



MACTEC PROJECT NO.: 6468-06-1472				COUNTY Louisa, VA				GEOLOGIST J. Wallen							
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)					
BORING NO. B-918		DRILL METHOD: Mud Rotary/Core				SAMPLE METHODS: SPT/CORE				0 HR. 4.4					
COLLAR ELEV. 272.1 ft (NAVD88)		NORTHING 3,910,115		US ft (NAD83)		EASTING 11,686,194		US ft (NAD83)		24 HR. 4.8					
TOTAL DEPTH 150.1 ft		DRILL MACHINE CME 45 Trailer				DRILLER: D. Rhodes				HAMMER TYPE 140 lbs Auto					
DATE STARTED 9/20/06		COMPLETED 9/27/06				CORE BARREL TYPE: HQ 3 triple tube-wireline									
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				100		
272.1					Ground Surface								272.1	0.0	
272.1	0.0	15	9	6							918-1		271.1	1.0	GRAVEL (GW) grayish brown (2.5Y 5/2) dry, medium dense, well graded, fine to coarse sandy (Fill)
268.9	3.2	10	9	12							918-2				Silty, fine to coarse SAND (SM), brownish yellow (10YR 6/6 and 6/8), moist, medium dense to very dense, relict rock fabric (Residual Soil)
267.0	5.1	22	34	41							918-3				
262.8	9.3	22	47	48							918-4				
261.3	10.8	50/0.4									918-5		261.3	10.8	Weathered Rock: Sampled as Silty, fine to medium SAND (SM), brownish yellow (10YR 6/8), moist, very dense
258.9	13.2	32	34	37							918-6		259.6	12.5	Silty, fine to medium SAND (SM), brownish yellow (10YR 6/6), moist, very dense, relict rock fabric (Residual Soil)
253.2	18.9	50/0.5									918-7		255.1	17.0	Weathered Rock: Sampled as Silty, fine to medium SAND (SM), brownish yellow (10YR 6/6), moist, very dense
249.7	22.4	16	24	47							918-8		252.1	20.0	Silty, fine SAND (SM), yellowish brown (10YR 5/8), moist, very dense, relict rock fabric (Residual Soil)
245.8	26.3	50/0.0									918-9		245.8	26.3	Hard Rock: Dark to light gray, moderately severe to slightly weathered, close to moderately close fracturing, soft to hard, BIOTITE-QUARTZ GNEISS
													207.0	65.1	Hard Rock: Light gray, fresh, moderately close to very wide fracturing, very hard, BIOTITE-QUARTZ GNEISS with trace magnetite

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TOTAL DEPTH 150.1 ft			DRILL MACHINE CME 45 Trailer					DRILLER: D. Rhodes					HAMMER TYPE 140 lbs Auto		
DATE STARTED 9/20/06			COMPLETED 9/27/06					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	
197.3					Continued from previous page										
													Hard Rock: Light gray, fresh, moderately close to very wide fracturing, very hard, BIOTITE-QUARTZ GNEISS with trace magnetite (continued)		
													167.0	Hard Rock: Light gray to gray, moderately severe to slightly weathered, very close to moderately close fracturing, medium hard to very hard, BIOTITE-QUARTZ GNEISS	105.1
													157.0	Hard Rock: Light gray, slightly weathered to fresh, close to very wide fracturing, very hard, BIOTITE-QUARTZ GNEISS	115.1

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TOTAL DEPTH 150.1 ft		DRILL MACHINE CME 45 Trailer				DRILLER: D. Rhodes				HAMMER TYPE 140 lbs Auto						
DATE STARTED 9/20/06				COMPLETED 9/27/06				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						
122.5					Continued from previous page											
															122.0	Boring and coring terminated at 150.1 ft in Hard Rock: Very hard, BIOTITE-QUARTZ GNEISS
															150.1	

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



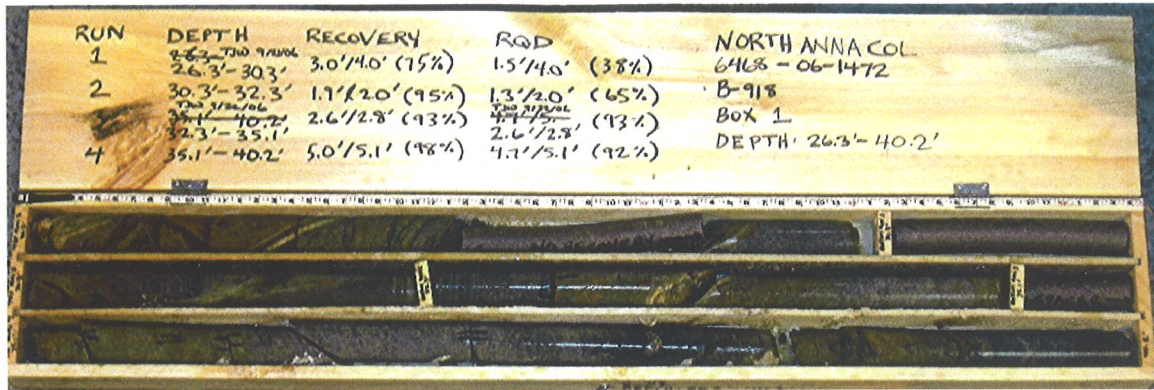
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SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)		
BORING NO. B-918		DRILL METHOD: Mud Rotary/Core				SAMPLE METHODS: SPT/CORE				0 HR. 4.4		
COLLAR ELEV. 272.1 ft (NAVD88)		NORTHING 3,910,115		US ft (NAD83)		EASTING 11,686,194		US ft (NAD83)		24 HR. 4.8		
TOTAL DEPTH 150.1 ft		DRILL MACHINE CME 45 Trailer				DRILLER: D. Rhodes			HAMMER TYPE 140 lbs Auto			
DATE STARTED 9/20/06				COMPLETED 9/27/06			CORE BARREL TYPE: HQ 3 triple tube-wireline					
CORE SIZE HQ3				TOTAL RUN 123.8 ft								
ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS		
				REC. (ft) %	RQD (ft) %		REC. (ft) %	RQD (ft) %				
										Begin Coring @ 26.3 ft		
245.8	26.3	4.0	N=50/0.0 7:59 5:47 0:50 7:00	(3.0) 75%	(1.5) 38%	1				245.8 Hard Rock: Dark to light gray, moderately severe to slightly weathered, close to moderately close fracturing, soft to hard, BIOTITE-QUARTZ GNEISS (4 joints at 60°; 3 joints at 45°)		
241.8	30.3	2.0	7:00	(1.9) 95%	(1.3) 65%	UC-31.7'				(3 joints at 60° with Fe stain)		
239.8	32.3	2.8	10:04 12:40	(2.6) 93%	(2.6) 93%	3				(1 joint at 60°; Quartz vein from 33.5-33.6 ft)		
237.0	35.1	5.1	5:54 5:45 7:45/0.8	(5.0) 98%	(4.7) 92%	UCS-37.1'				(1 joint at 60°, 3 joints at 40°, 1 joint at 20°)		
231.9	40.2	5.0	6:21 4:47 4:13 1:48 3:51/1.1	(5.0) 100%	(5.0) 100%	5				(1 joint at 60°; Quartz vein from 44.7-45.2 ft)		
226.9	45.2	5.0	3:44 3:12 3:48 3:13 3:40	(5.0) 100%	(4.7) 94%	6				(3 joints at 70°; Quartz+K-feldspar+biotite vein at 70° from 48.4-49.0 ft)		
221.9	50.2	5.0	2:52 2:56 2:34 2:42 3:00	(5.0) 100%	(5.0) 100%	UC-51.6'				(1 joint at 70°, 1 joint at 55°)		
216.9	55.2	5.0	2:33 2:21 2:21 2:18 1:55	(5.0) 100%	(4.2) 84%	8				(5 joints at 50°, 1 joint at 70°)		
211.9	60.2	4.9	1:53 1:50 1:38 1:42 2:15	(4.9) 100%	(4.9) 100%	UC-60.7'				(2 joints at 20°, 1 joint at 50°)		
207.0	65.1	4.0	4:24 3:13 3:43 3:48 3:57/0.9	(4.0) 100%	(4.0) 100%	10				207.0 Hard Rock: Light gray, fresh, moderately close to very wide fracturing, very hard, BIOTITE-QUARTZ GNEISS with trace magnetite -No Joints (1 joint at 50°)		
205.9	66.2	1.1	4:24/1.1	(1.1) 100%	(1.1) 100%	11				(2 joints at 75°)		
201.9	70.2	5.0	4:02 4:20 4:52 6:33	(5.0) 100%	(5.0) 100%	12				-No Joints		
196.9	75.2	5.0	5:53 12:48 35:12 2:28 3:05	(5.0) 100%	(5.0) 100%	13				-No Joints		
191.9	80.2	4.9	2:51 3:22 3:41 3:57 4:18	(4.9) 100%	(4.9) 100%	14				-No Joints		
187.0	85.1	5.0	4:08 6:33 8:08 13:19 7:05/0.9	(5.0) 100%	(5.0) 100%	UCS-88.1'				(1 joint at 20°)		
182.0	90.1	5.0	5:37 4:46 4:17 4:08 4:41	(5.0) 100%	(5.0) 100%	16				(1 joint at 40°; Quartz vein from 96.1-97.1 ft with trace pyrite)		
177.0	95.1	5.0	6:28 9:42 9:11 13:39 6:17	(5.0) 100%	(5.0) 100%	17				-No Joints		
172.0	100.1	5.0	9:21 10:14 12:12 8:10 8:23	(5.0) 100%	(5.0) 100%	18				(1 joint at 10°)		

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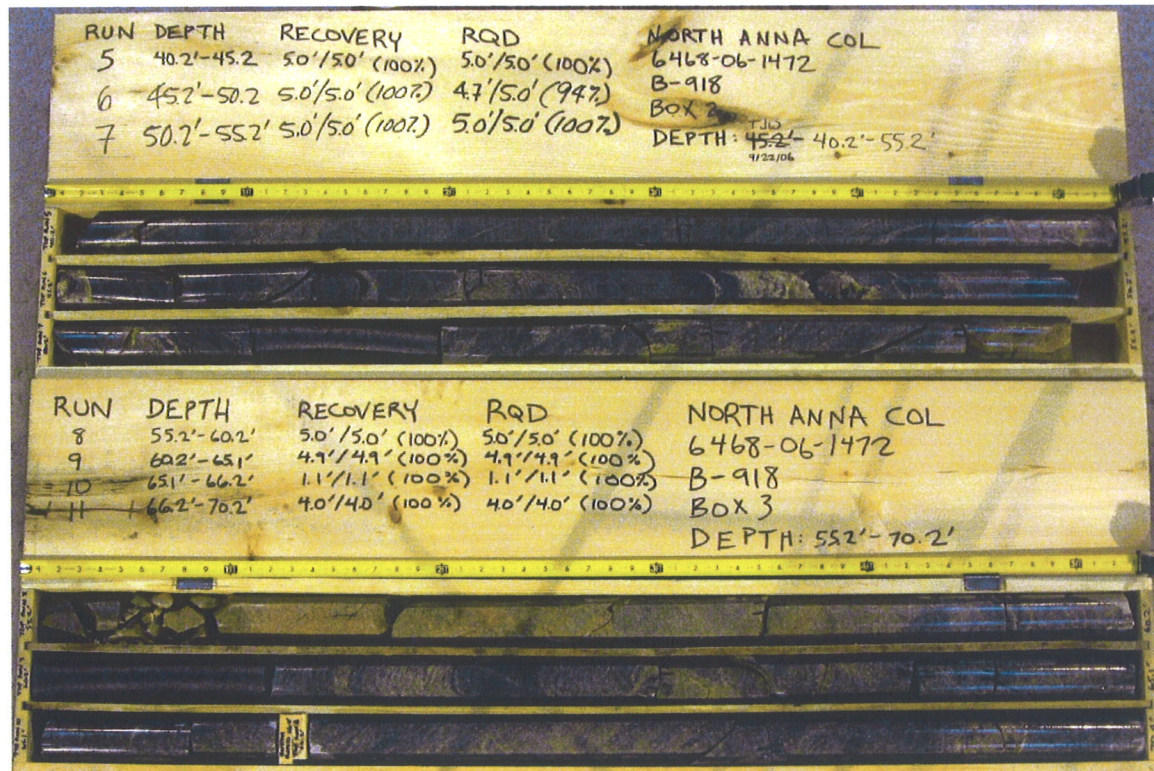


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TOTAL DEPTH 150.1 ft		DRILL MACHINE CME 45 Trailer				DRILLER: D. Rhodes			HAMMER TYPE 140 lbs Auto		
DATE STARTED 9/20/06			COMPLETED 9/27/06			CORE BARREL TYPE: HQ 3 triple tube-wireline					
CORE SIZE HQ3			TOTAL RUN 123.8 ft								
ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS	
				REC. (%)	RQD (%)		REC. (%)	RQD (%)			
										Continued from previous page	
167.0	105.1	5.0	8:59 14:24 23:56 8:00	100%	100%	19				Hard Rock: Light gray, fresh, moderately close to very wide fracturing, very hard, BIOTITE-QUARTZ GNEISS with trace magnetite (continued)	
162.0	110.1	5.0	7:19 7:03 12:11 15:59 12:44	100%	80%	20				Hard Rock: Light gray to gray, moderately severe to slightly weathered, very close to moderately close fracturing, medium hard to very hard, BIOTITE-QUARTZ GNEISS (8 joints at 30°)	
157.0	115.1	5.0	4:46 2:46 3:01 3:30 3:51	98%	32%	20				(13 joints at 30°; 2 joints at 70°)	
152.0	120.1	5.0	4:15 4:33 5:14 4:41 4:48	100%	100%	21				Hard Rock: Light gray, slightly weathered to fresh, close to very wide fracturing, very hard, BIOTITE-QUARTZ GNEISS (1 joint at 70°)	
147.1	125.0	4.9	4:49 5:10 5:11 5:58 3:22/0.9	100%	100%	UC-122.0'				-No Joints	
142.0	130.1	5.1	6:16 4:34 4:55 3:12 8:20/1.1	100%	98%	23				(3 joints at 30°)	
137.0	135.1	5.0	4:59 3:59 3:29 3:28 2:50	100%	88%	24				(2 joints at 60°; 3 joints at 20-30°)	
132.0	140.1	5.0	3:51 3:41 3:41 4:25 5:39	100%	100%	25				(Quartz+K-feldspar vein at 60° from 136.0-136.1 ft)	
127.0	145.1	5.0	7:31 9:54 6:42 6:44 8:40	100%	100%	26				-No Joints	
122.0	150.1	5.0	4:51 5:36 6:32 8:23 9:19	100%	100%	27				-No Joints	
										Coring terminated at 150.1 ft in Hard Rock: Very hard, BIOTITE-QUARTZ GNEISS	

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B-918 - Box 1



B-918 - Box 2

B-918 - Box 3



B-918 - Box 4  
B-918 - Box 5



B-918 - Box 6  
B-918 - Box 7



B-918 - Box 8  
B-918 - Box 9