



MACTEC PROJECT NO.: 6468-06-1472					COUNTY Louisa, VA					GEOLOGIST J. Howard				
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)				
BORING NO. B-906			DRILL METHOD: Mud Rotary/Core			SAMPLE METHODS: SPT/CORE			0 HR. 6.0					
COLLAR ELEV. 311.7 ft (NAVD88)			NORTHING 3,909,670		US ft (NAD83)		EASTING 11,685,795		US ft (NAD83)		24 HR. 28.8			
TOTAL DEPTH 150.5 ft			DRILL MACHINE CME 550 ATV			DRILLER: G. Akins			HAMMER TYPE 140 lbs Auto					
DATE STARTED 9/13/06			COMPLETED 9/19/06			CORE BARREL TYPE: HQ 3 triple tube-wireline								
ELEV.	DEPTH	BLOW COUNT			BLOWS PER FOOT					SAMP.	LOG	SOIL AND ROCK DESCRIPTION		
(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	20	40	60	80	100			NO.	
311.7					Ground Surface							311.7	0.0	
310.2	1.5										906-1		Clayey SAND (SC), strong brown (7.5YR 5/8), dry, medium dense (Residual Soil)	
308.2	3.5	4	6	10							906-2			
			7	11	13									
305.7	6.0		8	9	10						906-3			
303.2	8.5		6	8	10						906-4			
300.7	11.0		6	8	16						906-5			
298.2	13.5		3	6	8						906-6			
292.8	18.9		5	7	8						906-7			
287.8	23.9		5	6	6						906-8			
282.8	28.9		16	20	37						906-9			
277.8	33.9		13	37	50/0.3						906-10			
272.8	38.9		50/0.1								906-11			
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BORING NO. B-906		DRILL METHOD: Mud Rotary/Core				SAMPLE METHODS: SPT/CORE										
COLLAR ELEV. 311.7 ft (NAVD88)		NORTHING 3,909,670		US ft (NAD83)		EASTING 11,685,795		US ft (NAD83)								
TOTAL DEPTH 150.5 ft		DRILL MACHINE CME 550 ATV				DRILLER: G. Akins				HAMMER TYPE 140 lbs Auto						
DATE STARTED 9/13/06			COMPLETED 9/19/06			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						
162.1					Continued from previous page											
														161.2	150.5	Boring and coring terminated at 150.5 ft in Hard Rock: Very hard, BIOTITE GNEISS

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



SHEET 1 OF 2

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BORING NO. B-906			DRILL METHOD: Mud Rotary/Core				SAMPLE METHODS: SPT/CORE				0 HR. 6.0		
COLLAR ELEV. 311.7 ft (NAVD88)			NORTHING 3,909,670		US ft (NAD83)		EASTING 11,685,795		US ft (NAD83)		24 HR. 28.8		
TOTAL DEPTH 150.5 ft			DRILL MACHINE CME 550 ATV				DRILLER: G. Akins				HAMMER TYPE 140 lbs Auto		
DATE STARTED 9/13/06				COMPLETED 9/19/06				CORE BARREL TYPE: HQ 3 triple tube-wireline					
CORE SIZE HQ3				TOTAL RUN 111.5 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 @ 39.0 ft	
272.7	39.0	1.5	4:30/1.5	(1.0)	(0.0)	1						Hard Rock: Tan gray, gray brown, and gray orange, moderately to slightly weathered, very close to moderately close fracturing, moderately hard to hard, BIOTITE GNEISS	
271.2	40.5	5.0	1:30	(3.0)	(2.2)	2						-Weathered zones	
			1:30	60%	44%							(2 joints at 70° with weathering)	
266.2	45.5	5.0	2:15			3						(2 joints at 60°, 4 joints at 80-85° with weathering)	
			2:00	(4.3)	(2.6)								
			1:45	86%	52%								
261.2	50.5	5.0	2:15			4						(4 joints at 50-60°, 4 joints at 70-80°)	
			2:00	(4.7)	(3.6)								
			2:00	94%	72%								
256.2	55.5	5.0	2:00			5						(2 joints at 60-70°, 3 joints at 50°)	
			1:45	(4.5)	(2.5)								
			2:00	90%	50%								
251.2	60.5	5.0	2:15			6						(8 joints at 30-40°)	
			2:00	(5.0)	(4.8)								
			2:00	100%	96%								
246.2	65.5	3.3	3:15	(3.3)	(2.0)	7							
			4:15	100%	61%								
242.9	68.8	6.1	3:45			8						Hard Rock: Tan gray, moderately to slightly weathered, very close to close fracturing, moderately hard, QUARTZ GNEISS	
			2:15/0.3	(4.6)	(2.0)								
			4:15/0.8	75%	33%								
			5:00										
			4:45										
			3:00										
			2:45										
236.8	74.9	5.8	8:45/1.3	(3.2)	(1.5)	9						Weathered Rock: Tan gray, severely weathered Quartz GNEISS (partial recovery)	
			3:45	55%	26%								
			3:00									Hard Rock: Gray, moderately weathered, close fracturing, moderately hard, QUARTZ GNEISS	
			3:00									(6 joints at 40°, 1 joint at 80°)	
231.0	80.7	5.0	2:00			10						Weathered Rock: Brown gray, severely weathered, QUARTZ GNEISS (partial recovery)	
			4:15/1.8	(2.0)	(0.0)								
			2:45	40%	0%								
			3:00										
226.0	85.7	5.0	6:15	(2.3)	(1.2)	11						Hard Rock: Brown gray, moderately severe to moderately weathered, very close to close fracturing, medium hard, QUARTZ GNEISS	
			4:30	46%	24%							(4 joints at 30°)	
			2:45										
			2:45									Weathered Rock: Brown gray, severely weathered, QUARTZ GNEISS (partial recovery)	
221.0	90.7	4.9	8:00	(4.3)	(3.8)	12						Hard Rock: Gray, gray brown, blue gray, and pink, moderately to very slightly weathered, close to moderately close fracturing, medium hard to hard, BIOTITE GNEISS	
			5:00	88%	78%							(5 joints at 30-40°)	
			3:30										
			3:30										
			3:15										
216.1	95.6	4.4	4:11/0.9	(4.4)	(3.9)	13						(2 joints at 80°, 1 joint at 20°)	
			4:15	100%	89%								
			2:15										
			2:15										
211.7	100.0	5.5	2:00	(5.5)	(4.7)	14						(4 joints at 30-40°, 2 joints at 50°)	
			1:30/0.4	100%	85%								
			2:30										
			3:30										
			3:15										
206.2	105.5	5.0	4:00/1.5	(5.0)	(4.2)	15						(3 joints at 30-40°, 1 joint at 85°; trace epidote)	
			2:30	100%	84%								
			2:15										
			2:15										
			3:00										
201.2	110.5	5.0	2:30	(4.9)	(4.1)	16							
			3:00	98%	82%								
			3:15										
			2:45										

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



SHEET 2 OF 2

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COLLAR ELEV. 311.7 ft (NAVD88)			NORTHING 3,909,670		US ft (NAD83)		EASTING 11,685,795		US ft (NAD83)		24 HR. 28.8		
TOTAL DEPTH 150.5 ft			DRILL MACHINE CME 550 ATV				DRILLER: G. Akins				HAMMER TYPE 140 lbs Auto		
DATE STARTED 9/13/06				COMPLETED 9/19/06				CORE BARREL TYPE: HQ 3 triple tube-wireline					
CORE SIZE HQ3				TOTAL RUN 111.5 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	
												Continued from previous page	
196.2	115.5		3:00 4:00										Hard Rock: Gray, gray brown, blue gray, and pink, moderately to very slightly weathered, close to moderately close fracturing, medium hard to hard, BIOTITE GNEISS (continued) (7 joints at 40°; trace epidote, quartz veins)
		5.0	2:30 3:15 3:15 3:30 5:00	(5.0) 100%	(4.5) 90%	17					(7 joints at 30-40°)		
191.2	120.5		3:00 3:45 4:30 4:00 6:30	(5.0) 100%	(4.1) 82%	18					(4 joints at 50°)		
		5.0	3:30 2:30 3:30 3:30 3:30	(4.5) 90%	(3.6) 72%	19							
186.2	125.5												181.7 130.0
		5.0	3:00 3:45 6:45 5:00 6:30	(4.6) 92%	(2.9) 58%	20							Weathered Rock: Severely weathered, BIOTITE GNEISS (partial recovery) (1 joint at 60°)
176.2	135.5												178.5 133.2
		5.0	10:15 9:30 8:45 7:00 10:30	(5.0) 100%	(5.0) 100%	21							Hard Rock: Blue gray, slightly weathered to fresh, close to moderately close fracturing, hard to very hard, BIOTITE GNEISS (4 joints at 60°)
		4.9	2:45 3:15 4:30 5:30 7:15	(4.9) 100%	(4.5) 92%	22							(5 joints at 60°, 1 joint at 40°; quartz+feldspar veins)
166.3	145.4												(4 joints at 40°, 1 joint at 20°)
		5.1	4:45 5:30 5:45 5:15 7:45/1.1	(5.1) 100%	(5.1) 100%	23						161.2 150.5	
161.2	150.5											Coring terminated at 150.5 ft in Hard Rock: Very hard, BIOTITE GNEISS	

NORTH ANNA COL

Core

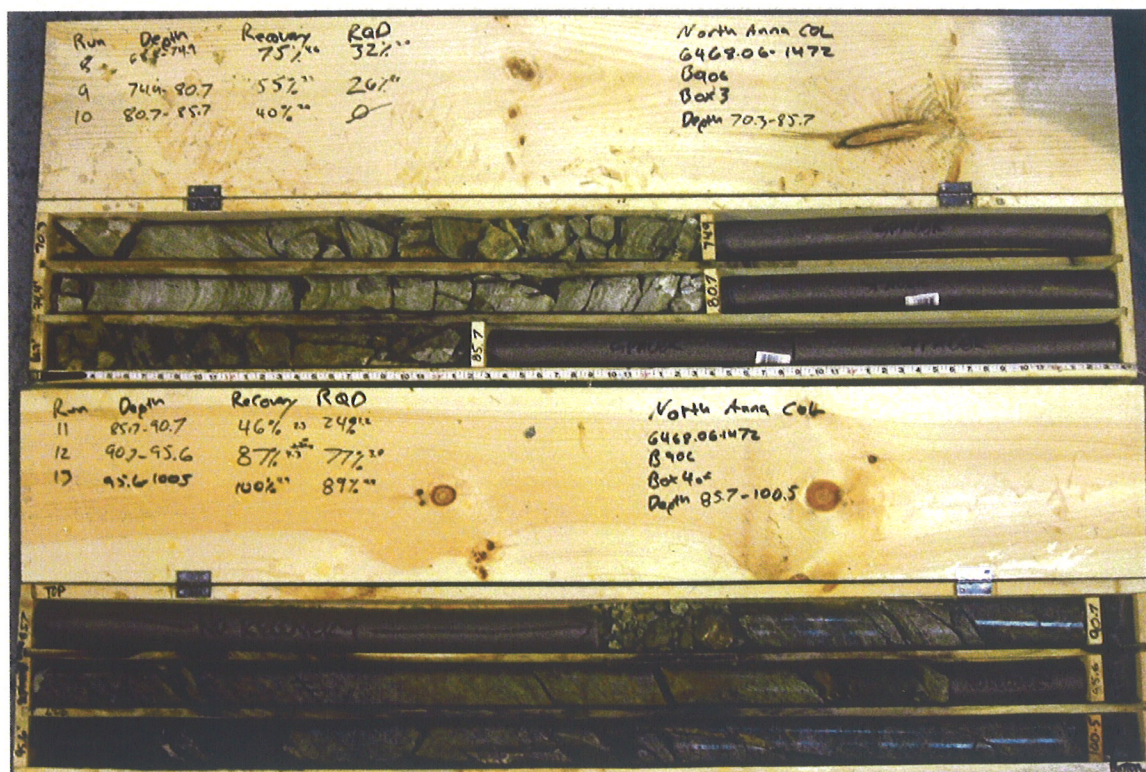
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NORTH ANNA COL CORE NORTH ANNA COL DATA REPORT REV0.GPJ NORTH ANNA COL GDT 1/19/07



B-906 – Box 1

B-906 – Box 2



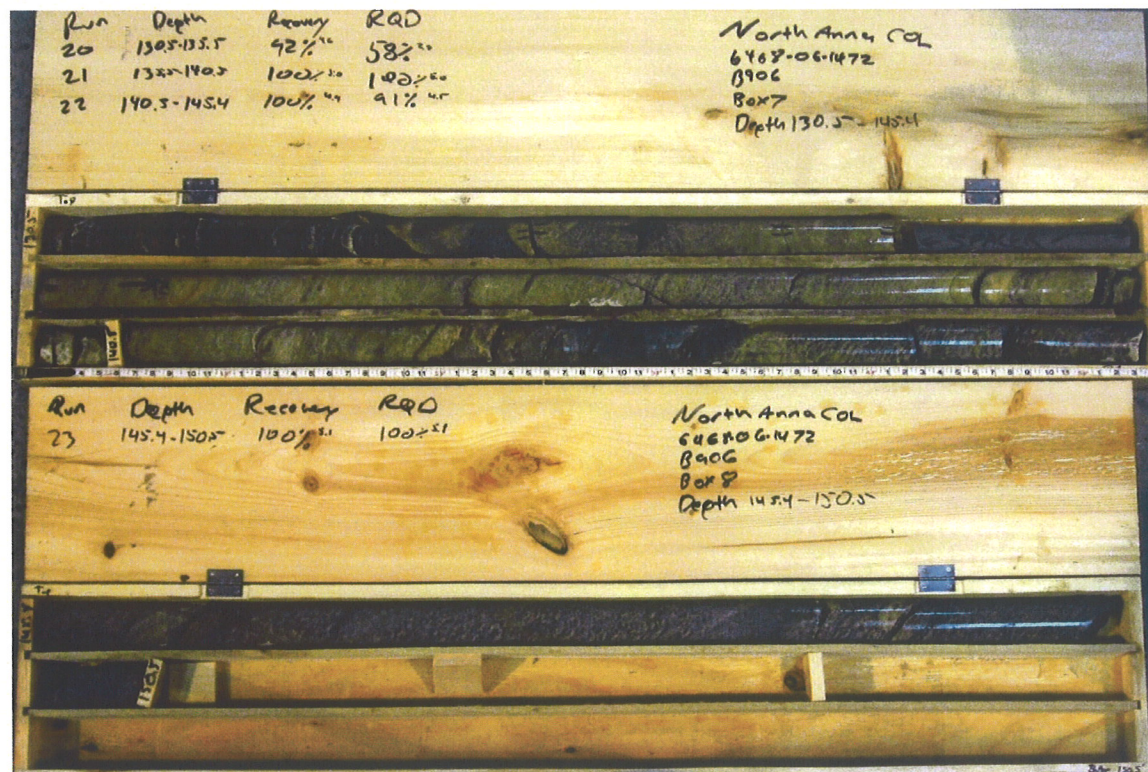
B-906 – Box 3

B-906 – Box 4



B-906 - Box 5

B-906 - Box 6



B-906 - Box 7

B-906 - Box 8