



SHEET 1 OF 1

MACTEC PROJECT NO.: 6468-06-1472				COUNTY Louisa, VA				GEOLOGIST S.Lehman					
SITE DESCRIPTION NORTH ANNA COL								GROUND WATER (ft)					
BORING NO. B-921		DRILL METHOD: Mud Rotary			SAMPLE METHODS: SPT			0 HR. ND					
COLLAR ELEV. 308.0 ft (NAVD88)		NORTHING 3,909,680		US ft (NAD83)		EASTING 11,686,163		US ft (NAD83)		24 HR. ND			
TOTAL DEPTH 73.9 ft		DRILL MACHINE CME 55LC Track			DRILLER: D. White			HAMMER TYPE 140 lbs Auto					
DATE STARTED 9/8/06		COMPLETED 9/8/06			CORE BARREL TYPE: NA								
ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	L O G	SOIL AND ROCK DESCRIPTION
		0.5ft	0.5ft	0.5ft	0	20	40	60	80	100			
308.0					Ground Surface								308.0 0.0
306.5	1.5	6	6	5	11					921-1			Silty, fine to coarse SAND (SM), olive brown (2.5Y 4/3) to light olive brown (2.5Y 5/3), dry to moist, medium dense to loose, clayey (Fill)
304.5	3.5	4	3	2	5					921-2			
302.0	6.0	2	4	5	9					921-3			Sandy CLAY (CL), olive (5Y 4/2), moist, medium stiff, contains organic debris (Residual Soil)
299.5	8.5	2	3	4	7					921-4			299.5 8.5
297.0	11.0	3	4	5	9					921-5			Silty SAND (SM), olive yellow (5Y 6/6), light olive brown (2.5Y 5/4) to olive brown (2.5Y 4/4), moist to wet, loose to medium dense, micaceous, relict rock fabric (Residual Soil)
294.5	13.5	2	3	4	7					921-6			
289.2	18.8	3	3	4	7					921-7			
284.2	23.8	3	4	6	10					921-8			
279.2	28.8	9	9	10	19					921-9			
274.2	33.8	7	9	11	20					921-10			
269.2	38.8	8	12	23	35					921-11			Silty, fine SAND (SM), very dark grayish brown (2.5Y 3/2), moist, dense to very dense, strong rock fabric (Residual Soil)
264.2	43.8	22	24	35	59					921-12			
259.2	48.8	50/0.1								921-13			260.0 48.0
254.2	53.8	50/0.3								921-14			Weathered Rock: Very dark grayish brown (2.5Y 3/2), dry, very dense, severely weathered, soft, BIOTITE GNEISS
249.2	58.8	41	50/0.4							921-15			
244.2	63.8	25	35	35	70					921-16			246.5 61.5
239.2	68.8	28	50/0.4							921-17			Silty, fine SAND (SM), black (2.5Y 2.5/1) to strong brown (7.5YR 5/6), moist, very dense, strong rock fabric (Residual Soil)
234.2	73.8	50/0.1								921-18			241.5 66.5
													Weathered Rock: Strong brown (7.5YR 5/6) with black and white, moist, very dense, severely weathered, BIOTITE GNEISS
													236.2 71.8
													Hard Rock: Black to very dark gray, mod. severely weathered, hard, BIOTITE GNEISS
													234.1 73.9

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

Boring terminated at 73.9 ft in Hard Rock: Moderately hard, QUARTZ-BIOTITE GNEISS



SHEET 1 OF 1

MACTEC PROJECT NO.: 6468-06-1472				COUNTY Louisa, VA				GEOLOGIST J. LAchewitz/M. Lear								
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)						
BORING NO. B-921A		DRILL METHOD: Mud Rotary				SAMPLE METHODS: UD/PITCHER BARREL				0 HR. ND						
COLLAR ELEV. 307.4 ft (NAVD88)		NORTHING 3,909,687		US ft (NAD83)		EASTING 11,686,162		US ft (NAD83)		24 HR. ND						
TOTAL DEPTH 40.4 ft		DRILL MACHINE CME 550 ATV				DRILLER: F. Cox				HAMMER TYPE NA						
DATE STARTED 10/26/06		COMPLETED 10/27/06				CORE BARREL TYPE: NA										
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						
307.4					Ground Surface								307.4	0.0		
															No samples due to utility clearance operations- soft dig/ vac. truck excavation	
297.4	10.0										921A-UD-1			299.4	8.0	Silty, fine to coarse SAND (SM), dark gray, dark green, and white, moist, relict rock fabric
292.9	14.5										921A-UD-2					921A-UD-1: Push from 10.0-12.0 ft; push pressure=900-1300 psi; recovery=0.9 ft
287.9	19.5										921A-UD-3					921A-UD-2: Push from 14.5-16.3 ft; push pressure=1200-1500 psi; recovery=1.7 ft
282.9	24.5										921A-UD-4					921A-UD-3: Push from 19.5-21.5 ft; push pressure=1200-1300 psi; recovery=1.8 ft
277.9	29.5										921A-UD-5					921A-UD-4: Push from 24.5-26.3 ft; push pressure=1200-1500 psi; recovery=1.8 ft
272.4	35.0										921A-PB-1					921A-UD-5: Push from 29.5-20.7 ft; push pressure=1300-1700 psi/weight of rig; recovery=0.9 ft; end of tube damaged-sample not retained for testing
267.4	40.0										921A-PB-2					-Attempted shelly tube at 34.5 (refused)
																921A-PB-1: Advanced from 35.0-35.5 ft (Refused); recovery=0.5 ft
																921A-PB-2: Advanced from 40.0-40.4 ft (Refused); recovery=0.4 ft-sample not retained/not enough sample for testing
																Boring terminated at 40.4 ft in Weathered Rock: QUARTZ-BIOTITE GNEISS

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



SHEET 1 OF 1

MACTEC PROJECT NO.: 6468-06-1472				COUNTY Louisa, VA				GEOLOGIST J. Howard/S. Lehman							
SITE DESCRIPTION NORTH ANNA COL								GROUND WATER (ft)							
BORING NO. B-922		DRILL METHOD: Mud Rotary/Core				SAMPLE METHODS: SPT/CORE				0 HR. ND					
COLLAR ELEV. 271.3 ft (NAVD88)		NORTHING 3,909,944		US ft (NAD83)		EASTING 11,686,233		US ft (NAD83)		24 HR. ND					
TOTAL DEPTH 26.5 ft		DRILL MACHINE CME 55LC Track				DRILLER: D. White				HAMMER TYPE 140 lbs Auto					
DATE STARTED 9/29/06		COMPLETED 10/2/06				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					
271.3					Ground Surface								271.3	0.0	
269.8	1.5										922-1			Silty SAND (SM), pink (7.5YR 7/4) and reddish yellow (7.5YR 6/8), dry, medium dense to very dense, relict rock fabric (Residual Soil)	
267.5	3.8	3	2	15							922-2				265.0 6.3 Weathered Rock: Orange gray, severely weathered, BIOTITE-QUARTZ GNEISS
265.5	5.8	23	26	28							922-3				
262.5	8.8	25	50/0.3								922-4				
260.1	11.2	50/0.3									922-5				
		50/0.1									257.3	14.0	Hard Rock: Tan gray, moderately to very slightly weathered, close to moderately close fracturing, medium hard to hard, BIOTITE-QUARTZ GNEISS		
											244.8	26.5			
												Boring and coring terminated at 26.5 ft in Hard Rock: Hard, BIOTITE-QUARTZ GNEISS Boring abandoned at 26.5 ft due to rig in contact with underground electrical utility energizing rig.			



SHEET 1 OF 1

MACTEC PROJECT NO.: 6468-06-1472							COUNTY Louisa, VA			GEOLOGIST J. Howard/S. Lehman		
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)		
BORING NO. B-922		DRILL METHOD: Mud Rotary/Core				SAMPLE METHODS: SPT/CORE				0 HR. ND		
COLLAR ELEV. 271.3 ft (NAVD88)		NORTHING 3,909,944		US ft (NAD83)		EASTING 11,686,233		US ft (NAD83)		24 HR. ND		
TOTAL DEPTH 26.5 ft		DRILL MACHINE CME 55LC Track				DRILLER: D. White				HAMMER TYPE 140 lbs Auto		
DATE STARTED 9/29/06				COMPLETED 10/2/06				CORE BARREL TYPE: HQ 3 triple tube-wireline				
CORE SIZE HQ3				TOTAL RUN 15.2 ft								
ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %		RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %		RQD (ft) %	LOG	DESCRIPTION AND REMARKS
												Begin Coring @ 11.3 ft
260.0	11.3	5.2	1:15 2:00 1:30 1:15 1:45/1.2	(2.5) 48%	(1.5) 29%		1					Weathered Rock: Orange gray, severely weathered, BIOTITE-QUARTZ GNEISS (continued) 14.0
254.8	16.5											Hard Rock: Tan gray, moderately to very slightly weathered, close to moderately close fracturing, medium hard to hard, BIOTITE-QUARTZ GNEISS (1 joint at 60°, 2 joints at 20°, 1 joint at 5°)
		5.0	2:00 2:00 2:15 1:45 3:00	(5.0) 100%	(4.0) 80%		2					
249.8	21.5											(6 joints at 10°, 4 joints at 70°)
247.8	23.5	2.0	2:30 2:45	(4.7) 235%	(3.9) 195%		3					247.8 Coring terminated at 26.5 ft in Hard Rock: Hard, BIOTITE-QUARTZ GNEISS 23.5
												Boring abandoned at 26.5 ft due to rig in contact with underground electrical utility energizing rig.



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MACTEC PROJECT NO.: 6468-06-1472										COUNTY Louisa, VA										GEOLOGIST B. Deobald									
SITE DESCRIPTION NORTH ANNA COL																				GROUND WATER (ft)									
BORING NO. B-922A					DRILL METHOD: Mud Rotary/Core					SAMPLE METHODS: SPT/CORE					0 HR. ND														
COLLAR ELEV. 271.3 ft (NAVD88)					NORTHING 3,909,949					US ft (NAD83)					EASTING 11,686,244					US ft (NAD83)					24 HR. 3.0				
TOTAL DEPTH 76.5 ft					DRILL MACHINE CME 55LC Track					DRILLER: D. White					HAMMER TYPE 140 lbs Auto														
DATE STARTED 10/31/06					COMPLETED 11/1/06					CORE BARREL TYPE: HQ 3 triple tube-wireline																			
ELEV.	DEPTH	BLOW COUNT			BLOWS PER FOOT					SAMP.	▼	L	O	G	SOIL AND ROCK DESCRIPTION														
(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	20	40	60	80	100	NO.	MOI																	
271.3					Ground Surface											271.3	0.0												
																	No samples due to utility clearance operations -soft dig/vac. truck excavation												
267.7	3.6									922A-1						267.7	3.6												
264.9	6.4	30															Weathered Rock: QUARTZ-BIOTITE GNEISS												
		50/0.3								922A-2							263.1												
																	Hard Rock: Orange, pink, and light gray, moderately severely to slightly weathered, very close to moderately close fracturing, moderately hard to very hard, QUARTZ-BIOTITE GNEISS												



SHEET 2 OF 2

MACTEC PROJECT NO.: 6468-06-1472					COUNTY Louisa, VA					GEOLOGIST B. Deobald					
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft) 0 HR. ND 24 HR. 3.0					
BORING NO. B-922A			DRILL METHOD: Mud Rotary/Core				SAMPLE METHODS: SPT/CORE								
COLLAR ELEV. 271.3 ft (NAVD88)			NORTHING 3,909,949		US ft (NAD83)		EASTING 11,686,244		US ft (NAD83)						
TOTAL DEPTH 76.5 ft			DRILL MACHINE CME 55LC Track				DRILLER: D. White			HAMMER TYPE 140 lbs Auto					
DATE STARTED 10/31/06			COMPLETED 11/1/06				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					
196.5					Continued from previous page										
														194.8	76.5
Boring and coring terminated at 76.5 ft in Hard Rock: Very hard, QUARTZ-BIOTITE GNEISS															

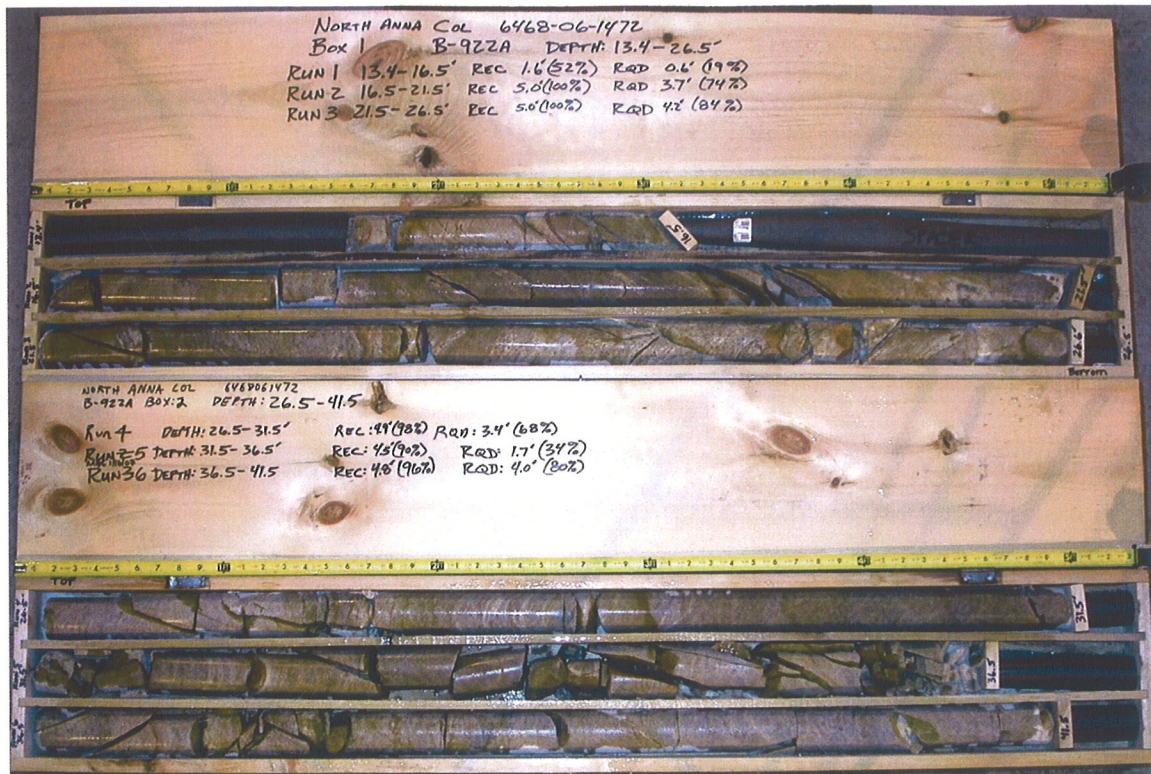
NORTH ANNA COL BURE NORTH ANNA COL DATA REPORT REV0.GPJ NORTH ANNA COL.GDT 1/19/07



SHEET 1 OF 1

MACTEC PROJECT NO.: 6468-06-1472							COUNTY Louisa, VA			GEOLOGIST B. Deobald		
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)		
BORING NO. B-922A			DRILL METHOD: Mud Rotary/Core				SAMPLE METHODS: SPT/CORE				0 HR. ND	
COLLAR ELEV. 271.3 ft (NAVD88)			NORTHING 3,909,949		US ft (NAD83)		EASTING 11,686,244		US ft (NAD83)		24 HR. 3.0	
TOTAL DEPTH 76.5 ft			DRILL MACHINE CME 55LC Track				DRILLER: D. White				HAMMER TYPE 140 lbs Auto	
DATE STARTED 10/31/06			COMPLETED 11/1/06				CORE BARREL TYPE: HQ 3 triple tube-wireline					
CORE SIZE HQ3			TOTAL RUN 63.1 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 @ 13.4 ft		
257.9	13.4	3.1	1:40	(1.6)	(0.6)	1					Hard Rock: Orange, pink, and light gray, moderately severely to slightly weathered, very close to moderately close fracturing, moderately hard to very hard, QUARTZ-BIOTITE GNEISS (continued) (3 joints at 10°, 2 joints at 30° with clay and Fe stain) (3 joints at 10°, 4 joints at 50° with Fe stain)	
254.8	16.5		1:50	52%	19%							
		5.0	2:30	(5.0)	(3.7)	2						
			2:15	100%	74%							
			2:20									
249.8	21.5		1:55									
		5.0	1:40									
			2:00	(5.0)	(4.2)	3					(3 joints at 10°, 6 joints at 50° with Fe stain)	
			2:25	100%	84%							
			2:00									
244.8	26.5		2:10									
		5.0	2:15									
			2:14	(4.9)	(3.4)	4					(7 joints at 10°, 3 joints at 45°, 2 joints at 60°-all with Fe stain)	
			2:10	98%	68%							
			2:20									
239.8	31.5		2:05									
		5.0	2:10								(7 joints at 50°, 4 joints at 45°, 2 joints at 80°-all with Fe stain; other joints not discernible)	
			2:40	(4.5)	(1.7)	5						
			2:45	90%	34%							
			4:40									
234.8	36.5		2:50									
		5.0	2:05									
			3:20	(4.8)	(4.0)	6				(7 joints at 0°, 1 joint at 45°, 3 joints at 70°-all with Fe stain)		
			3:30	96%	80%							
			3:50									
229.8	41.5		3:30									
		5.0	3:15									
			2:40	(4.7)	(4.0)	7				(2 joints at 0°, 2 joints at 30°, 2 joints 45°-all with Fe stain)		
			2:46	94%	80%							
			3:05									
224.8	46.5		2:59									
		5.0	2:40									
			3:01	(4.7)	(3.1)	8				(2 joints at 0°, 4 joints at 50°, 2 joints at 75°-all with Fe stain; other joints not discernible)		
			3:24	94%	62%							
			3:24									
			3:30									
219.8	51.5		6:30									
		5.0	3:59	(2.2)	(0.0)	9						
			2:55	44%	0%							
			2:49									
214.8	56.5		2:51									
		5.0	2:17									
			3:31	(3.3)	(2.3)	10				(3 joints at 45°, others not discernible)		
			3:06	66%	46%							
			5:09									
209.8	61.5		3:30									
		5.0	4:30									
			3:23	(5.0)	(5.0)	11				(2 joints at 25°, 1 joint at 60°)		
			3:47	100%	100%							
			3:40									
204.8	66.5		3:52									
		5.0	3:35									
			4:11	(4.9)	(4.8)	12				(2 joints at 20°, 2 joints at 45°, 1 joint at 60°)		
			5:05	98%	96%							
			4:31									
199.8	71.5		4:17									
		5.0	4:12									
			2:45	(5.0)	(4.9)	13				(2 joints at 50°)		
			3:01	100%	98%							
			2:12									
194.8	76.5		2:11									
			2:06									
										Coring terminated at 76.5 ft in Hard Rock: Very hard, QUARTZ-BIOTITE GNEISS		

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



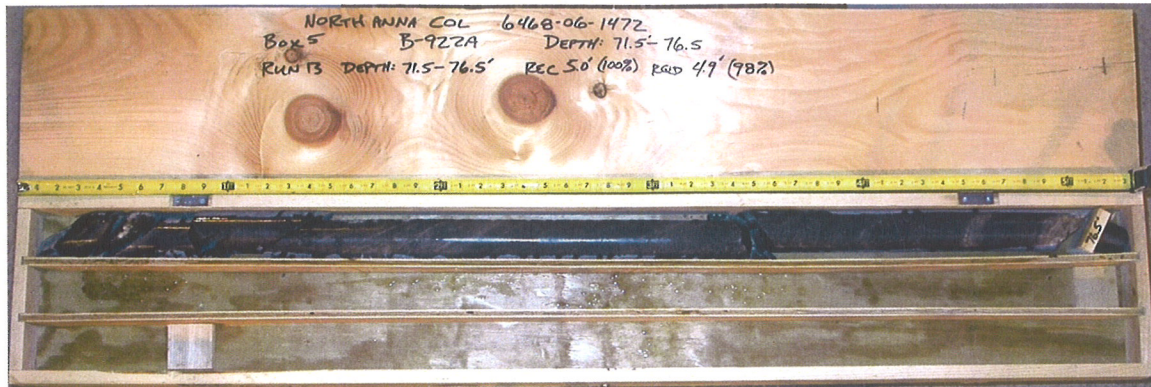
B-922A – Box 1

B-922A – Box 2



B-922A – Box 3

B-922A – Box 4



B-922A – Box 5