



MACTEC PROJECT NO.: 6468-06-1472				COUNTY Louisa, VA				GEOLOGIST S.Lehman								
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)						
BORING NO. B-904		DRILL METHOD: Rotary Wash/Core				SAMPLE METHODS: SPT/CORE				0 HR. 22.3						
COLLAR ELEV. 316.8 ft (NAVD88)		NORTHING 3,909,692		US ft (NAD83)		EASTING 11,685,970		US ft (NAD83)		24 HR. 22.7						
TOTAL DEPTH 151.7 ft		DRILL MACHINE CME 55LC Track				DRILLER: D. White				HAMMER TYPE 140 lbs Auto						
DATE STARTED 9/19/06		COMPLETED 9/22/06				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			
316.8					Ground Surface							316.8	0.0			
315.3	1.5										904-1		Clayey SILT (ML), strong brown (7.5YR 4/6), moist, stiff, trace sand			
313.3	3.5	3	5	7							904-2		Silty, fine SAND (SM), yellowish brown (10YR 5/8), light olive brown (2.5Y 5/6), olive brown (2.5Y 4/3), and dark olive brown (2.5Y 3/3), dry to moist, medium dense, clayey, micaceous, relict rock fabric (Residual Soil)	313.8	3.0	
310.8	6.0	4	7	7							904-3					
308.3	8.5	4	7	6							904-4					
305.8	11.0	4	5	6							904-5					
303.3	13.5	4	6	7							904-6					
298.8	18.0	4	6	6							904-7					
293.8	23.0	4	5	8							904-8			Sandy SILT (ML), dark olive brown (2.5Y 3/3), moist, very stiff, micaceous, relict rock fabric (Residual Soil)	295.8	21.0
288.8	28.0	5	7	22							904-9			Weathered Rock: Strong brown (7.5YR 4/6), olive brown (2.5Y 4/6), dark greenish gray (GLE Y1 4/5G), yellowish brown (10YR 5/6), and dark grayish brown (2.5Y 4/2), sampled as moist to wet, very dense, silty fine to medium SAND (SM) and hard, sandy SILT (ML)-severely weathered, QUARTZ GNEISS	288.3	28.5
283.8	33.0	31	50/0.2								904-10					
278.8	38.0	40	46	49							904-11					
273.8	43.0	16	50/0.5								904-12					
268.8	48.0	29	50/0.4								904-13					
265.1	51.7	50/0.2									904-14					
260.1	56.7	50/0.2									904-15					
255.1	61.7	50/0.1									904-16					
250.1	66.7	50/0.3									904-17					
245.1	71.7	50/0.2									904-18					
		50/0.1													245.0	71.8

NORTH ANNA COL BURE 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-904		DRILL METHOD: Rotary Wash/Core				SAMPLE METHODS: SPT/CORE				0 HR. 22.3					
COLLAR ELEV. 316.8 ft (NAVD88)		NORTHING 3,909,692		US ft (NAD83)		EASTING 11,685,970		US ft (NAD83)		24 HR. 22.7					
TOTAL DEPTH 151.7 ft		DRILL MACHINE CME 55LC Track				DRILLER: D. White				HAMMER TYPE 140 lbs Auto					
DATE STARTED 9/19/06			COMPLETED 9/22/06			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					
241.9					Continued from previous page										
													240.1	Hard Rock: Light to dark gray with orange Fe staining, moderately severe to moderately weathered, closely fractured, medium to moderately hard, QUARTZ-BIOTITE GNEISS	76.7
													237.6	(continued) Weathered Rock: No recovery-QUARTZ-BIOTITE GNEISS	79.2
														Hard Rock: Light to dark gray with orange Fe staining, moderately to slightly weathered, close to moderately close fracturing, moderately hard to hard, QUARTZ GNEISS with biotite	
													205.1	Hard Rock: Light to dark gray, moderately weathered to fresh, close to wide fracturing, moderately hard to hard, QUARTZ-BIOTITE GNEISS with trace pyrite	111.7

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COLLAR ELEV. 316.8 ft (NAVD88)		NORTHING 3,909,692		US ft (NAD83)		EASTING 11,685,970		US ft (NAD83)		24 HR. 22.7					
TOTAL DEPTH 151.7 ft		DRILL MACHINE CME 55LC Track				DRILLER: D. White				HAMMER TYPE 140 lbs Auto					
DATE STARTED 9/19/06			COMPLETED 9/22/06			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	
167.1					Continued from previous page										
													165.1	151.7	Boring and coring terminated at 151.7 ft in Hard Rock: Hard QUARTZ-BIOTITE GNEISS

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BORING NO. B-904		DRILL METHOD: Rotary Wash/Core				SAMPLE METHODS: SPT/CORE				0 HR. 22.3	
COLLAR ELEV. 316.8 ft (NAVD88)		NORTHING 3,909,692		US ft (NAD83)		EASTING 11,685,970		US ft (NAD83)		24 HR. 22.7	
TOTAL DEPTH 151.7 ft		DRILL MACHINE CME 55LC Track				DRILLER: D. White				HAMMER TYPE 140 lbs Auto	
DATE STARTED 9/19/06				COMPLETED 9/22/06				CORE BARREL TYPE: HQ 3 triple tube-wireline			
CORE SIZE HQ3				TOTAL RUN 102.6 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 @ 48.2 ft	
268.6	48.2	3.5	2:02	(0.0)	(0.0)	1				Weathered Rock: Strong brown (7.5YR 4/6), olive brown (2.5Y 4/6), dark greenish gray (GLE1 4/5G), yellowish brown (10YR 5/6), and dark grayish brown (2.5Y 4/2), sampled as moist to wet, very dense, silty fine to medium SAND (SM) and hard, sandy SILT (ML)-severely weathered, QUARTZ GNEISS (continued) -No Recovery -No Recovery	
265.1	51.7		2:05								
264.9	51.9	4.8	0:46/0.5	(0.0)	(0.0)	904-14				-No Recovery	
			1:43/0.8	0%	0%	2					
260.1	56.7		2:00							-No Recovery	
260.0	56.8	4.9	2:11	(0.0)	(0.0)	904-15					
			2:01							-No Recovery	
			1:46			3					
255.1	61.7		2:05							-Recovered 0.2 ft of Hard Rock: Light Brownish gray, moderately severe weathering, moderately hard, QUARTZ GNEISS with biotite	
254.8	62.0	4.7	1:41	(0.2)	(0.0)	904-16					
			1:18	4%	0%	4				-No Recovery	
			1:35								
250.1	66.7		2:04/0.9	(0.0)	(0.0)	904-17				-No Recovery	
249.9	66.9	4.8	1:25	0%	0%	5					
			1:20							Hard Rock: Light to dark gray with orange Fe staining, moderately severe to moderately weathered, closely fractured, medium to moderately hard, QUARTZ-BIOTITE GNEISS (1 joint at 60°, 2 joints at 45°, and 2 joints at 20°-all weathered with Fe staining)	
245.1	71.7		1:40								
245.0	71.8	4.9	2:32/0.8	(3.5)	(2.1)	904-18				71.8	
			1:55	71%	43%	6					
240.1	76.7		2:40							76.7	
			2:46								
237.6	79.2	2.5	1:53/0.9	(0.0)	(0.0)	7				79.2	
			1:37	0%	0%						
235.1	81.7	2.5	4:08	(2.5)	(1.3)	8				Hard Rock: Light to dark gray with orange Fe staining, moderately to slightly weathered, close to moderately close fracturing, moderately hard to hard, QUARTZ GNEISS with biotite (1 joint at 60° with clay; 2 joints at 45° and 2 joints at 20° with weathering and Fe staining) (1 joint at 60° weathered with Fe staining; 2 joints at 30° weathered with Fe stain; 1 joint at 20° with slight weathering)	
			2:55/0.5	100%	52%						
		5.0	1:18/0.5	(5.0)	(4.2)	9				(1 joint at 45° and 5 joints at 20° all slightly weathered and Fe stained)	
			2:12	100%	84%						
230.1	86.7		2:21							(1 joint at 60°, 1 joint at 45°, and 1 joint at 30° -all with weathering and Fe staining)	
			3:02								
		5.0	3:29	(5.0)	(3.9)	10				(1 joint at 60°, 1 joint at 45°, and 1 joint at 30° -all with weathering and Fe staining)	
			3:03	100%	78%						
225.1	91.7		3:33							(1 joint at 60°, 1 joint at 45°, and 1 joint at 30° -all with weathering and Fe staining)	
			3:01								
		5.0	3:35	(4.8)	(4.8)	11				(1 joint at 60°, 1 joint at 45°, and 1 joint at 30° -all with weathering and Fe staining)	
			3:20	96%	96%						
220.1	96.7		3:29							(1 joint at 75°, 2 joints at 60°, and 2 joints at 30° -all with weathering and Fe staining)	
			3:17								
		5.0	2:29	(4.8)	(4.0)	12				(1 joint at 75°, 2 joints at 60°, and 2 joints at 30° -all with weathering and Fe staining)	
			2:40	96%	80%						
215.1	101.7		2:22							(2 joints at 60°, 1 joint at 30°, and 1 joint at 20° -all with weathering and Fe stain)	
			2:39								
		5.0	2:36	(4.6)	(4.3)	13				(2 joints at 60°, 1 joint at 30°, and 1 joint at 20° -all with weathering and Fe stain)	
			2:26	92%	86%						
210.1	106.7		2:29							(2 joints at 70° slightly weathered, trace clay and Fe staining)	
			2:58								
		5.0	3:18	(5.0)	(5.0)	14				(2 joints at 70° slightly weathered, trace clay and Fe staining)	
			3:03	100%	100%						
		5.0	3:11							205.1	
			3:09								
205.1	111.7		2:32	(4.0)	(3.8)	15				Hard Rock: Light to dark gray, moderately weathered to fresh, close to wide fracturing, moderately hard to hard, QUARTZ-BIOTITE GNEISS with trace pyrite (2 joints at 45° weathered and Fe stained) (1 joint at 45° and 1 joint at 30° with weathering and Fe staining)	
			2:33	80%	76%						
		5.0	2:34							(1 joint at 45° and 1 joint at 30° with weathering and Fe staining)	
			2:31								
200.1	116.7		2:37	(4.3)	(3.9)	16				(2 joints at 45° with weathering and Fe staining)	
			2:10	86%	78%						
		5.0	2:01							(2 joints at 45° with weathering and Fe staining)	
			3:13								
195.1	121.7		2:44							(2 joints at 45° with weathering and Fe staining)	
			2:11								
		5.0	2:13	(5.0)	(4.7)	17				(2 joints at 45° with weathering and Fe staining)	
			2:30								
		5.0	2:13							(2 joints at 45° with weathering and Fe staining)	
			2:14								

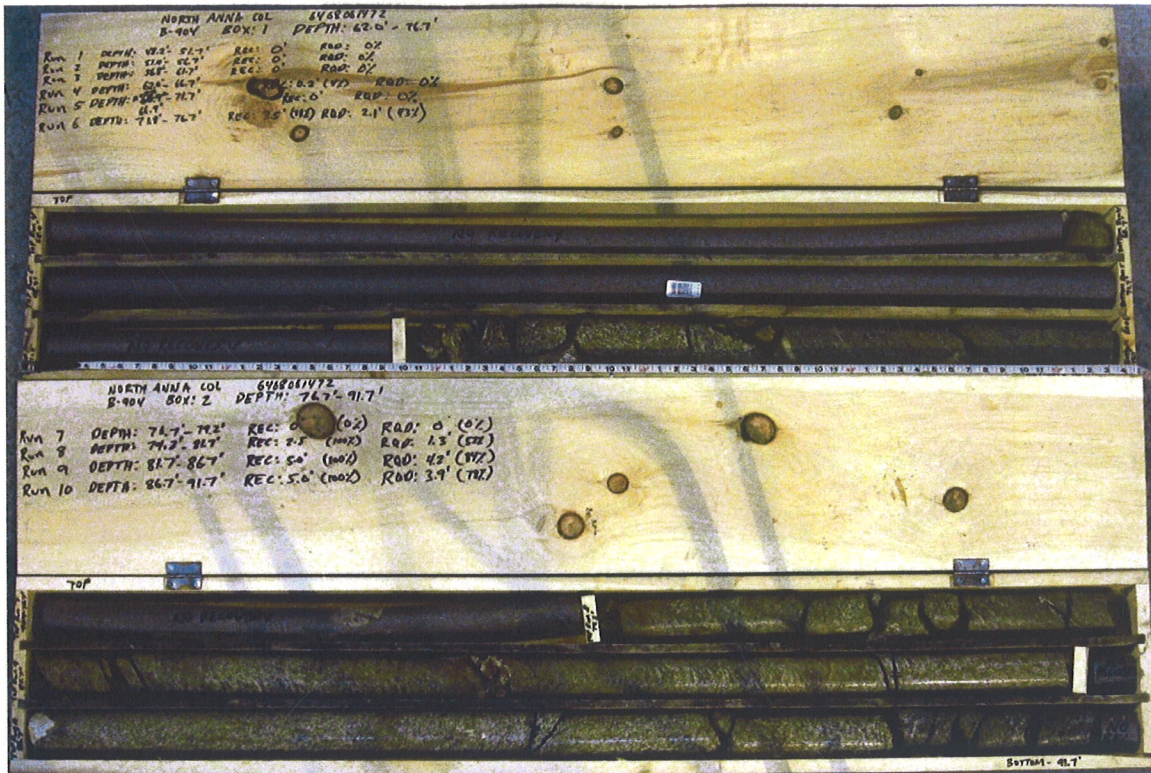
NORTH ANNA COL CORE REPORT REV0.GPJ NORTH ANNA COL.GDT 1/19/07



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SITE DESCRIPTION NORTH ANNA COL								GROUND WATER (ft)			
BORING NO. B-904		DRILL METHOD: Rotary Wash/Core				SAMPLE METHODS: SPT/CORE				0 HR. 22.3	
COLLAR ELEV. 316.8 ft (NAVD88)		NORTHING 3,909,692		US ft (NAD83)		EASTING 11,685,970		US ft (NAD83)		24 HR. 22.7	
TOTAL DEPTH 151.7 ft		DRILL MACHINE CME 55LC Track				DRILLER: D. White				HAMMER TYPE 140 lbs Auto	
DATE STARTED 9/19/06				COMPLETED 9/22/06				CORE BARREL TYPE: HQ 3 triple tube-wireline			
CORE SIZE HQ3				TOTAL RUN 102.6 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) %		
			2:22 2:30 2:44 2:34	100%	94%					Continued from previous page
190.1	126.7	5.0	2:22 2:42 2:17 2:48 2:34	(5.0) 100%	(4.5) 90%	18				Hard Rock: Light to dark gray, moderately weathered to fresh, close to wide fracturing, moderately hard to hard, QUARTZ-BIOTITE GNEISS with trace pyrite (continued) (1 joint at 70° with weathering; 2 joints at 45° and 4 joints at 20-30° with weathering and Fe staining)
185.1	131.7	5.0	2:39 2:49 3:05 3:05 2:35	(5.0) 100%	(4.2) 84%	19				(1 joint at 80°; 1 joint at 45°; 2 joints at 30°)
180.1	136.7	5.0	3:44 2:43 2:43 3:22 2:37	(4.9) 98%	(4.8) 96%	20				-No Joints
175.1	141.7	5.0	2:57 3:53 3:34 3:52 2:59	(4.8) 96%	(4.6) 92%	21				(3 joints at 45° with weathering; 2 joints at 30° with weathering and clay)
170.1	146.7	5.0	2:35 3:11 3:25 3:09 3:16	(5.0) 100%	(4.8) 96%	22				-No Joints
165.1	151.7									165.1 151.7 Coring terminated at 151.7 ft in Hard Rock: Hard QUARTZ-BIOTITE GNEISS

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B-904 – Box 1  
B-904 – Box 2



B-904 – Box 3  
B-904 – Box 4



B-904 – Box 5

B-904 – Box 6