



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	LOG	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			
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		Weathered Rock: Very dark grayish brown (2.5Y 3/2), dry, very dense, severely weathered, soft, BIOTITE GNEISS	
254.2	53.8	50/0.3									921-14			
249.2	58.8	41	50/0.4								921-15		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)	
244.2	63.8	25	35	35	70						921-16			
239.2	68.8	28	50/0.4								921-17		Weathered Rock: Strong brown (7.5YR 5/6) with black and white, moist, very dense, severely weathered, BIOTITE GNEISS	
234.2	73.8	50/0.1									921-18			
													236.2 71.8	
													234.1 73.9	

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

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. 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																			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-1: Push from 10.0-12.0 ft; push pressure=900-1300 psi; recovery=0.9 ft
287.9	19.5																					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-3: Push from 19.5-21.5 ft; push pressure=1200-1300 psi; recovery=1.8 ft
277.9	29.5																					921A-UD-4: Push from 24.5-26.3 ft; push pressure=1200-1500 psi; recovery=1.8 ft
272.4	35.0																					921A-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-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						
																267.0	40.4	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												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									922-1			
265.5	5.8	23	26	28									922-2			
262.5	8.8	25	50/0.3										922-3			
260.1	11.2	50/0.3											922-4			
		50/0.1					922-5									
													265.0	6.3	Weathered Rock: Orange gray, severely weathered, BIOTITE-QUARTZ GNEISS	
													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.

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





B-922 - Box 1






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.	LOG MOI	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

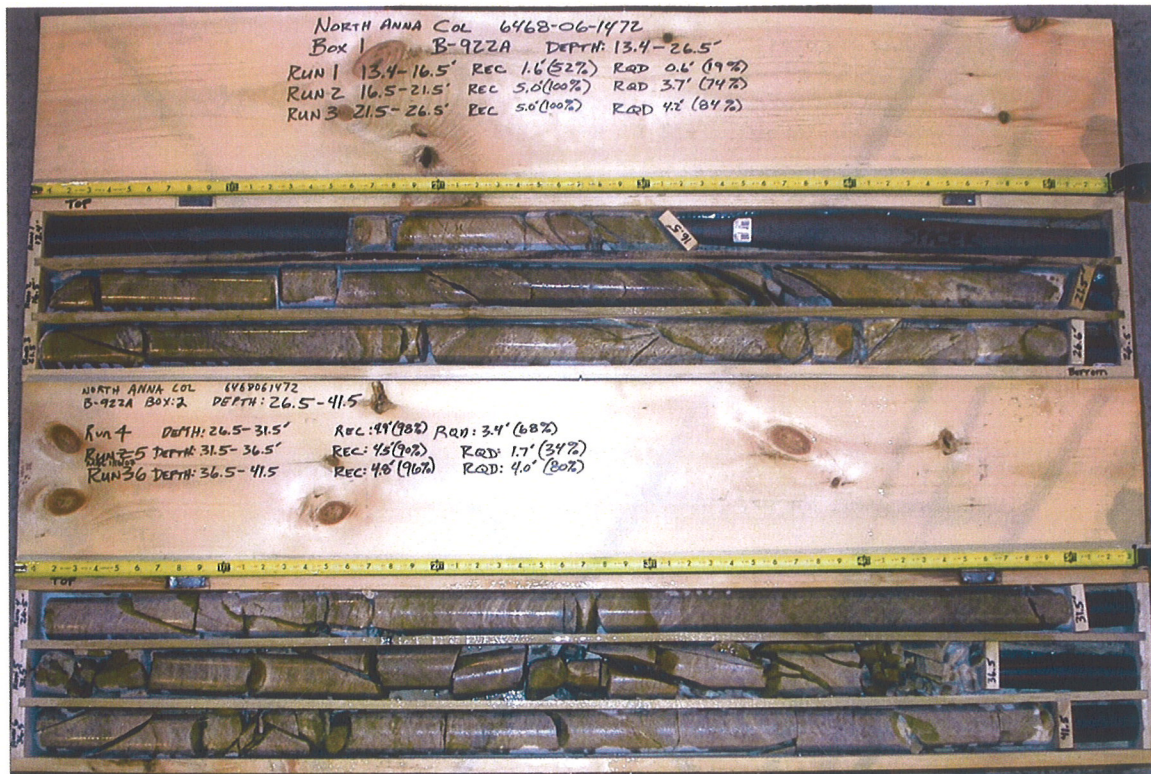


SHEET 1 OF 1

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)	
254.8	16.5		2:00/1.1								(3 joints at 10°, 2 joints at 30° with clay and Fe stain)	
		5.0	2:30	(5.0)	(3.7)	2					(3 joints at 10°, 4 joints at 50° with Fe stain)	
			2:15	100%	74%							
			2:20									
249.8	21.5		1:55								(3 joints at 10°, 6 joints at 50° with Fe stain)	
		5.0	1:40									
			2:00	(5.0)	(4.2)	3						
			2:25	100%	84%							
			2:00									
244.8	26.5		2:10								(7 joints at 10°, 3 joints at 45°, 2 joints at 60°-all with Fe stain)	
		5.0	2:15									
			2:14	(4.9)	(3.4)	4						
			2:10	98%	68%							
			2:20									
239.8	31.5		2:05								(7 joints at 50°, 4 joints at 45°, 2 joints at 80°-all with Fe stain; other joints not discernible)	
		5.0	2:10									
			2:40	(4.5)	(1.7)	5						
			2:45	90%	34%							
			4:40									
234.8	36.5		2:50							(7 joints at 0°, 1 joint at 45°, 3 joints at 70°-all with Fe stain)		
		5.0	2:05									
			3:20	(4.8)	(4.0)	6						
			3:30	96%	80%							
			3:50									
229.8	41.5		3:30							(2 joints at 0°, 2 joints at 30°, 2 joints 45°-all with Fe stain)		
		5.0	3:15									
			2:40	(4.7)	(4.0)	7						
			2:46	94%	80%							
			3:05									
224.8	46.5		2:59							(2 joints at 0°, 4 joints at 50°, 2 joints at 75°-all with Fe stain; other joints not discernible)		
		5.0	2:40									
			3:01	(4.7)	(3.1)	8						
			3:24	94%	62%							
			3:24									
			3:30									
219.8	51.5		6:30							219.3 52.0		
		5.0	3:59	(2.2)	(0.0)	9						
			2:55	44%	0%							
			2:49									
214.8	56.5		2:51							213.5 57.8		
		5.0	2:17									
			3:31	(3.3)	(2.3)	10						
			3:06	66%	46%							
			5:09									
209.8	61.5		3:30							Hard Rock: Pink and gray, very slightly weathered to fresh, close to wide fracturing, very hard, QUARTZ-BIOTITE GNEISS		
		5.0	4:30							(2 joints at 25°, 1 joint at 60°)		
			3:23	(5.0)	(5.0)	11						
			3:47	100%	100%							
			3:40									
204.8	66.5		3:52							(2 joints at 20°, 2 joints at 45°, 1 joint at 60°)		
		5.0	3:35									
			4:11	(4.9)	(4.8)	12						
			5:05	98%	96%							
			4:31									
199.8	71.5		4:17							(2 joints at 50°)		
		5.0	4:12									
			2:45	(5.0)	(4.9)	13						
			3:01	100%	98%							
			2:12									
194.8	76.5		2:11							194.8 76.5		
			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

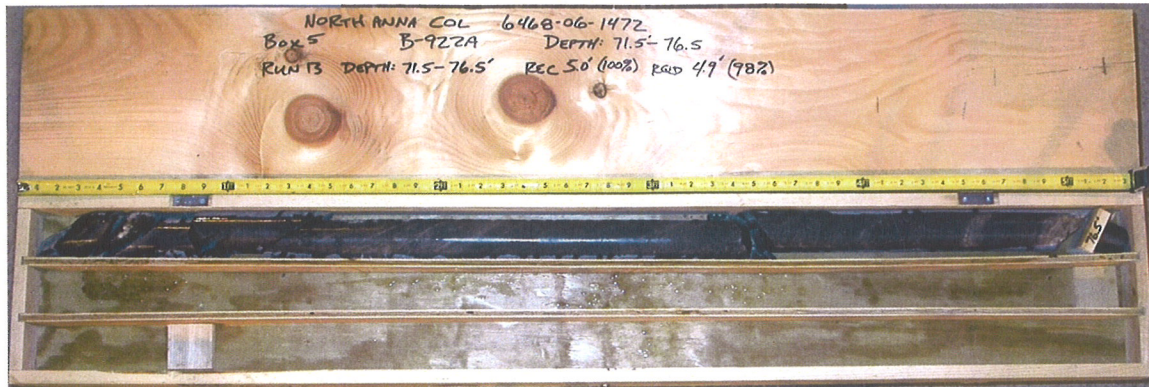
B-922A – Box 2



B-922A – Box 3

B-922A – Box 4





B-922A – Box 5