



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.	LOG MOI G	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			Silty SAND (SM), dark brown (7.5YR 3/2), dry, medium dense, trace clay (Fill)	296.8	3.0
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					
275.1	24.7	50/0.3								911-9					
		50/0.1													
														278.8	21.0
														275.0	24.8
														233.8	66.0

NORTH ANNA COL. \CORE NORTH ANNA COL DATA REPORT REV.6.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)						
													198.8						
													101.0						
													Boring and coring terminated at 101.0 ft in Hard Rock: Medium to moderately hard, QUARTZ GNEISS						

NORTH ANNA COL. CORE NORTH ANNA COL DATA REPORT REV0.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					
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				275.0	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)	24.8
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									
238.7	61.1	4.9	1:02	(4.9)	(3.7)	9						
			0:45	100%	76%							
			1:01									
			1:14									
			1:15									
233.8	66.0	4.9	2:27/0.9	(4.9)	(4.4)	UC-66.5'				233.8		
			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									
223.9	75.9	5.1	5:09	(5.1)	(4.7)	12						
			4:31	100%	92%							
			4:32									
			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									

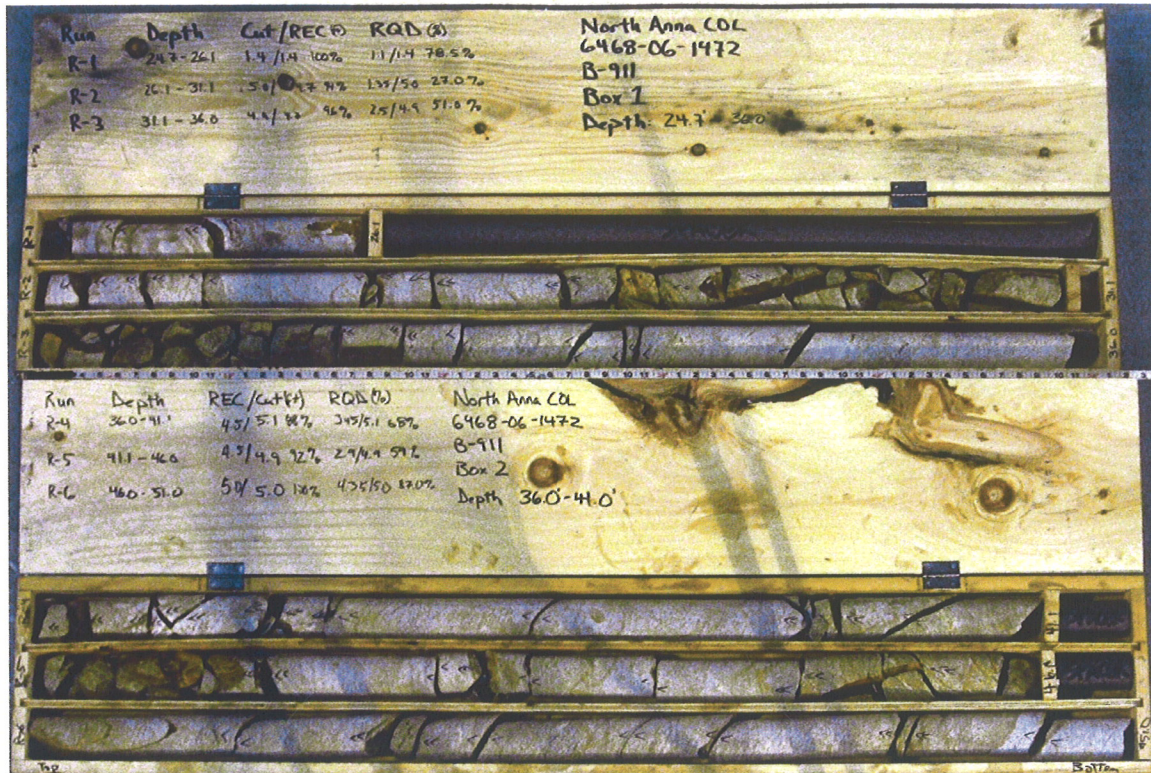
NORTH ANNA COL. ...RE NORTH ANNA COL DATA REPORT REV0.GPJ NORTH ANNA COL.GDT 1/19/07



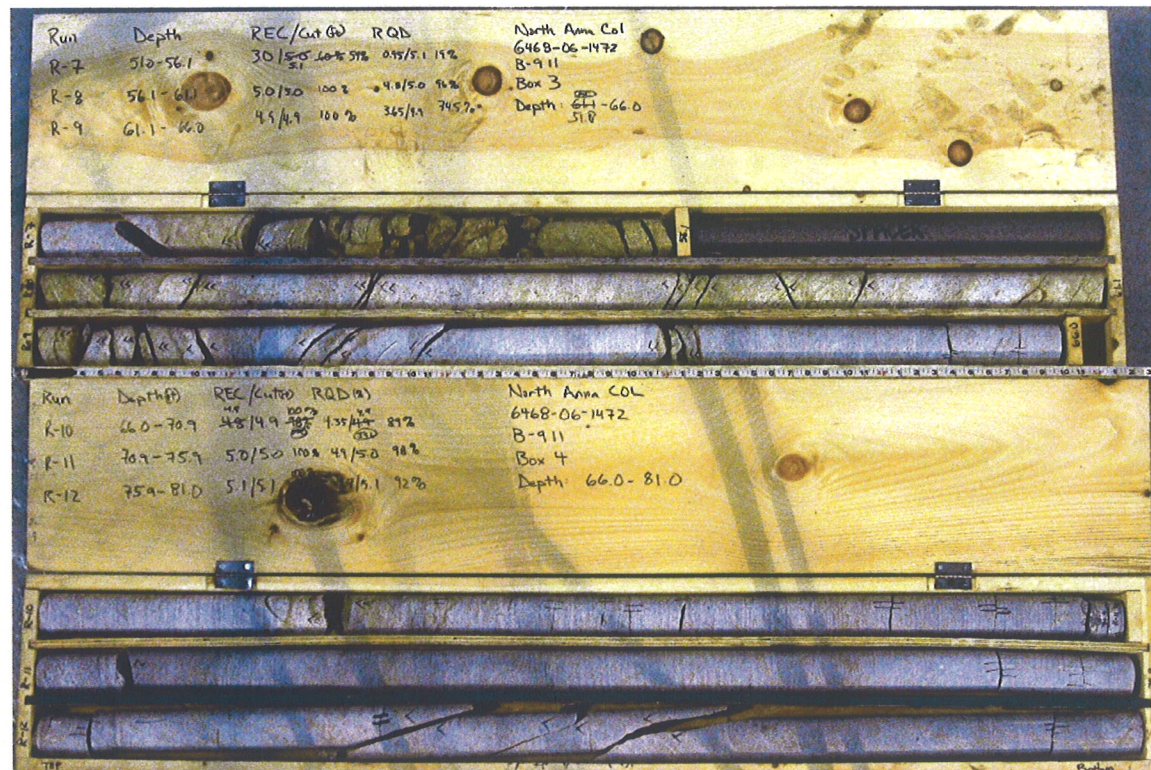
MACTEC PROJECT NO.: 6468-06-1472				COUNTY Louisa, VA				GEOLOGIST J. Lachewitz			
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)	
BORING NO. B-911		DRILL METHOD: Mud Rotary/Core				SAMPLE METHODS: SPT/CORE				0 HR. ND	
COLLAR ELEV. 299.8 ft (NAVD88)		NORTHING 3,909,920		US ft (NAD83)		EASTING 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			
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

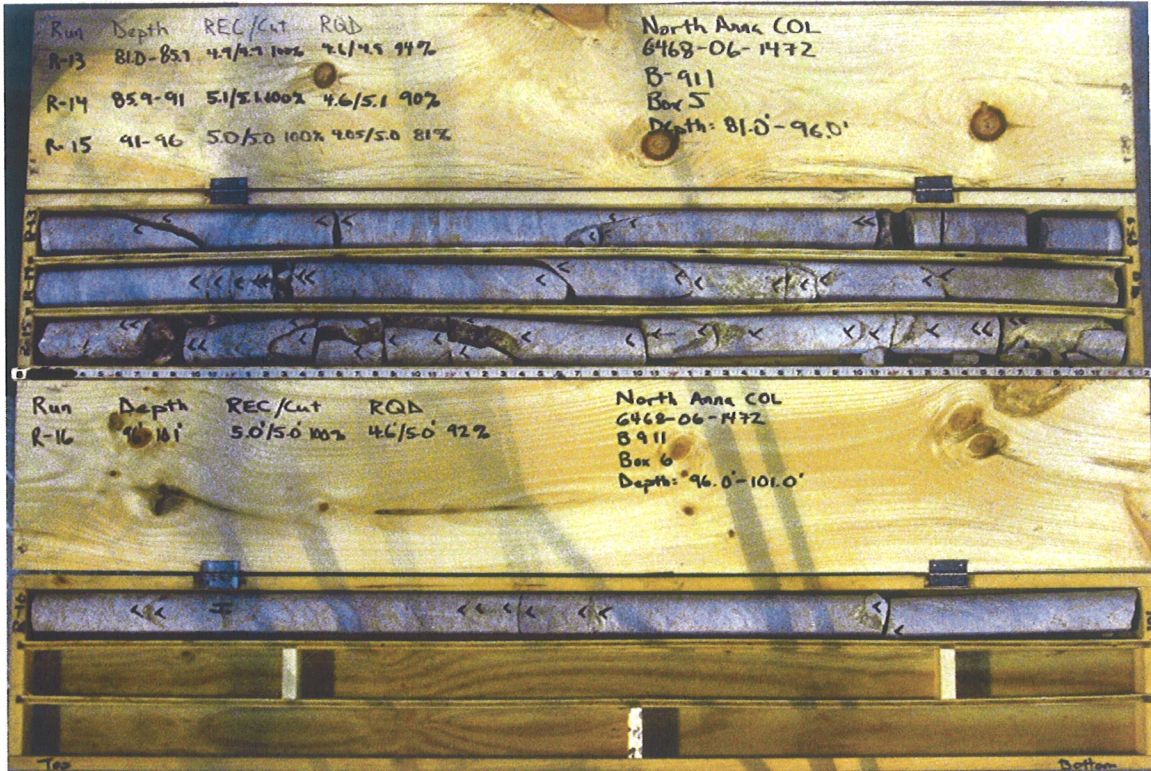
NORTH ANNA COL. CORE NORTH ANNA COL DATA REPORT REV.0.GPJ NORTH ANNA COL.GDT. I/19/07



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						
														292.1	7.8	No samples due to utility clearance operations- soft dig/vac. truck excavation				
290.2	9.7																			Silty, fine to coarse SAND (SM), Tan, moist, micaceous, relict rock fabric (Residual Soil)
285.2	14.7																			911A-UD-1: Pushed from 9.7-11.7 ft; push pressure=1200-1500 psi; recovery=1.7 ft
280.2	19.7																			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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