating, 0.03' relief			
			1	38.7' - Fracture, 5 deg, rough, undulating, 0.02' relief		38.6-40.5' - hard to soft, 15-20% very fine to fine sand	
							At 39.3': R-Scale = R3-R4
40 205.4			2	39.8' - Fracture, 70 deg, rough, planar			
	40.5			40.0' - Fracture, 70 deg, rough, planar			R-Scale performed after drilling on stored samples
						Bottom of Boring at 40.5 ft bgs on 8/4/2006	
45 200.4							
50 195.4							

PROJECT NUMBER:	BORING NUMBER:
338884	BCA-7 SHEET 1 OF 2

SOIL BORING LOG

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

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
263.2	0.0						
		14.0	SS1SS	5-8-9-11 (17)	**Clay (CL)** 0.0-1.2' - reddish brown, light greenish gray mottling, dry, very stiff, trace roots		
	2.0						
	2.5						
		15.0	SS2SS	6-5-11-14 (16)	**Clay (CL)** 2.5-3.8' - reddish brown, trace brown mottling, dry, very stiff, gray sand pockets very fine to medium grained 3.5-3.8' - trace gravel laminated beds		
	4.5						
5							
258.2	5.0						
		12.0	SS3SS	8-9-11-13 (20)	**Clay (CL)** 5.0-6.0' - reddish brown, trace brown mottling, dry, very stiff, gray and yellowish brown sand pockets very fine to medium grained		
	7.0						
	7.5						
		15.0	SS4SS	7-8-10-16 (18)	**Clay (CL)** 7.5-8.8' - reddish brown, trace brown mottling, dry, very stiff, brown clay pockets mottled light gray		
	9.5						
10							
253.2	10.0						Install NW surface casing to 10' bgs.
		7.0	SS5SS	34-50/6 (50/6")	**Clay (CL)** 10.0-10.6' - reddish brown, moist, hard, low plasticity, laminated		
	12.0						
	12.5						
		5.0	SS6SS	50/5 (50/5")	**Clay (CL)** 12.5-13.0' - reddish brown, moist, hard, low plasticity, reddish black linear mottles		
	14.5						
15							
248.2	15.0						
		11.0	SS7SS	39-50/6 (50/6")	**Clay (CL)** 15.0-16.0' - reddish brown, mottled reddish black and light greenish gray, moist, hard, low plasticity		
	17.0						
	17.5						
		10.0	SS8SS	15-17-50/5 (67/11")	**Clay (CL)** 17.5-18.4' - reddish brown, mottled reddish black and light greenish gray, moist, hard, low plasticity		
	19.5						
20							

PROJECT NUMBER:	BORING NUMBER:
338884	BCA-7 SHEET 2 OF 2

SOIL BORING LOG

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

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (in)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
243.2	20.0	5.0	SS9SS	50/5 (50/5")	**Clay (CL)** 20.0-20.5' - reddish brown, mottled reddish black and light greenish gray, moist, hard, low plasticity		
	22.0						
25							
238.2	25.0	6.0	SS10SS	50/6 (50/6")	**Silt (ML)** 25.0-25.3' - light gray and pale red, moist, very dense **Clay (CL)** 25.3-25.5' - reddish brown, mottled reddish black and light greenish gray, moist, hard, low plasticity		
	27.0						
30							First water level = 7.4' bgs taken 8/10/06 at 20:02
233.2	30.0 30.2	2.0	SS11SS	50/2 (50/2")	**Sand With Silt (SP-SM)** 30.0-30.2' - light gray and pale red, moist, very dense, 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							