



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														
304.5	3.5	6	6	5							921-1				
302.0	6.0	4	3	2							921-2				
299.5	8.5	2	4	5							921-3				
297.0	11.0	2	3	4							921-4				
294.5	13.5	3	4	5							921-5				
		2	3	4							921-6				
289.2	18.8	3	3	4							921-7				
284.2	23.8	3	4	6							921-8				
279.2	28.8	9	9	10							921-9				
274.2	33.8	7	9	11							921-10				
269.2	38.8	8	12	23							921-11				
264.2	43.8	22	24	35							921-12				
259.2	48.8	50/0.1									921-13				
254.2	53.8	50/0.3									921-14				
249.2	58.8	41	50/0.4								921-15				
244.2	63.8	25	35	35							921-16				
239.2	68.8	28	50/0.4								921-17				
234.2	73.8	50/0.1									921-18				

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



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.	MOI	LOG	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	
																299.4	8.0
297.4	10.0										921A-UD-1					Silty, fine to coarse SAND (SM), dark gray, dark green, and white, moist, relict rock fabric	
																	921A-UD-1: Push from 10.0-12.0 ft; push pressure=900-1300 psi; recovery=0.9 ft
292.9	14.5										921A-UD-2						921A-UD-2: Push from 14.5-16.3 ft; push pressure=1200-1500 psi; recovery=1.7 ft
																	921A-UD-3: Push from 19.5-21.5 ft; push pressure=1200-1300 psi; recovery=1.8 ft
287.9	19.5										921A-UD-3						921A-UD-4: Push from 24.5-26.3 ft; push pressure=1200-1500 psi; recovery=1.8 ft
																	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
282.9	24.5										921A-UD-4						
277.9	29.5										921A-UD-5						-Attempted shelly tube at 34.5 (refused)
																	921A-PB-1: Advanced from 35.0-35.5 ft (Refused); recovery=0.5 ft
272.4	35.0										921A-PB-1						921A-PB-2: Advanced from 40.0-40.4 ft (Refused); recovery=0.4 ft-sample not retained/not enough sample for testing
267.4	40.0										921A-PB-2						Boring terminated at 40.4 ft in Weathered Rock: QUARTZ-BIOTITE GNEISS
																	40.4

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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	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				
267.5	3.8	3	2	15							922-2		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)		
265.5	5.8	23	26	28							922-3			265.0	6.3
262.5	8.8	25	50/0.3								922-4		Weathered Rock: Orange gray, severely weathered, BIOTITE-QUARTZ GNEISS		
260.1	11.2	50/0.3									922-5				
		50/0.1												257.3	14.0
															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.			

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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		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS	
				REC. (ft) %	RQD (ft) %		REC. (ft) %	RQD (ft) %			
										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	5.0	2:00 2:00 2:15 1:45 3:00	(5.0) 100%	(4.0) 80%	2				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°)	
249.8	21.5	2.0	2:30 2:45	(4.7) 235%	(3.9) 195%	3				(6 joints at 10°, 4 joints at 70°)	
247.8	23.5									247.8 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.	

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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. (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	
271.3					Ground Surface							271.3	0.0	
267.7	3.6											267.7	3.6	No samples due to utility clearance operations -soft dig/vac. truck excavation
264.9	6.4	30	50/0.5							922A-1		267.7	3.6	Weathered Rock: QUARTZ-BIOTITE GNEISS
		50/0.3								922A-2		263.1	8.2	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
												219.3	52.0	Weathered Rock: Severely weathered, QUARTZ-BIOTITE GNEISS with lense of Hard Rock: Light gray, moderately weathered, very close fracturing, hard, QUARTZ-BIOTITE GNEISS from 56.0-56.5 ft
												213.5	57.8	Hard Rock: Pink and gray, very slightly weathered to fresh, close to wide fracturing, very hard, QUARTZ-BIOTITE GNEISS

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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. (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

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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					
CORE SIZE HQ3				TOTAL RUN 63.1 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) %				
										Begin Coring @ 13.4 ft		
257.9	13.4	3.1	1:40 1:50 2:00/1.1	(1.6) 52%	(0.6) 19%	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									(3 joints at 10°, 2 joints at 30° with clay and Fe stain)		
		5.0	2:30 2:15 2:20 1:55 1:40	(5.0) 100%	(3.7) 74%	2				(3 joints at 10°, 4 joints at 50° with Fe stain)		
249.8	21.5									(3 joints at 10°, 6 joints at 50° with Fe stain)		
		5.0	2:00 2:25 2:00 2:10 2:15	(5.0) 100%	(4.2) 84%	3				(7 joints at 10°, 3 joints at 45°, 2 joints at 60°-all with Fe stain)		
244.8	26.5									(7 joints at 10°, 3 joints at 45°, 2 joints at 60°-all with Fe stain)		
		5.0	2:14 2:10 2:20 2:05 2:10	(4.9) 98%	(3.4) 68%	4				(7 joints at 50°, 4 joints at 45°, 2 joints at 80°-all with Fe stain; other joints not discernible)		
239.8	31.5									(7 joints at 0°, 1 joint at 45°, 3 joints at 70°-all with Fe stain)		
		5.0	2:40 2:45 4:40 2:50 2:05	(4.5) 90%	(1.7) 34%	5				(2 joints at 0°, 2 joints at 30°, 2 joints 45°-all with Fe stain)		
234.8	36.5									(2 joints at 0°, 4 joints at 50°, 2 joints at 75°-all with Fe stain; other joints not discernible)		
		5.0	3:20 3:30 3:50 3:30 3:15	(4.8) 96%	(4.0) 80%	6						
229.8	41.5											
		5.0	2:40 2:46 3:05 2:59 2:40	(4.7) 94%	(4.0) 80%	7						
224.8	46.5											
		5.0	3:01 3:24 3:24 3:30 6:30	(4.7) 94%	(3.1) 62%	8						
219.8	51.5											
		5.0	3:59 2:55 2:49 2:51 2:17	(2.2) 44%	(0.0) 0%	9				Weathered Rock: Severely weathered, QUARTZ-BIOTITE GNEISS with lense of Hard Rock: Light gray, moderately weathered, very close fracturing, hard, QUARTZ-BIOTITE GNEISS from 56.0-56.5 ft		
214.8	56.5									(3 joints at 45°, others not discernible)		
		5.0	3:31 3:06 5:09 3:30 4:30	(3.3) 66%	(2.3) 46%	10				Hard Rock: Pink and gray, very slightly weathered to fresh, close to wide fracturing, very hard, QUARTZ-BIOTITE GNEISS		
209.8	61.5									(2 joints at 25°, 1 joint at 60°)		
		5.0	3:23 3:47 3:40 3:52 3:35	(5.0) 100%	(5.0) 100%	11				(2 joints at 20°, 2 joints at 45°, 1 joint at 60°)		
204.8	66.5									(2 joints at 50°)		
		5.0	4:11 5:05 4:31 4:17 4:12	(4.9) 98%	(4.8) 96%	12						
199.8	71.5											
		5.0	2:45 3:01 2:12 2:11 2:06	(5.0) 100%	(4.9) 98%	13						
194.8	76.5									Coring terminated at 76.5 ft in Hard Rock: Very hard, QUARTZ-BIOTITE GNEISS		

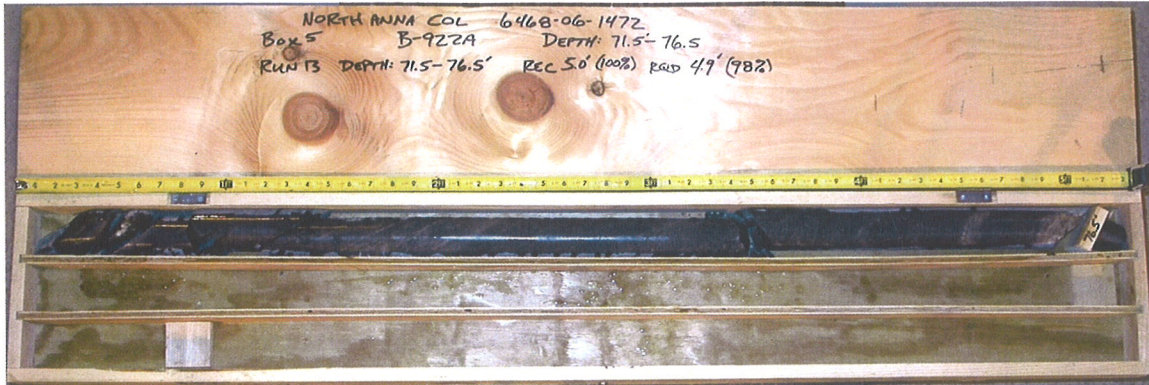
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B-922A – Box 1
B-922A – Box 2



B-922A – Box 3
B-922A – Box 4



B-922A – Box 5