

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



MACTEC PROJECT NO.: 6468-06-1472										COUNTY Louisa, VA					GEOLOGIST S. Lehman				
SITE DESCRIPTION NORTH ANNA COL															GROUND WATER (ft)				
BORING NO. B-902					DRILL METHOD: Mud Rotary/Core					SAMPLE METHODS: SPT/CORE					0 HR. 25.2				
COLLAR ELEV. 302.2 ft (NAVD88)					NORTHING 3,909,874 US ft (NAD83)					EASTING 11,685,884 US ft (NAD83)					24 HR. 25.4				
TOTAL DEPTH 201.7 ft					DRILL MACHINE CME 55LC Track					DRILLER: D. White					HAMMER TYPE 140 lbs Auto				
DATE STARTED 8/28/06					COMPLETED 9/7/06					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									
152.6					Continued from previous page														
														Hard Rock: Light gray, fresh, close to wide fracturing, hard, QUARTZ GNEISS with biotite with trace pyrite (continued)					
														115.5	186.7	Hard Rock: Light gray, moderately weathered to fresh, moderately close to wide fracturing, hard, QUARTZ GNEISS with biotite and feldspar			
														109.2	193.0	Hard Rock: Dark to light gray, moderately to slightly weathered, close to moderately close fracturing, medium hard, BIOTITE GNEISS with quartz and feldspar			
														100.5	201.7	Boring and coring terminated at 201.7 ft in Hard Rock: Medium hard, QUARTZ-BIOTITE GNEISS with feldspar			

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SHEET 1 OF 3

MACTEC PROJECT NO.: 6468-06-1472						COUNTY Louisa, VA				GEOLOGIST S. Lehman	
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BORING NO. B-902		DRILL METHOD: Mud Rotary/Core				SAMPLE METHODS: SPT/CORE				0 HR.	25.2
COLLAR ELEV. 302.2 ft (NAVD88)		NORTHING 3,909,874		US ft (NAD83)		EASTING 11,685,884		US ft (NAD83)		24 HR.	25.4
TOTAL DEPTH 201.7 ft		DRILL MACHINE CME 55LC Track				DRILLER: D. White				HAMMER TYPE 140 lbs Auto	
DATE STARTED 8/28/06				COMPLETED 9/7/06		CORE BARREL TYPE: HQ 3 triple tube-wireline					
CORE SIZE HQ3				TOTAL RUN 178.1 ft							
ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	REC. (ft) %	RQD (ft) %	SAMP. NO.	REC. (ft) %	RQD (ft) %	L O G	DESCRIPTION AND REMARKS	
										Begin Coring @ 23.6 ft	
278.6	23.6	1.9	2:46	(1.9)	(1.4)	1				278.4	Weathered Rock: Light gray and brown, very severely to severely weathered, QUARTZ GNEISS with biotite (continued) (2 joints at 45°; 1 joint at 80° with Fe stain)
276.7	25.5		7:08/0.9	100%	74%						
275.4	26.8	1.3	0:12/0.1	(1.3)	(1.3)	2				275.4	
		5.0	2:29	100%	100%	UCS-27.3'					Hard Rock: Light gray with orange Fe staining, slightly weathered, moderately close to wide fracturing, moderately hard, QUARTZ GNEISS with biotite and trace magnetite -No Joints
			0:06/0.2	(5.0)	(5.0)						
			3:29	100%	100%						
270.4	31.8		4:08								Hard Rock: Light gray with orange Fe staining, very slightly weathered to fresh, moderately close to wide fracturing, hard, QUARTZ GNEISS with biotite and trace magnetite -No Joints
		2.1	5:24	(2.1)	(1.9)	4					
			6:12	100%	90%						
268.3	33.9		7:25	(4.6)	(0.6)	5					(2 joints at 45° with Fe staining) (1 joint at 20° with clay) -No Joints
267.5	34.7	0.8	4:46	(0.6)	(0.6)	6					
		2.1	11:49	75%	75%						
265.4	36.8		7:04/0.1	(2.1)	(2.1)	7					-No Joints -No Joints
		4.9	12:04/0.8	(4.9)	(4.9)						
			0:15/0.1	100%	100%						
			2:11	100%	100%						-No Joints
			2:44	100%	100%						
			3:16	100%	100%						
260.5	41.7		3:36	(5.0)	(5.0)	8					-No Joints
		5.1	4:10	(5.0)	(5.0)						
			6:09	98%	98%						
			9:09/0.9	98%	98%						-No Joints
			1:59								
			3:21								
255.4	46.8		2:53	(4.6)	(4.6)	UC-47.4'					-No Joints
		4.7	3:54	98%	98%						
			3:43/1.1	(4.6)	(4.6)						
			4:06								(3 joints at 20°)
			6:05								
			7:08								
250.7	51.5		9:58	(4.6)	(4.2)	10					(Moderately to slightly weathered from 58.8-60.4 ft; 2 joints at 20°)
		5.3	10:04/0.7	(4.6)	(4.2)						
			2:38/1.3	87%	79%						
			2:29								(1 joint at 45° with moderate weathering and Fe staining)
			1:23								
			1:56								
245.4	56.8		2:19	(5.0)	(5.0)	11					-No Joints
		5.0	2:46	(5.0)	(5.0)						
			2:57	92%	92%						
			2:08								(1 joint at 45° with moderate weathering and Fe staining)
			2:03								
			1:43								
240.4	61.8		2:57	(5.0)	(5.0)	12					-No Joints
		5.0	2:25	(5.0)	(5.0)						
			2:43	100%	100%						
			3:30								-No Joints
			4:08								
			5:08								
235.4	66.8		7:04	(5.0)	(5.0)	13					-No Joints
		5.0	11:15	(5.0)	(5.0)						
			3:54	100%	100%						
			2:59								-No Joints
			2:39	(4.7)	(4.7)	UC-72.3'					
			3:14	94%	94%						
			3:45								-No Joints
			4:59								
			3:46								
225.4	76.8		4:41	(5.0)	(5.0)	15					-No Joints
		5.0	5:02	(5.0)	(5.0)						
			5:09	100%	100%						
			4:10								Hard Rock: Light gray to dark gray, fresh, moderately close to wide fracturing, hard, QUARTZ-BIOTITE GNEISS (1 joint at 75°)
			2:50								
			5:06	(4.7)	(4.7)	16					
		4.7	7:00	(4.7)	(4.7)						(2 joints at 60°)
			7:43	100%	100%						
			6:01								
215.7	86.5		5:58	(5.2)	(5.2)	17					-No Joints
		5.2	1:20	(5.2)	(5.2)						
			1:30	100%	100%						
			1:38								-No Joints
			1:26								
			1:34/1.2								
210.5	91.7		1:19	(5.0)	(5.0)	UCS-92.8'					-No Joints
		5.0	1:26	(5.0)	(5.0)						
			1:23	100%	100%						
			1:28								-No apparent joints. abundant mechanical fractures
			1:39								
			1:33	(4.0)	(4.0)	19					
205.5	96.7										

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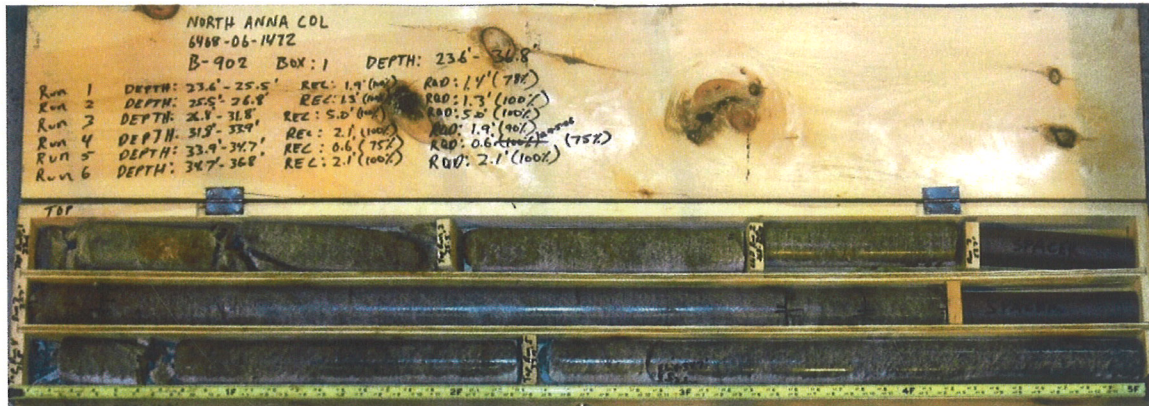
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SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)			
BORING NO. B-902			DRILL METHOD: Mud Rotary/Core				SAMPLE METHODS: SPT/CORE				0 HR. 25.2		
COLLAR ELEV. 302.2 ft (NAVD88)			NORTHING 3,909,874		US ft (NAD83)		EASTING 11,685,884		US ft (NAD83)		24 HR. 25.4		
TOTAL DEPTH 201.7 ft			DRILL MACHINE CME 55LC Track				DRILLER: D. White				HAMMER TYPE 140 lbs Auto		
DATE STARTED 8/28/06			COMPLETED 9/7/06				CORE BARREL TYPE: HQ 3 triple tube-wireline						
CORE SIZE HQ3			TOTAL RUN 178.1 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	
200.5	101.7	5.0	1:37 1:43 1:33 1:28	80%	80%							Hard Rock: Light gray to dark gray, fresh, moderately close to wide fracturing, hard, QUARTZ-BIOTITE GNEISS (continued)	
			1:32 1:32 1:21 1:56 1:39	(5.0) 100%	(5.0) 100%	20						(Quartz vein from 102.1-102.4 ft; 1 joint at 70° with slight weathering and Fe staining)	
195.5	106.7	5.0	1:23 1:30 1:36 1:32 1:32	(5.0) 100%	(5.0) 100%	21						-No Joints	
190.5	111.7	5.0	1:39 1:35 1:29 1:26 1:25	(5.0) 100%	(4.4) 88%	22						Hard Rock: Light gray to bluish gray with orange Fe staining, fresh to moderately weathered, close to wide fracturing, hard, QUARTZ-BIOTITE GNEISS (Moderately to slightly weathered from 114.5-116.7 ft; 3 joints at 45° with weathering and Fe stain)	
185.5	116.7	5.0	1:33 1:32 1:36 1:38 1:34	(5.0) 100%	(4.2) 84%	23						(Moderately to very slightly weathered along joints; 4 joints at 40°, 1 joint at 70°, and 1 joint at 85°-all with fe staining)	
180.5	121.7	5.0	1:15 1:01 1:12 1:26 1:28	(3.0) 60%	(1.7) 34%	24						Hard Rock: Light gray with orange Fe staining, slight to moderately severe weathering, close fracturing, hard to moderately hard, QUARTZ GNEISS with biotite, feldspar, and trace magnetite (3 joints at 40° with Fe staining)	
175.5	126.7	5.0	2:18 2:18 2:20 2:32 2:22	(4.9) 98%	(4.9) 98%	25						Hard Rock: Light gray, fresh, close to wide fracturing, hard, QUARTZ GNEISS with biotite with trace pyrite (1 joint at 60° and 1 joint at 20° with Fe staining)	
170.5	131.7	5.0	2:13 2:28 2:34 2:53 3:17	(5.0) 100%	(5.0) 100%	26						-No Joints	
165.5	136.7	5.0	4:01 4:00 4:04 4:57 4:35	(5.0) 100%	(5.0) 100%	27						(1 joint at 45° with pyrite and muscovite)	
160.5	141.7	5.0	1:41 1:54 2:05 1:53 2:01	(5.0) 100%	(5.0) 100%	UC-141.9'						(1 joint at 70° and 1 joint at 45° with Fe staining)	
155.5	146.7	4.9	2:43 3:45 4:25 5:27 5:13/0.9	(4.9) 100%	(4.9) 100%	29						-No Joints	
150.6	151.6	5.1	1:55 2:30 2:20 2:45 3:03/1.1	(5.1) 100%	(5.1) 100%	30						(1 joint at 65° with clay and weathering)	
145.5	156.7	5.0	3:22 4:14 4:24 4:52 9:30	(5.0) 100%	(5.0) 100%	31						(1 joint at 90° with clay and Fe staining; 1 joint at 45 with Fe staining)	
140.5	161.7	5.0	1:55 2:53 3:44 5:31 6:11	(5.0) 100%	(5.0) 100%	32						(1 joint at 90° with trace clay)	
135.5	166.7	2.6	7:05 10:18 11:20/0.6	(2.6) 100%	(2.6) 100%	33						-No Joints	
132.9	169.3	2.4	0:35/0.4 2:21 2:07 1:38	(2.3) 96%	(2.0) 83%	34						(1 joint at 45° with moderate weathering and Fe stain)	
130.5	171.7	5.0		(4.7) (4.7)		35						(1 joint at 80° with trace clay)	

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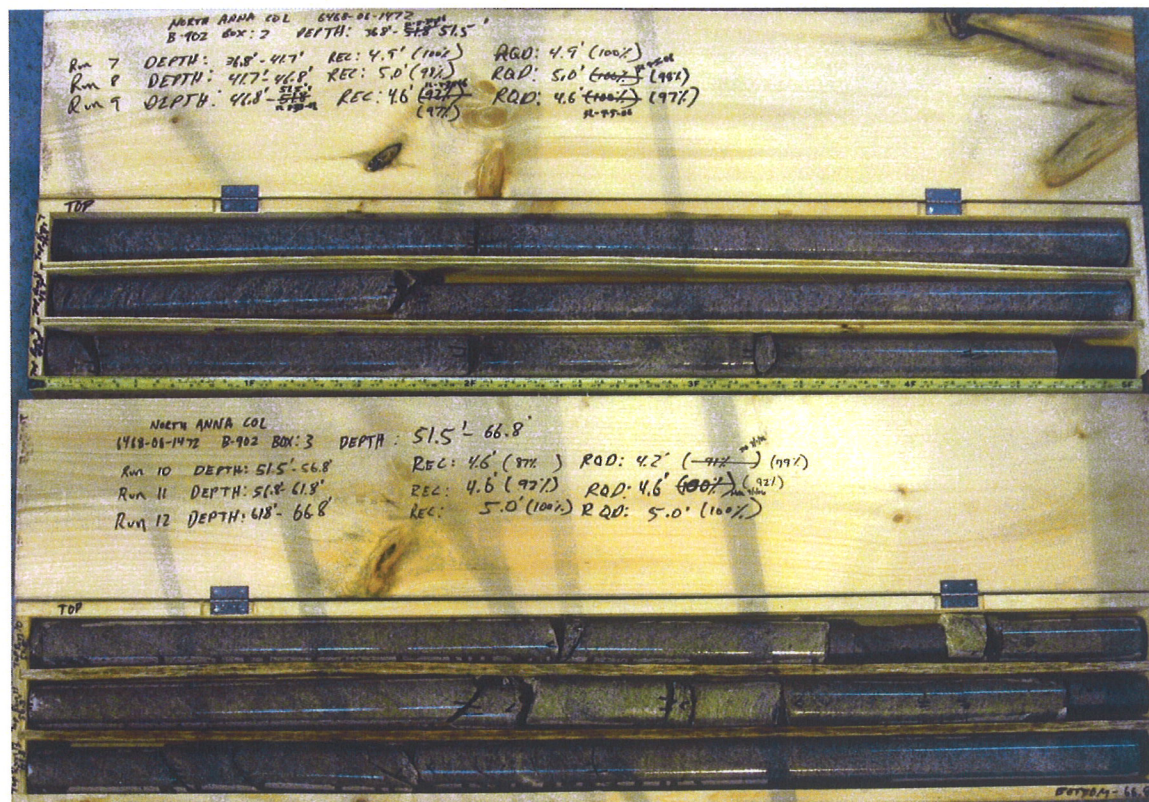


SHEET 3 OF 3

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SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)			
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TOTAL DEPTH 201.7 ft			DRILL MACHINE CME 55LC Track				DRILLER: D. White				HAMMER TYPE 140 lbs Auto		
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CORE SIZE HQ3				TOTAL RUN 178.1 ft									
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										Continued from previous page			
125.5	176.7		2:10 2:28 3:08 3:00	94%	94%					Hard Rock: Light gray, fresh, close to wide fracturing, hard, QUARTZ GNEISS with biotite with trace pyrite (continued)			
		5.0	3:46 3:51 4:21 5:46 7:54	(5.0) 100%	(5.0) 100%	36				(1 joint at 80-90°)			
120.5	181.7												
119.1	183.1	1.4	3:19 2:25/0.4	(1.4) 100%	(1.4) 100%	37				(1 joint at 80°)			
		3.6	2:02/0.6 4:05 4:40 8:30	(3.6) 100%	(3.6) 100%	UC-184.6'				(1 joint at 70° and 1 joint at 45° with weathering and Fe stain)			
115.5	186.7									115.5 186.7			
		5.0	5:16 8:16 7:40 7:02 7:30	(5.0) 100%	(4.7) 94%	39				Hard Rock: Light gray, moderately weathered to fresh, moderately close to wide fracturing, hard, QUARTZ GNEISS with biotite and feldspar (1 joint at 80-90° weathered with trace clay; 2 joints at 60° weathered with Fe stain)			
110.5	191.7												
		3.5	2:00 2:22 2:14	(3.2) 91%	(2.5) 71%	40				(4 joints at 45° weathered with trace clay) 109.2 193.0			
107.0	195.2		2:52/0.5							Hard Rock: Dark to light gray, moderately to slightly weathered, close to moderately close fracturing, medium hard, BIOTITE GNEISS with quartz and feldspar			
105.5	196.7	1.5	2:46/0.5 5:36	(1.4) 93%	(1.2) 80%	41				(1 joint at 45° with weathering and clay)			
		5.0	2:59 3:34 2:45 2:23 2:10	(5.0) 100%	(4.1) 82%	42				(1 joint at 20° and 4 joints at 45° with clay)			
100.5	201.7									100.5 201.7			
										Coring terminated at 201.7 ft in Hard Rock: Medium hard, QUARTZ-BIOTITE GNEISS with feldspar			

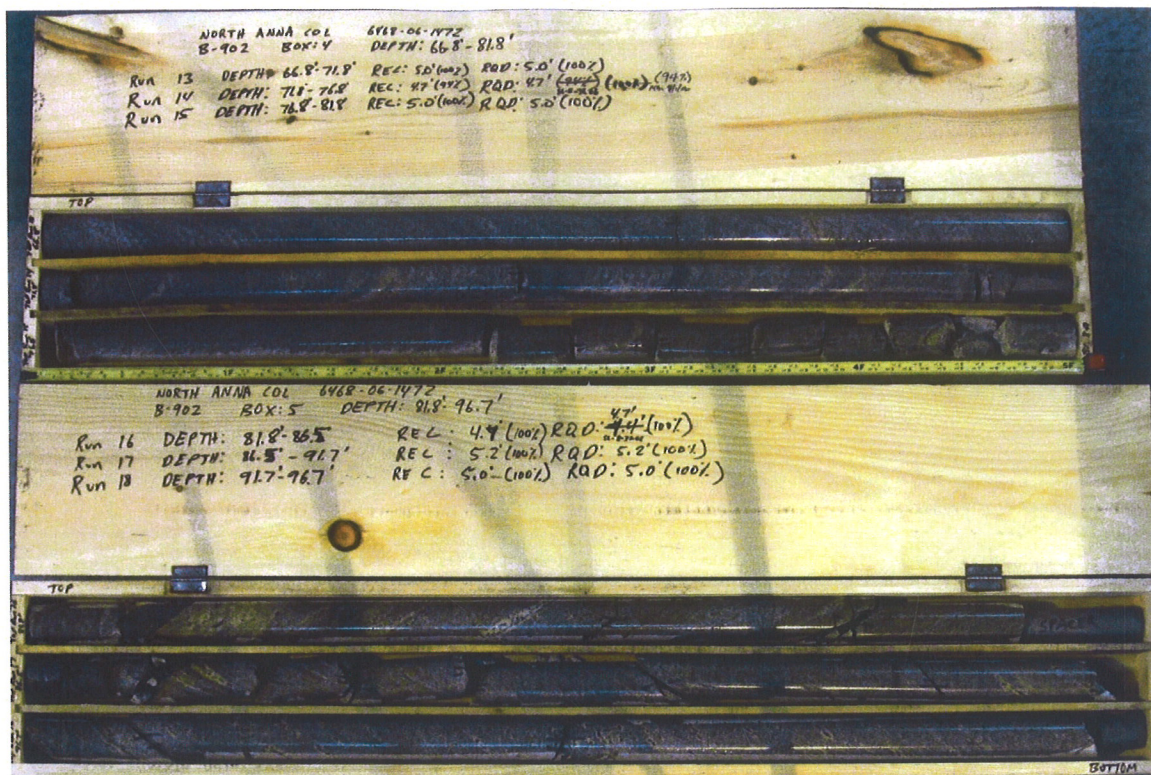


B-902 - Box 1



B-902 - Box 2

B-902 - Box 3



B-902 - Box 4

B-902 - Box 5



B-902 - Box 6

B-902 - Box 7



B-902 - Box 8

B-902 - Box 9



B-902 - Box 10

B-902 - Box 11



B-902 – Box 12

B-902 – Box 13