



MACTEC PROJECT NO.: 6468-06-1472				COUNTY Louisa, VA				GEOLOGIST J. Howard			
SITE DESCRIPTION NORTH ANNA COL								GROUND WATER (ft)			
BORING NO. B-905			DRILL METHOD: Mud Rotary/Core				SAMPLE METHODS: SPT/CORE				
COLLAR ELEV. 306.8 ft (NAVD88)		NORTHING 3,909,733		US ft (NAD83)		EASTING 11,685,822		US ft (NAD83)		0 HR. 23.0	24 HR. 21.9
TOTAL DEPTH 150.4 ft		DRILL MACHINE CME 550 ATV				DRILLER: G. Akins				HAMMER TYPE 140 lbs Auto	
DATE STARTED 9/19/06			COMPLETED 9/25/06			CORE BARREL TYPE: HQ 3 triple tube-wireline					

ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION				
		0.5ft	0.5ft	0.5ft	0	20	40	60	80					100			
306.8					Ground Surface								306.8	0.0			
305.3	1.5										905-1				Silty SAND (SM), reddish yellow (7.5YR 6/8), pinkish gray (7.5YR 7/2), reddish yellow (7.5YR 6/6), and light gray (5YR 7/1), dry, medium dense to very dense, micaceous and saprolitic (Residual Soil)		
303.8	3.0	6	6	6							905-2						
		7	10	13													
298.3	8.5	6	8	9								905-3					
291.9	14.9	13	16	14								905-4					
286.9	19.9	27	27	30								905-5					
281.9	24.9	50/0.3										905-6		282.9	23.9	Weathered Rock: Gray to tan, BIOTITE GNEISS	
280.7	26.1	50/0.0										905-7		280.7	26.1		
																Hard Rock: Tan gray, moderately to very slightly weathered, close to moderately close fracturing, medium hard to hard, QUARTZ GNEISS	
																Hard Rock: Blue-gray to tan-gray, moderately weathered to fresh, close to moderately close fracturing, hard to very hard, BIOTITE GNEISS	
																286.3	40.5

NORTH ANNA COL BORE NORTH ANNA COL DATA REPORT REV0.GPJ NORTH ANNA COL.GDT 1/19/07



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ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION
		0.5ft	0.5ft	0.5ft	0	20	40	60	80			
231.9					Continued from previous page							
												229.0 77.8
												226.6 80.2
												Weathered Rock: Tan-gray, severely weathered, BIOTITE GNEISS
												Hard Rock: Gray-tan, light gray, and blue-gray, moderate severely weathered to fresh, very close to moderately close fracturing, medium hard to hard, BIOTITE GNEISS
												185.0 121.8
												Weathered Rock: BIOTITE GNEISS-little to no recovery
												181.4 125.4
												Hard Rock: Gray-tan and blue-gray, moderately weathered to fresh, very close to wide fracturing, hard to very hard, BIOTITE GNEISS, locally with quartz and feldspar veins
												159.2 147.6

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TOTAL DEPTH 150.4 ft			DRILL MACHINE CME 550 ATV			DRILLER: G. Akins			HAMMER TYPE 140 lbs Auto					
DATE STARTED 9/19/06			COMPLETED 9/25/06			CORE BARREL TYPE: HQ 3 triple tube-wireline								
ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
		0.5ft	0.5ft	0.5ft	0	20	40	60	80					100
157.1														Continued from previous page
														156.4 Hard Rock: Blue-gray and brown, moderately to slightly weathered, moderately close fracturing, moderately hard, BIOTITE GNEISS (continued) Boring and coring terminated at 150.4 ft in Hard Rock: Hard, BIOTITE GNEISS 150.4

NORTH ANNA COL DATA REPORT REV0.GPJ NORTH ANNA COL.GDT 1/19/07



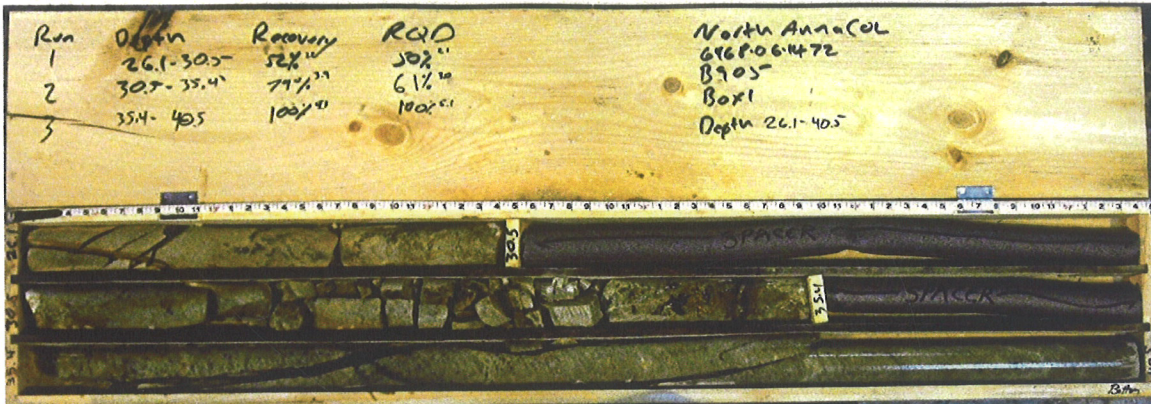
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TOTAL DEPTH 150.4 ft			DRILL MACHINE CME 550 ATV				DRILLER: G. Akins				HAMMER TYPE 140 lbs Auto	
DATE STARTED 9/19/06				COMPLETED 9/25/06				CORE BARREL TYPE: HQ 3 triple tube-wireline				
CORE SIZE HQ3				TOTAL RUN 124.3 ft								
ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS		
				REC. (ft) %	ROD (ft) %		REC. (ft) %	ROD (ft) %				
Begin Coring @ 26.1 ft												
280.7	26.1	4.4	N=50/0.0 2:00	(2.2) 50%	(2.2) 50%	1				280.7 Hard Rock: Tan gray, moderately to very slightly weathered, close to moderately close fracturing, medium hard to hard, QUARTZ GNEISS 26.1		
276.3	30.5	4.9	1:30/0.4 2:00	(3.9) 80%	(3.0) 61%	2						
271.4	35.4	5.1	1:45 1:15 1:30 3:00/0.9	(5.1) 100%	(5.1) 100%	3				(2 joints at 80°)		
266.3	40.5	5.0	3:00 3:00 2:30 3:15 3:30/1.1	(4.7) 94%	(4.7) 94%	4				266.3 Hard Rock: Blue-gray to tan-gray, moderately weathered to fresh, close to moderately close fracturing, hard to very hard, BIOTITE GNEISS 40.5 (1 joint at 40°, 1 joint at 75°, 2 joints at 20°; loss of circulation from 44.4 to 44.6 ft)		
261.3	45.5	4.9	5:00 7:00 7:15 10:30 9:30/0.9	(4.9) 100%	(4.9) 100%	5				(1 joint at 10°, 1 joint at 80°, 2 joints at 50°)		
256.4	50.4	4.8	3:00 8:30 7:15 6:45 7:30/0.8	(4.2) 88%	(3.4) 71%	6						
251.6	55.2	5.1	9:15 3:45 3:00 2:30 4:00/1.1	(5.1) 100%	(4.2) 82%	7				(4 joints at 30-40°)		
246.5	60.3	4.9	6:45 3:00 3:45 6:30 8:00/0.9	(4.9) 100%	(4.9) 100%	8				(2 joints at 20°, 2 joints at 40°)		
241.6	65.2	5.1	6:00 3:00 1:45 2:00 2:15/1.1	(4.8) 94%	(4.0) 78%	9				(3 joints at 30°, 1 joint at 10°)		
236.5	70.3	2.9	4:00 2:15 2:30/0.9	(2.9) 100%	(1.3) 45%	10				(5 joints at 10°, 1 joint at 50°, 1 joint at 85°; trace epidote)		
233.6	73.2	7.0	3:30 4:00 3:30 3:45 2:30 3:30 5:00	(5.3) 76%	(4.7) 67%	11				(4 joints at 10°, 1 joint at 85°)		
229.0	77.8									229.0 Weathered Rock: Tan-gray, severely weathered, BIOTITE GNEISS 77.8		
226.6	80.2	5.3	4:30 4:45 5:00 6:00 5:15	(5.3) 100%	(3.8) 72%	12				226.6 Hard Rock: Gray-tan, light gray, and blue-gray, moderate severely weathered to fresh, very close to moderately close fracturing, medium hard to hard, BIOTITE GNEISS 80.2 (7 joints at 20°, 3 joints at 80°)		
221.3	85.5	5.0	2:45 2:00 3:45 3:30 4:30	(3.3) 66%	(0.5) 10%	13						
216.3	90.5	5.0	2:30 2:00 2:15 2:00 2:00	(3.5) 70%	(1.3) 26%	14				(2 joints at 40°, 1 joint at 85°)		
211.3	95.5	5.0	1:45 1:30 1:30 1:15 1:00	(4.5) 90%	(3.8) 76%	15				(3 joints at 60°, 1 joint at 85°)		
206.3	100.5											

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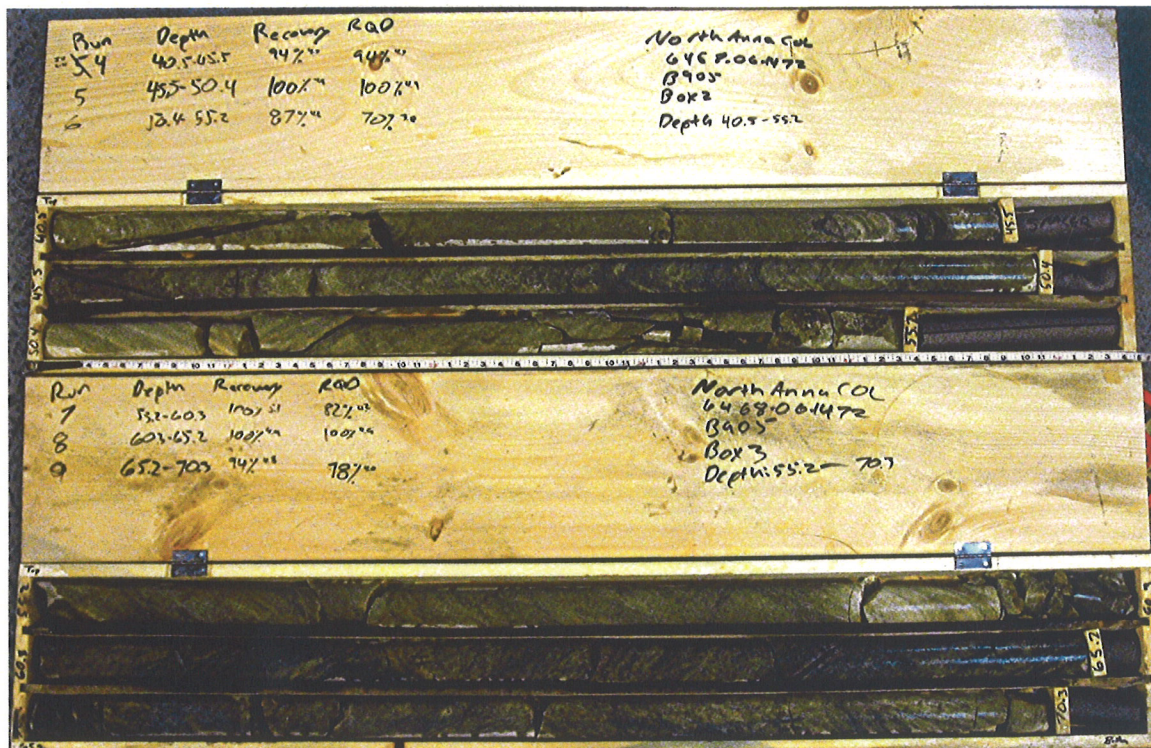


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TOTAL DEPTH 150.4 ft		DRILL MACHINE CME 550 ATV				DRILLER: G. Akins				HAMMER TYPE 140 lbs Auto	
DATE STARTED 9/19/06				COMPLETED 9/25/06				CORE BARREL TYPE: HQ 3 triple tube-wireline			
CORE SIZE HQ3				TOTAL RUN 124.3 ft							
ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		L O G	DESCRIPTION AND REMARKS	
				REC. (ft) %	RQD (ft) %		REC. (ft) %	RQD (ft) %			
Continued from previous page											
201.3	105.5	5.0	1:30 ND ND ND ND	(5.0) 100%	(4.8) 96%	16				(2 joints at 10°, 2 joints at 60-70°) Hard Rock: Gray-tan, light gray, and blue-gray, moderate severely weathered to fresh, very close to moderately close fracturing, medium hard to hard, BIOTITE GNEISS (continued)	
196.3	110.5	5.0	2:00 1:45 1:30 1:15 1:45	(5.0) 100%	(4.5) 90%	17				(1 joint at 20°, 2 joints at 40-50°; quartz+felspar veins)	
191.3	115.5	5.0	2:45/2.0  2:00 1:30 1:45	(4.7) 94%	(4.2) 84%	18				(4 joints at 10-20°, 2 joints at 50°)	
186.3	120.5	5.0	1:30 1:15 1:30 1:45 1:45	(4.3) 86%	(2.7) 54%	19				(3 joints at 30-40°, 4 joints at 50-60°)	
181.4	125.4	4.9	3:00 3:15 2:00 2:15 2:30/0.9	(1.6) 33%	(0.4) 8%	20			185.0	Weathered Rock: BIOTITE GNEISS-little to no recovery	
179.4	127.4	2.0	2:00/2.0	(2.0) 100%	(1.2) 60%	21			181.4	Hard Rock: Gray-tan and blue-gray, moderately weathered to fresh, very close to wide fracturing, hard to very hard, BIOTITE GNEISS, locally with quartz and felspar veins	
176.2	130.6	3.2	1:15 1:00 2:00	(2.6) 81%	(1.2) 38%	22				(3 joints at 30°)	
171.3	135.5	4.9	0:30/0.2 2:15 2:00 4:00 3:00 4:30/0.9	(4.9) 100%	(4.9) 100%	23				(2 joints at 40°, 1 joint at 30°, 1 joint at 0°; quartz+felspar veins)	
168.1	138.7	3.2	6:30 6:00 12:30	(3.2) 100%	(3.2) 100%	24				-No Joints	
161.5	145.3	6.6	4:00/0.2 6:30 6:30 3:00 3:30 4:00 6:00/1.6	(6.6) 100%	(6.6) 100%	25				-No Joints	
156.4	150.4	5.1	6:45 6:15 2:30 2:30 2:00/1.1	(5.1) 100%	(5.0) 98%	26			159.2	(3 joints at 40°)	
									156.4	Hard Rock: Blue-gray and brown, moderately to slightly weathered, moderately close fracturing, moderately hard, BIOTITE GNEISS	
Coring terminated at 150.4 ft in Hard Rock: Hard, BIOTITE GNEISS											

NORTH ANNA COL CORE NORTH ANNA COL DATA REPORT REV0.GPJ NORTH ANNA COL GDT 1/19/07



B-905 – Box 1



B-905 – Box 2

B-905 – Box 3



B-905 - Box 4

B-905 - Box 5



B-905 - Box 6

B-905 - Box 7



B-905 - Box 8  
B-905 - Box 9