



MACTEC PROJECT NO.: 6468-06-1472				COUNTY Louisa, VA				GEOLOGIST S. Nicely									
SITE DESCRIPTION NORTH ANNA COL								GROUND WATER (ft)									
BORING NO. B-903		DRILL METHOD: Mud Rotary/Core				SAMPLE METHODS: SPT/CORE				0 HR. 15.6							
COLLAR ELEV. 301.6 ft (NAVD88)		NORTHING 3,909,812		US ft (NAD83)		EASTING 11,686,029		US ft (NAD83)		24 HR. 16.8							
TOTAL DEPTH 151.0 ft		DRILL MACHINE CME 55 Truck				DRILLER: H. Meyerson				HAMMER TYPE 140 lbs Auto							
DATE STARTED 11/7/06		COMPLETED 11/9/06				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							
301.6					Asphalt Roadway									301.6	0.0		
																No sampling from 0.0 to 7.9 ft due to utility clearance operations (vac. track)	
293.7	7.9													293.7	7.9		
290.5	11.1	10	8	14							903-1					Silty, fine to medium SAND (SM), pale yellow (2.5Y 7/4 & 5Y 7/3) and white (10YR 8/1), dry to moist, medium dense to dense (Residual Soil)	
288.0	13.6	11	17	18							903-2						
283.0	18.6	12	16	14							903-3						
280.6	21.0	13	21	26							903-4						Weathered Rock: Light gray (5Y 7/2) to brownish yellow (10YR 6/6), moist, very dense, weathered, BIOTITE-QUARTZ GNEISS
277.9	23.7	50/0.3									903-5						
273.0	28.6	22	50/0.3								903-6						
268.0	33.6	50/0.1									903-7						Hard Rock: Yellowish brown, moderate severely weathered, very closely to closely fractured, soft to medium hard, BIOTITE-QUARTZ GNEISS Hard Rock-Weathered Rock: Yellowish brown, gray, tan, reddish brown, and dark green, very severely to moderately weathered, very closely to closely fractured, very soft to hard, BIOTITE-QUARTZ GNEISS
265.6	36.0										903-8						
235.6	66.0	50/0.3															

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



SHEET 3 OF 3

MACTEC PROJECT NO.: 6468-06-1472					COUNTY Louisa, VA					GEOLOGIST S. Nicely						
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft) 0 HR. 15.6 24 HR. 16.8						
BORING NO. B-903			DRILL METHOD: Mud Rotary/Core			SAMPLE METHODS: SPT/CORE										
COLLAR ELEV. 301.6 ft (NAVD83)			NORTHING 3,909,812		US ft (NAD83)		EASTING 11,686,029		US ft (NAD83)							
TOTAL DEPTH 151.0 ft			DRILL MACHINE CME 55 Truck			DRILLER: H. Meyerson				HAMMER TYPE 140 lbs Auto						
DATE STARTED 11/7/06			COMPLETED 11/9/06			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						
152.0					Continued from previous page											
														150.6	151.0	Boring and coring terminated at 151.0 ft in Hard Rock: Very hard BIOTITE-QUARTZ GNEISS



SHEET 1 OF 2

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SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)			
BORING NO. B-903			DRILL METHOD: Mud Rotary/Core			SAMPLE METHODS: SPT/CORE				0 HR. 15.6			
COLLAR ELEV. 301.6 ft (NAVD88)			NORTHING 3,909,812		US ft (NAD83)		EASTING 11,686,029		US ft (NAD83)		24 HR. 16.8		
TOTAL DEPTH 151.0 ft		DRILL MACHINE CME 55 Truck				DRILLER: H. Meyerson				HAMMER TYPE 140 lbs Auto			
DATE STARTED 11/7/06			COMPLETED 11/9/06			CORE BARREL TYPE: HQ 3 triple tube-wireline							
CORE SIZE HQ3			TOTAL RUN 116.9 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 @ 33.7 ft			
267.9	33.7	2.3	2:20	(2.3)	(0.8)	1				267.9	Hard Rock: Yellowish brown, moderate severely weathered, very closely to		33.7
265.6	36.0		1:49	100%	35%					265.6	closely fractured, soft to medium hard, BIOTITE-QUARTZ GNEISS		36.0
		5.0	0:14/0.3	(1.7)	(0.0)	2					-Highly fractured throughout run		
			0:53	34%	0%						Hard Rock-Weathered Rock: Yellowish brown, gray, tan, reddish brown, and		
			1:09								dark green, very severely to moderately weathered, very closely to closely		
260.6	41.0		1:15								fractured, very soft to hard, BIOTITE-QUARTZ GNEISS		
		5.0	1:36								-Highly fractured throughout run; no recovery from 36.0-39.3 ft		
			1:33								-Highly fractured throughout run; no recovery from 42.0-44.2 ft		
		5.0	3:41	(2.9)	(0.5)	3							
			1:23	58%	10%								
			1:16										
255.6	46.0		2:16										
		5.0	4:07										
			1:55	(3.2)	(0.0)	4					-Highly fractured throughout run; no recovery from 46.0-47.8 ft		
		5.0	2:02	64%	0%								
			2:44										
250.6	51.0		6:38										
		5.0	5:39										
			2:53	(3.2)	(0.0)	5					-Highly fractured throughout run; quartz vein from 53.2-53.9 ft		
		5.0	4:40	64%	0%								
			4:34										
245.6	56.0		6:00										
		5.0	6:26										
			3:58	(2.6)	(0.0)	6					-Highly fractured throughout run with Fe staining and clay seams		
		5.0	3:32	52%	0%								
			4:08										
240.6	61.0		6:40										
		5.0	2:15								-Very poor recovery		
			2:10	(0.5)	(0.0)	7							
		5.0	2:15	10%	0%								
			5:10										
235.6	66.0		4:15										
		5.0	6:34										
235.3	66.3	4.7	N=50/0.3	(3.1)	(0.4)	903-8					-Highly fractured throughout run with Fe staining and clay on joint surfaces; no		
			4:04	66%	9%	8					recovery from 68.1-69.6 ft		
			3:27										
230.6	71.0		1:26										
		5.0	4:20	(1.1)	(0.0)	9					-Very poor recovery, highly fractured		
			6:23/0.7	22%	0%								
			1:31										
225.6	76.0		1:32										
		5.0	5:35										
			10:34										
		5.0	3:23	(2.5)	(0.6)	903-9					-Highly fractured throughout run with Fe staining and clay seams; no recovery		
225.5	76.1	4.7	N=50/0.1	53%	13%	10					from 76.1-78.6 ft		
			2:07										
			2:35										
220.8	80.8		4:11										
		5.2	4:54	(5.1)	(4.6)	11					Hard Rock: Reddish brown and gray, moderate severely to slightly weathered,		80.8
			7:21/0.7	98%	88%						very closely to closely fractured, soft to very hard, BIOTITE-QUARTZ GNEISS		
		5.0	2:19								(3 joints at 60-65°, 2 joints at 30-40°, and 2 joints at 20-30° all with Fe staining,		
215.6	86.0		2:35	(4.8)	(2.0)	12					quartz veins at 85.4 ft, and 83.2-83.4 ft, and vugs)		
			2:31	96%	40%						-Highly fractured throughout run with Fe staining		
		5.0	2:27										
			2:49/1.2										
			2:16	(5.0)	(4.9)	13					(2 joints at 40-50° and 2 joints at 20-30° with Fe staining and trace clay)		
210.6	91.0		2:17	100%	98%								
		5.0	1:57										
			2:10										
			2:52										
			2:54										
205.6	96.0		2:21	(5.0)	(4.8)	14					(4 joints at 70°, 1 joint at 30°, and 1 joint at 45° all with Fe staining)		
		5.0	2:38	100%	96%								
			2:41										
			2:46										
			2:36										
200.6	101.0		2:17	(4.5)	(3.0)	15					-Highly fractured and weathered from 101.8-101.9 ft and 103.7-104.0 ft; 1 joint		
		5.0	2:26	90%	60%						at 45° with clay		
			2:57										
			3:06										
		5.0	6:05	(5.0)	(3.4)	16					-Highly fractured throughout run		
			2:51	100%	68%								
195.6	106.0		4:29										
		5.0	3:33										
			2:34										
			3:24										
			3:01										

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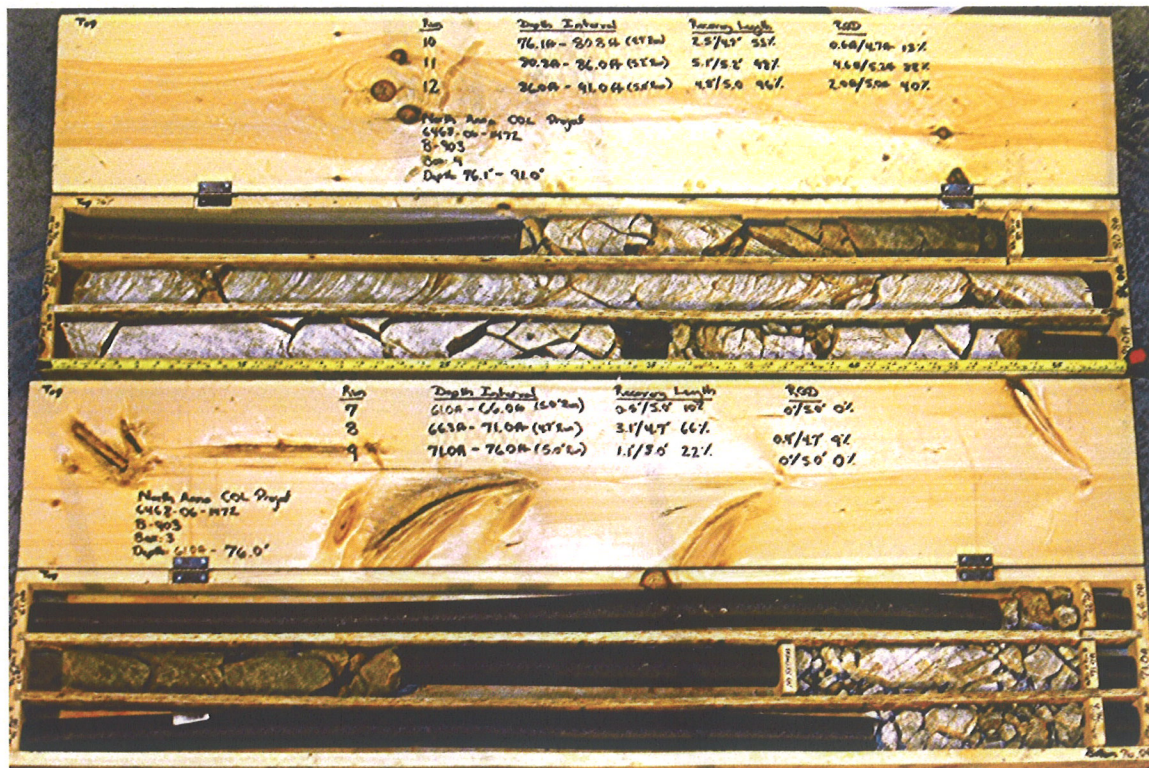
SHEET 2 OF 2

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TOTAL DEPTH 151.0 ft			DRILL MACHINE CME 55 Truck				DRILLER: H. Meyerson			HAMMER TYPE 140 lbs Auto			
DATE STARTED 11/7/06				COMPLETED 11/9/06				CORE BARREL TYPE: HQ 3 triple tube-wireline					
CORE SIZE HQ3				TOTAL RUN 116.9 ft									
ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) % ROD (ft) %		SAMP. NO.	STRATA REC. (ft) % ROD (ft) %		L O G	DESCRIPTION AND REMARKS			
										Continued from previous page			
190.6	111.0	5.0	2:31 2:28 2:07			17				Hard Rock: Reddish brown and gray, moderate severely to slightly weathered, very closely to closely fractured, soft to very hard, BIOTITE-QUARTZ GNEISS (continued) (5 joints at 20-30°, 2 joints at 70-80°, and 1 joint at 10° all with Fe staining)			
185.6	116.0	5.0	1:57 1:51 1:47 2:13 2:02	(4.8) 96%	(4.3) 86%	18				Hard Rock: Gray with reddish brown, slightly weathered to fresh, very closely to widely fractured, very hard, BIOTITE-QUARTZ GNEISS (4 joints at 20-30° and 2 joints at 40-50° with Fe stain and trace clay)			
180.6	121.0	5.0	2:23 2:46 3:13 3:04 3:09	(5.0) 100%	(4.9) 98%	19				(1 joint at 45° with Fe staining)			
175.6	126.0	5.0	3:32 3:39 3:34 3:59 3:46	(5.0) 100%	(5.0) 100%	20				-Quartz vein from 126.8-128.9 ft, no joints			
170.6	131.0	5.0	3:27 5:41 5:03 6:56 8:31	(5.0) 100%	(5.0) 100%	21				-No joints			
169.2	132.4	1.4	9:49	(1.4) 100%	(1.4) 100%	22				(1 joint at 20°; quartz vein at 135.2-136.0 ft; plagioclase veins at 133.4 ft and 133.9 ft)			
165.6	136.0	3.6	6:31/0.4 2:26/0.6 4:17 4:01 4:37	(3.6) 100%	(3.5) 97%	23				-0.1 ft diameter quartz vug at 139.0 ft			
160.6	141.0	5.0	4:27 3:37 6:08 7:05 7:12	(4.9) 98%	(4.9) 98%	24				-No Joints			
155.6	146.0	5.0	4:19 4:28 6:22 4:14 3:59	(5.1) 102%	(5.1) 102%	25				-No Joints; several small (<0.1 ft) quartz veins at 148.0 ft, 148.3 ft, and 149.5 ft			
150.6	151.0	5.0	4:59 4:00 4:39 4:52 5:09	(5.0) 100%	(5.0) 100%					Coring terminated at 151.0 ft in Hard Rock: Very hard, BIOTITE-QUARTZ GNEISS			

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B-903 – Box 1
B-903 – Box 2



B-903 – Box 4
B-903 – Box 3



B-903 - Box 6

B-903 - Box 5



B-903 - Box 7

B-903 - Box 8