



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.	DEPTH	BLOW COUNT			BLOWS PER FOOT					SAMP.	▼	L	SOIL AND ROCK DESCRIPTION				
(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	20	40	60	80	100	NO.	MOI				O	G
316.8					Ground Surface										316.8	0.0	
315.3	1.5										904-1				313.8	3.0	
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)	
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				295.8	21.0	
288.8	28.0	5	7	22							904-9					Sandy SILT (ML), dark olive brown (2.5Y 3/3), moist, very stiff, micaceous, relict rock fabric (Residual Soil)	
283.8	33.0	31	50/0.2								904-10				288.3		28.5
278.8	38.0	40	46	49							904-11						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
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		50/0.1								904-15						
255.1	61.7		50/0.3								904-16						
250.1	66.7		50/0.2								904-17						
245.1	71.7		50/0.1								904-18				245.0		

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



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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							
ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	
		0.5ft	0.5ft	0.5ft	0	20	40	60	80	100	MOI		
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) 79.2
													Weathered Rock: No recovery-QUARTZ-BIOTITE GNEISS
													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
													205.1 111.7
													Hard Rock: Light to dark gray, moderately weathered to fresh, close to wide fracturing, moderately hard to hard, QUARTZ-BIOTITE GNEISS with trace pyrite

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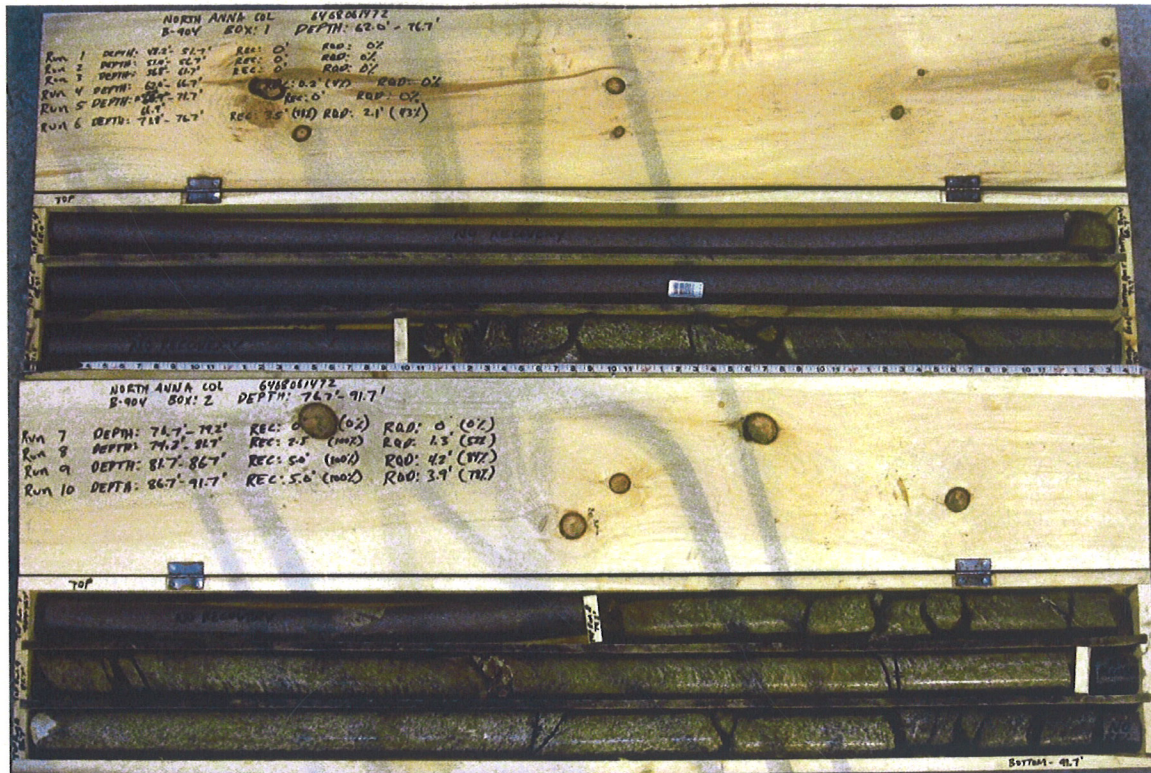
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SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)		
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COLLAR ELEV. 316.8 ft (NAVD88)			NORTHING 3,909,692		US ft (NAD83)		EASTING 11,685,970		US ft (NAD83)		24 HR. 22.7	
TOTAL DEPTH 151.7 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					
CORE SIZE HQ3				TOTAL RUN 102.6 ft								
ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN ROD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA ROD (ft) %	L O G	DESCRIPTION AND REMARKS		
										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 (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 (continued) -No Recovery -No Recovery		
265.1	51.7		2:02	0%	0%							
264.9	51.9	4.8	0:46/0.5 N=50/0.2 1:43/0.8 2:00 2:11 2:01 1:46 N=50/0.1	(0.0)	(0.0)	904-14 2						
260.1	56.7		2:05							-No Recovery		
260.0	56.8	4.9	2:05 1:41 1:18 1:35	(0.0)	(0.0)	904-15 3						
255.1	61.7		2:04/0.9 N=50/0.3	(0.2)	(0.0)	904-16 4						
254.8	62.0	4.7	1:25 1:20 1:40 2:09	4%	0%					-Recovered 0.2 ft of Hard Rock: Light Brownish gray, moderately severe weathering, moderately hard, QUARTZ GNEISS with biotite		
250.1	66.7		2:24/0.7 N=50/0.2	(0.0)	(0.0)	904-17 5						
249.9	66.9	4.8	2:21 2:13 2:07 2:01 2:32/0.8 N=50/0.1	(0.0)	(0.0)							
245.1	71.7		1:55 2:40 2:46 2:42 1:53/0.9	(3.5)	(2.1)	904-18 6				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)		
245.0	71.8	4.9	1:37 4:08 2:55/0.5 1:18/0.5 2:12 2:21 3:02 3:29 3:03	71%	43%							
240.1	76.7	2.5	3:27 3:33 3:01 3:35 3:20 3:29 3:17 2:29 2:37 2:41 2:38	(0.0)	(0.0)	7						
237.6	79.2	2.5	2:42	(0.0)	(0.0)	8				Weathered Rock: No recovery-QUARTZ-BIOTITE GNEISS -No Recovery		
235.1	81.7	5.0	2:42	(2.5)	(1.3)							
230.1	86.7	5.0	1:37 4:08 2:55/0.5 1:18/0.5 2:12 2:21 3:02 3:29 3:03	100%	52%	9						
225.1	91.7	5.0	3:27 3:33 3:01 3:35 3:20 3:29 3:17 2:29 2:37 2:41 2:38	(5.0)	(4.2)	10				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) (1 joint at 45° and 5 joints at 20° all slightly weathered and Fe stained)		
220.1	96.7	5.0	3:27 3:33 3:01 3:35 3:20 3:29 3:17 2:29 2:37 2:41 2:38	(5.0)	(3.9)	11						
215.1	101.7	5.0	3:27 3:33 3:01 3:35 3:20 3:29 3:17 2:29 2:37 2:41 2:38	(4.8)	(4.8)	12						
210.1	106.7	5.0	2:26 2:40 2:22 2:39 2:36 2:26	(4.8)	(4.0)	13				(1 joint at 60°, 1 joint at 45°, and 1 joint at 30° -all with weathering and Fe staining)		
205.1	111.7	5.0	2:26 2:40 2:22 2:39 2:36 2:26	(4.6)	(4.3)	14						
200.1	116.7	5.0	2:29 2:58 3:18 3:03 3:11	(5.0)	(5.0)	15						
195.1	121.7	5.0	3:09 2:32 2:33 2:34 2:31	(4.0)	(3.8)	16				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)		
		5.0	2:37 2:10 2:01 3:13 2:44	(4.3)	(3.9)	17						
		5.0	2:11 2:13 2:15 2:30 2:13	(5.0)	(4.7)							

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



SHEET 2 OF 2

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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 REC. (ft) %		RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %		RQD (ft) %	L O G	DESCRIPTION AND REMARKS	
												Continued from previous page	
190.1	126.7		2:22 2:30 2:44 2:34	100%	94%							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)	
		5.0	2:22 2:42 2:17 2:48 2:34	(5.0) 100%	(4.5) 90%	18						(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												
												Coring terminated at 151.7 ft in Hard Rock: Hard QUARTZ-BIOTITE GNEISS	



B-904 – Box 1

B-904 – Box 2



B-904 – Box 3

B-904 – Box 4



B-904 – Box 5

B-904 – Box 6