



MACTEC PROJECT NO.: 6468-06-1472					COUNTY Louisa, VA					GEOLOGIST J. Lachewitz					
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)					
BORING NO. B-911			DRILL METHOD: Mud Rotary/Core					SAMPLE METHODS: SPT/CORE					0 HR. ND		
COLLAR ELEV. 299.8 ft (NAVD88)			NORTHING 3,909,920		US ft (NAD83)		EASTING 11,685,993		US ft (NAD83)		24 HR. ND				
TOTAL DEPTH 101.0 ft			DRILL MACHINE CME 550 ATV					DRILLER: G. Akins					HAMMER TYPE 140 lbs Auto		
DATE STARTED 8/8/06			COMPLETED 8/10/06					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	
299.8					Ground Surface								299.8	0.0	
298.3	1.5	3	4	6						911-1			296.8	3.0	Silty SAND (SM), dark brown (7.5YR 3/2), dry, medium dense, trace clay (Fill)
296.3	3.5	8	11	8						911-2					Silty SAND (SM), strong brown (7.5YR 4/6 to 7.5YR 5/8), moist, medium dense to very dense, trace rock fragments (Residual Soil)
293.8	6.0	5	4	6						911-3					
291.8	8.0	8	6	4						911-4					
288.8	11.0	6	7	9						911-5					
286.3	13.5	5	9	9						911-6					
281.3	18.5	13	25	46						911-7					
276.3	23.5									911-8			278.8	21.0	Weathered Rock: QUARTZ BIOTITE GNEISS
275.1	24.7	50/0.3								911-9			275.0	24.8	Hard Rock: White to gray, moderately severe to moderately weathered, close fracturing, soft to moderately hard, QUARTZ BIOTITE GNEISS
		50/0.1								911-9					
													233.8	66.0	Hard Rock: Gray to bluish gray, moderately weathered to fresh, close to wide fracturing, medium hard to hard, QUARTZ BIOTITE GNEISS

NORTH ANNA COL. D:\CORE NORTH ANNA COL DATA REPORT REV6.GPJ NORTH ANNA COL.GDT 1/19/07



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SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)				
BORING NO. B-911			DRILL METHOD: Mud Rotary/Core					SAMPLE METHODS: SPT/CORE					0 HR. ND	
COLLAR ELEV. 299.8 ft (NAVD88)			NORTHING 3,909,920		US ft (NAD83)		EASTING 11,685,993		US ft (NAD83)		24 HR. ND			
TOTAL DEPTH 101.0 ft			DRILL MACHINE CME 550 ATV					DRILLER: G. Akins			HAMMER TYPE 140 lbs Auto			
DATE STARTED 8/8/06			COMPLETED 8/10/06					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
225.0					Continued from previous page									
													Hard Rock: Gray to bluish gray, moderately weathered to fresh, close to wide fracturing, medium hard to hard, QUARTZ BIOTITE GNEISS (continued)	
													Boring and coring terminated at 101.0 ft in Hard Rock: Medium to moderately hard, QUARTZ GNEISS	

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SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)		
BORING NO. B-911			DRILL METHOD: Mud Rotary/Core			SAMPLE METHODS: SPT/CORE			0 HR. ND			
COLLAR ELEV. 299.8 ft (NAVD88)			NORTHING 3,909,920		US ft (NAD83)		EASTING 11,685,993		US ft (NAD83)		24 HR. ND	
TOTAL DEPTH 101.0 ft			DRILL MACHINE CME 550 ATV			DRILLER: G. Akins			HAMMER TYPE 140 lbs Auto			
DATE STARTED 8/8/06				COMPLETED 8/10/06			CORE BARREL TYPE: HQ 3 triple tube-wireline					
CORE SIZE HQ3				TOTAL RUN 76.2 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 @ 24.8 ft												
275.0	24.8	1.3	4:15	(1.3)	(1.1)		1					Hard Rock: White to gray, moderately severe to moderately weathered, close fracturing, soft to moderately hard, QUARTZ BIOTITE GNEISS (1 joint at 90°; 2 joints at 15-30° with trace clay and Fe stain) (6 joints at 5-20° with Fe stain)  (6 joints at 5-45° with Fe stain)  (Multiple horizontal and vertical joints with Fe stain)  (4 joints at 0-20° with Fe stain)  (8 joints at 25-45° with Fe stain)  (1 joint at 45° with slight Fe stain; multiple horizontal and vertical joints)  (8 joints at 20-50° with Fe stain)  (7 joints at 0-45° with Fe stain)  Hard Rock: Gray to bluish gray, moderately weathered to fresh, close to wide fracturing, medium hard to hard, QUARTZ BIOTITE GNEISS (1 joint at 5° with slight Fe stain)  (1 joint at 10°)  (3 joints at 65-85° slightly weathered)  (2 joints at 85°; 4 joints at 0-10°; slight Fe stain)  (4 joints at 45°)  (4 joints 0-10° with clay and Fe stain)  (4 joints at 5° and 1 joint at 45° with slight weathering)
273.7	26.1	5.0	1:58/0.3	100%	85%		2					
			3:01	(4.7)	(1.4)							
			3:04	94%	28%							
			2:15									
			2:02									
268.7	31.1	4.9	2:01	(4.7)	(2.5)	UCS-34.3'						
			1:35	96%	51%							
			1:25									
			1:15									
263.8	36.0	5.1	1:38/0.9	(4.5)	(3.5)		4					
			2:09	88%	69%							
			1:23									
			1:41									
			1:21									
258.7	41.1	4.9	1:23/1.1	(4.5)	(2.9)	UC-44.3'						
			1:05	92%	59%							
			1:14									
			1:14									
			1:18									
253.8	46.0	5.0	1:21/0.9	(5.0)	(4.4)		6					
			0:50	100%	88%							
			0:58									
			0:57									
			1:00									
248.8	51.0	5.1	1:15	(3.0)	(1.0)		7					
			1:17	59%	20%							
			1:14									
			0:43									
			0:47									
243.7	56.1	5.0	1:08/1.1	(5.0)	(4.8)		8					
			0:54	100%	96%							
			0:56									
			0:52									
			0:48									
			1:02									
238.7	61.1	4.9	0:45	(4.9)	(3.7)		9					
			1:01	100%	76%							
			1:14									
			1:15									
233.8	66.0	4.9	2:27/0.9	(4.9)	(4.4)	UC-66.5'						
			2:18	100%	90%							
			1:47									
			2:36									
			4:09									
228.9	70.9	5.0	7:43/0.9	(5.0)	(4.9)		11					
			3:40	100%	98%							
			4:47									
			2:56									
			2:53									
			5:09									
223.9	75.9	5.1	4:31	(5.1)	(4.7)		12					
			4:32	100%	92%							
			4:47									
			5:39									
218.8	81.0	4.9	7:01/1.1	(4.9)	(4.6)	UCS-82.1'						
			4:58	100%	94%							
			6:14									
			6:01									
			5:15									
213.9	85.9	5.1	8:12/0.9	(5.1)	(4.6)		14					
			3:58	100%	90%							
			2:52									
			2:12									
			1:52									
208.8	91.0	5.0	2:57/1.1	(5.0)	(4.1)		15					
			2:28	100%	82%							
			2:11									
			2:22									
			2:44									
203.8	96.0	5.0	3:04	(5.0)	(4.6)	UC-97.6'						
			3:29	100%	92%							
			2:59									
			3:09									

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SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)	
BORING NO. B-911		DRILL METHOD: Mud Rotary/Core				SAMPLE METHODS: SPT/CORE				0 HR. ND	
COLLAR ELEV. 299.8 ft (NAVD88)		NORTHING 3,909,920		US ft (NAD83)		EASTING 11,685,993		US ft (NAD83)		24 HR. ND	
TOTAL DEPTH 101.0 ft		DRILL MACHINE CME 550 ATV				DRILLER: G. Akins				HAMMER TYPE 140 lbs Auto	
DATE STARTED 8/8/06				COMPLETED 8/10/06				CORE BARREL TYPE: HQ 3 triple tube-wireline			
CORE SIZE HQ3				TOTAL RUN 76.2 ft							

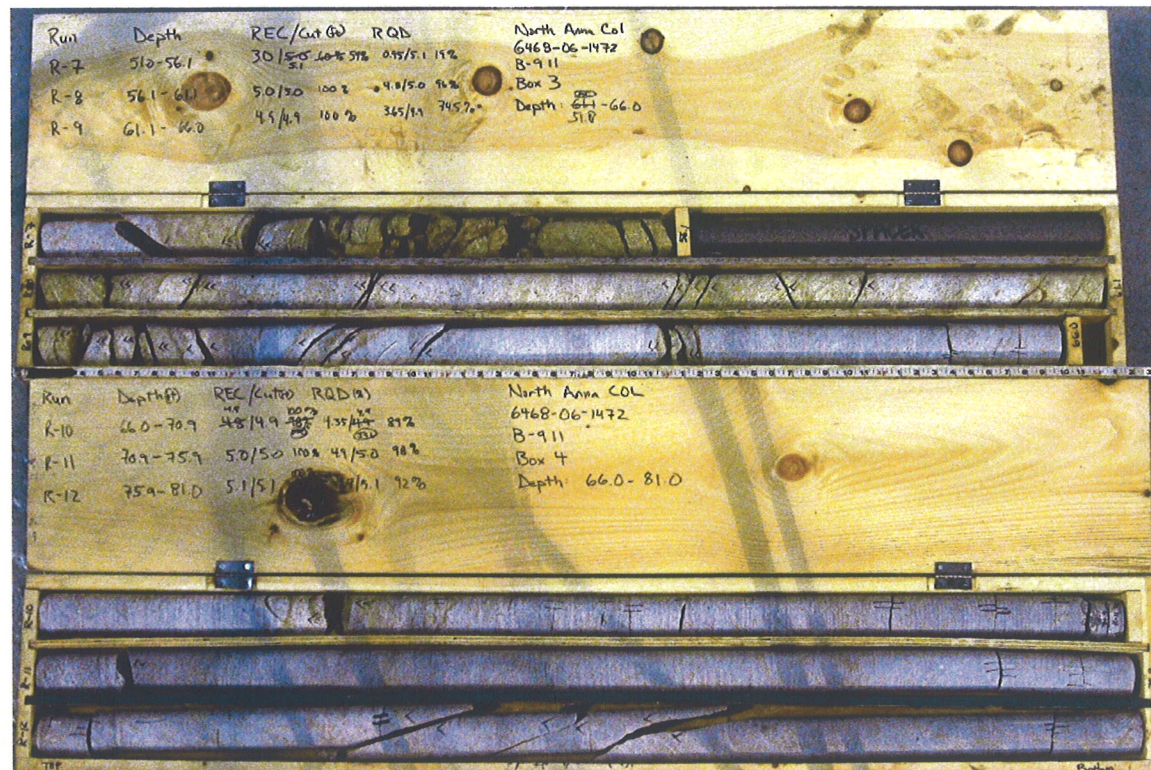
ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS
				REC. (%)	RQD (%)		REC. (%)	RQD (%)		
										Continued from previous page
198.8	101.0		3:31 2:51							198.8 Coring terminated at 101.0 ft in Hard Rock: Medium to moderately hard, QUARTZ GNEISS 101.0

NORTH ANNA COL. CORE NORTH ANNA COL DATA REPORT REV.0.GPJ NORTH ANNA COL.GDT. I/19/07



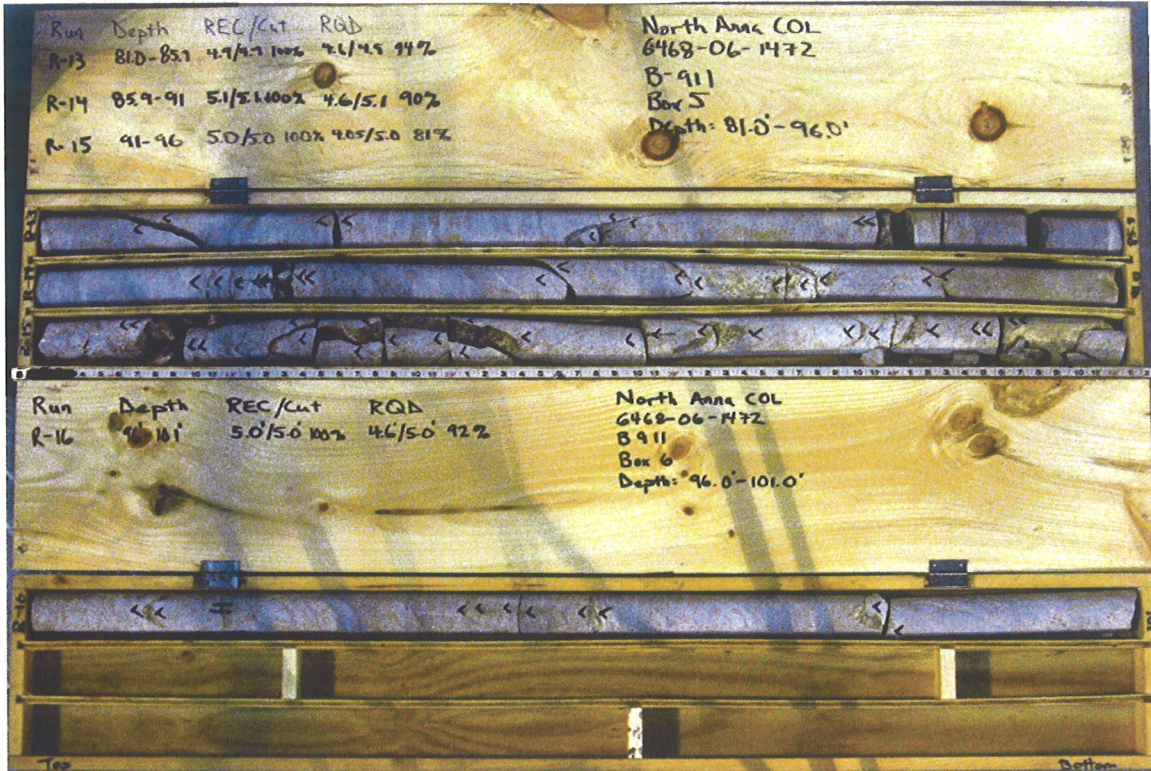


B-911 - Box 1  
B-911 - Box 2



B-911 - Box 3  
B-911 - Box 4





B-911 - Box 5  
B-911 - Box 6



MACTEC PROJECT NO.: 6468-06-1472				COUNTY Louisa, VA				GEOLOGIST M. Lear/ J. Lachewitz											
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)									
BORING NO. B-911A			DRILL METHOD: Mud Rotary			SAMPLE METHODS: UD/PITCHER BARREL				0 HR. ND									
COLLAR ELEV. 299.9 ft (NAVD88)			NORTHING 3,909,916		US ft (NAD83)		EASTING 11,686,001		US ft (NAD83)		24 HR. ND								
TOTAL DEPTH 21.7 ft		DRILL MACHINE CME 550 ATV			DRILLER: F. Cox				HAMMER TYPE NA										
DATE STARTED 10/24/06			COMPLETED 10/25/06			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					
299.9					Ground Surface								299.9	0.0					
290.2	9.7																292.1	7.8	No samples due to utility clearance operations-soft dig/vac. truck excavation
285.2	14.7														911A-UD-1				Silty, fine to coarse SAND (SM), Tan, moist, micaceous, relict rock fabric (Residual Soil)
280.2	19.7														911A-UD-2				911A-UD-1: Pushed from 9.7-11.7 ft; push pressure=1200-1500 psi; recovery=1.7 ft
															911A-UD-2: Pushed from 14.7-15.5 ft; push pressure=1300 psi-weight of drill rig; recovery=0.6 ft				
															911A-PB-1: Advanced from 19.7-21.7 ft; recovery=0.9 ft				
													278.9 278.2	21.0 21.7	Weathered Rock: BIOTITE-QUARTZ GNEISS Boring terminated at 21.7 ft in Weathered Rock: BIOTITE-QUARTZ GNEISS				

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