



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.	MOI	LOG	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									313.8	3.0		
313.3		4	7	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										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					
		4	6	6												
298.8	18.0										904-7				Sandy SILT (ML), dark olive brown (2.5Y 3/3), moist, very stiff, micaceous, relict rock fabric (Residual Soil)	
		4	5	8									295.8	21.0		
293.8	23.0	5	7	22							904-8				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	
288.8	28.0	31	50/0.2								904-9			288.3		28.5
283.8	33.0	40	46	49							904-10					
278.8	38.0	16	50/0.5								904-11					
273.8	43.0	29	50/0.4								904-12					
268.8	48.0										904-13					
265.1	51.7										904-14					
260.1	56.7										904-15					
255.1	61.7										904-16					
250.1	66.7										904-17					
245.1	71.7										904-18			245.0	71.8	

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



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	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

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



MACTEC PROJECT NO.: 6468-06-1472					COUNTY Louisa, VA					GEOLOGIST S. Lehman						
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft) 0 HR. 22.3 24 HR. 22.7						
BORING NO. B-904		DRILL METHOD: Rotary Wash/Core			SAMPLE METHODS: SPT/CORE											
COLLAR ELEV. 316.8 ft (NAVD88)		NORTHING 3,909,692		US ft (NAD83)		EASTING 11,685,970		US ft (NAD83)								
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

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



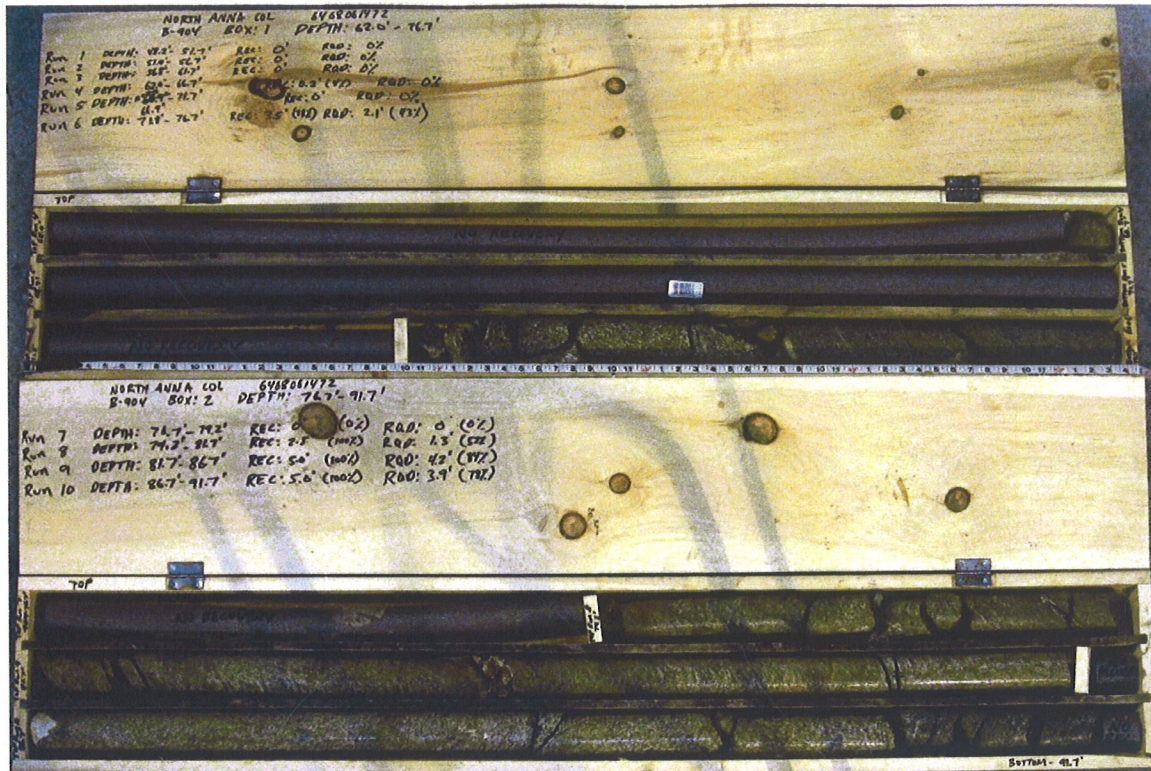
MACTEC PROJECT NO.: 6468-06-1472							COUNTY Louisa, VA			GEOLOGIST S.Lehman		
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)		
BORING NO. B-904			DRILL METHOD: Rotary Wash/Core				SAMPLE METHODS: SPT/CORE			0 HR. 22.3		
COLLAR ELEV. 316.8 ft (NAVD88)			NORTHING 3,909,692		US ft (NAD83)		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					
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		
										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		2:02	0%	0%							
264.9	51.9	4.8	2:05	(0.0)	(0.0)	904-14						
			0:46/0.5	0%	0%	2						
			N=50/0.2									
			1:43/0.8									
			2:00									
			2:11									
260.1	56.7		2:01									
260.0	56.8	4.9	1:46	(0.0)	(0.0)	904-15				-No Recovery		
			N=50/0.1	0%	0%	3						
			2:05									
			1:41									
			1:18									
255.1	61.7		1:35									
			2:04/0.9	(0.2)	(0.0)	904-16				-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	N=50/0.3	4%	0%	4						
			1:25									
			1:20									
250.1	66.7		1:40									
249.9	66.9	4.8	2:09	(0.0)	(0.0)	904-17				-No Recovery		
			2:24/0.7	0%	0%	5						
			N=50/0.2									
			2:21									
			2:13									
245.1	71.7		2:07									
245.0	71.8	4.9	2:01	(3.5)	(2.1)	904-18				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)		
			2:32/0.8	71%	43%	6						
			N=50/0.1									
			1:55									
240.1	76.7		2:40									
		2.5	2:46	(0.0)	(0.0)	7				Weathered Rock: No recovery-QUARTZ-BIOTITE GNEISS -No Recovery		
237.6	79.2		2:42	0%	0%							
			1:53/0.9									
		2.5	1:37	(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) (1 joint at 45° and 5 joints at 20° all slightly weathered and Fe stained)		
235.1	81.7		4:08	100%	52%							
		5.0	2:55/0.5	(5.0)	(4.2)	9						
			1:18/0.5	100%	84%							
			2:12									
			2:21									
230.1	86.7		3:02	(5.0)	(3.9)	10				(1 joint at 45° and 5 joints at 20° all slightly weathered and Fe stained)		
		5.0	3:29	100%	78%							
			3:03									
			3:27									
			3:33									
			3:01									
			3:35									
225.1	91.7		3:20	(4.8)	(4.8)	11				(1 joint at 60°, 1 joint at 45°, and 1 joint at 30° -all with weathering and Fe staining)		
		5.0	3:29	96%	96%							
			3:17									
			2:29									
			2:37									
220.1	96.7		2:41	(4.8)	(4.0)	12				(1 joint at 75°, 2 joints at 60°, and 2 joints at 30° -all with weathering and Fe staining)		
		5.0	2:38	96%	80%							
			2:26									
			2:40									
			2:22									
215.1	101.7		2:39	(4.6)	(4.3)	13				(2 joints at 60°, 1 joint at 30°, and 1 joint at 20° -all with weathering and Fe stain)		
		5.0	2:36	92%	86%							
			2:26									
			2:29									
			2:58									
			3:18									
			3:03									
210.1	106.7		3:11	(5.0)	(5.0)	14				(2 joints at 70° slightly weathered, trace clay and Fe staining)		
		5.0	3:09	100%	100%							
			2:32									
			2:33									
			2:34									
205.1	111.7		2:31	(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)		
		5.0	2:37	80%	76%							
			2:10									
			2:01									
			3:13									
200.1	116.7		2:44	(4.3)	(3.9)	16				(1 joint at 45° and 1 joint at 30° with weathering and Fe staining)		
		5.0	2:11	86%	78%							
			2:13									
			2:15									
			2:30									
			2:13									
195.1	121.7			(5.0)	(4.7)	17				(2 joints at 45° with weathering and Fe staining)		
		5.0	2:14									

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



SHEET 2 OF 2

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					
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												
												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