



MACTEC PROJECT NO.: 6468-06-1472				COUNTY Louisa, VA				GEOLOGIST J. Wallen								
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)						
BORING NO. B-910		DRILL METHOD: Mud Rotary/Core				SAMPLE METHODS: SPT/CORE				0 HR. ND						
COLLAR ELEV. 316.5 ft (NAVD88)		NORTHING 3,909,668		US ft (NAD83)		EASTING 11,685,883		US ft (NAD83)		24 HR. 21.4						
TOTAL DEPTH 148.4 ft		DRILL MACHINE CME 550 ATV				DRILLER: G. Akins				HAMMER TYPE 140 lbs Auto						
DATE STARTED 8/31/06				COMPLETED 9/7/06				CORE BARREL TYPE: HQ 3 triple tube-wireline								
ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION				
		0.5ft	0.5ft	0.5ft	0	20	40	60	80				100			
316.5					Ground Surface							316.5	0.0			
315.0	1.5															
313.0	3.5	22	25	14							910-1			313.5	3.0	GRAVEL (GW) light yellowish brown (10YR 6/4), dry, dense, well graded, silt and fine to coarse sand (Fill)
310.5	6.0	5	8	14							910-2					Sandy CLAY (CL) brown (7YR 5/3), moist, very stiff (Residual Soil)
308.0	8.5	12	13	16							910-3			309.5	7.0	Silty, fine SAND (SM), moist, medium dense (Residual Soil)
305.5	11.0	9	12	12							910-4			306.5	10.0	Sandy SILT (ML) yellowish brown (10YR 5/4 to 10YR 5/6) and black (5YR 2.5/1) mottled, moist, stiff and very stiff (Residual Soil)
303.0	13.5	6	6	9							910-5					
298.0	18.5	5	7	12							910-6					
293.0	23.5	2	5	8							910-7					
290.6	25.9	14	25	50/0.4							910-8			294.5	22.0	Weathered Rock: Yellowish brown (10YR 5/6) and brownish yellow (10YR 6/8), moist, very dense, BIOTITE QUARTZ GNEISS
288.0	28.5	34	40	45							910-9					
285.2	31.3	45	50/0.4								910-10					
281.2	35.3	50/0.1									910-11					
276.1	40.4	50/0.2									910-12					
		50/0.2									910-13			274.5	42.0	Hard Rock: Gray and brown, moderately severe to moderately weathered, very close to moderately close fracturing, soft, BIOTITE QUARTZ GNEISS

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



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TOTAL DEPTH 148.4 ft		DRILL MACHINE CME 550 ATV				DRILLER: G. Akins				HAMMER TYPE 140 lbs Auto		
DATE STARTED 8/31/06				COMPLETED 9/7/06				CORE BARREL TYPE: HQ 3 triple tube-wireline				
ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION
		0.5ft	0.5ft	0.5ft	0	20	40	60	80			
241.7					Continued from previous page							
												241.2 Weathered Rock: Brown and gray, severely to moderately weathered, close fracturing, soft, BIOTITE QUARTZ GNEISS
												226.1 Hard Rock: Light to dark gray, moderately weathered to fresh, close to moderately close fracturing, medium hard to very hard, BIOTITE QUARTZ GNEISS
												168.1
												148.4

Boring and coring terminated at 148.4 ft in
Hard Rock: Hard to very hard,
BIOTITE-QUARTZ GNEISS

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BORING NO. B-910			DRILL METHOD: Mud Rotary/Core			SAMPLE METHODS: SPT/CORE				0 HR. ND		
COLLAR ELEV. 316.5 ft (NAVD88)			NORTHING 3,909,668		US ft (NAD83)		EASTING 11,685,883		US ft (NAD83)		24 HR. 21.4	
TOTAL DEPTH 148.4 ft			DRILL MACHINE CME 550 ATV			DRILLER: G. Akins			HAMMER TYPE 140 lbs Auto			
DATE STARTED 8/31/06				COMPLETED 9/7/06			CORE BARREL TYPE: HQ 3 triple tube-wireline					
CORE SIZE HQ3				TOTAL RUN 116.6 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 @ 31.4 ft		
285.1	31.4	3.9	1:32 2:43 1:35	(0.0) 0%	(0.0) 0%	1					Weathered Rock: Yellowish brown (10YR 5/6) and brownish yellow (10YR 6/8), moist, very dense, BIOTITE QUARTZ GNEISS (continued) -No Recovery	
281.2	35.3		1:38/0.9									
281.0	35.5	4.9	N=50/0.2 1:55 2:10 1:59 1:33	(0.5) 10%	(0.0) 0%	910-12 2					-Very poor recovery	
276.1	40.4		2:19/0.9									
275.9	40.6	4.8	N=50/0.2 1:03 2:04 2:02 1:50	(2.5) 52%	(0.6) 13%	910-13 3				274.5	42.0 Hard Rock: Gray and brown, moderately severe to moderately weathered, very close to moderately close fracturing, soft, BIOTITE QUARTZ GNEISS	
271.1	45.4		2:07/0.8								(0.4 ft thick quartz vein)	
266.1	50.4	5.0	2:10 2:16 2:17 2:22 2:25	(3.8) 76%	(2.5) 50%	4						
261.1	55.4	5.0	1:45 1:43 2:02 2:58 2:22	(3.6) 72%	(3.0) 60%	UC-53.1'					(6 joints at 45°)	
256.1	60.4	5.0	3:19 2:20 2:28 2:56 2:20	(4.6) 92%	(4.3) 86%	6					(5 joints at 45°)	
251.6	64.9	4.5	1:42 1:53 1:46 2:39	(3.1) 69%	(2.3) 51%	7					(2 joints at 70°, 4 joints at 20°)	
246.2	70.3	5.4	2:34/0.5 3:25 2:53 5:49 3:00 3:03/1.4	(2.9) 54%	(1.4) 26%	8						
241.2	75.3	5.0	3:49 4:46 4:26 1:54 1:49	(2.5) 50%	(0.4) 8%	9				241.2	75.3 (7 joints at 70°)	
236.1	80.4	5.1	3:08 2:46 2:45 2:03 2:30/1.1	(2.0) 39%	(0.0) 0%	10					Weathered Rock: Brown and gray, severely to moderately weathered, close fracturing, soft, BIOTITE QUARTZ GNEISS -Poor Recovery	
231.1	85.4	5.0	1:43 1:44 1:16 1:17 1:15	(1.0) 20%	(0.3) 6%	11					(2 joints at 15°)	
226.1	90.4	5.0	1:20 1:19 1:04 1:32 1:00	(0.0) 0%	(0.0) 0%	12					-No Recovery	
224.2	92.3	1.9	3:46 1:55/0.9	(1.8) 95%	(1.7) 89%	UCS-91.1'				226.1	90.4 Hard Rock: Light to dark gray, moderately weathered to fresh, close to moderately close fracturing, medium hard to very hard, BIOTITE QUARTZ GNEISS	
221.2	95.3	3.0	5:10 2:23 2:20	(2.8) 93%	(1.4) 47%	14					(4 joints at 30°) (5 joints at 45°, 4 joints at 10°) (5 joints at 10°, 5 joints at 30°, 1 joint at 70° with clay)	
216.2	100.3	5.0	1:42 1:45 1:38 1:48 1:43	(5.0) 100%	(3.5) 70%	15					(1 joint at 70°, 7 joints at 30°)	
211.2	105.3	5.0	1:57 1:46 2:02 1:36 1:48	(5.0) 100%	(3.9) 78%	16						
			1:41			17						

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COLLAR ELEV. 316.5 ft (NAVD88)		NORTHING 3,909,668		US ft (NAD83)		EASTING 11,685,883		US ft (NAD83)		24 HR.	21.4
TOTAL DEPTH 148.4 ft		DRILL MACHINE CME 550 ATV				DRILLER: G. Akins				HAMMER TYPE 140 lbs Auto	
DATE STARTED 8/31/06				COMPLETED 9/7/06				CORE BARREL TYPE: HQ 3 triple tube-wireline			
CORE SIZE HQ3				TOTAL RUN 116.6 ft							
ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS	
				REC. (ft) %	RQD (ft) %		REC. (ft) %	RQD (ft) %			
Continued from previous page											
206.2	110.3	5.0	1:39 1:48 1:35 1:48	(4.9) 98%	(3.9) 78%					(5 joints at 30°, 4 joints at 60°) Hard Rock: Light to dark gray, moderately weathered to fresh, close to moderately close fracturing, medium hard to very hard, BIOTITE QUARTZ GNEISS (continued)	
201.2	115.3	5.0	1:15 2:03 1:16 1:19 1:38	(5.0) 100%	(3.5) 70%	18				(2 joints at 75°, 5 joints at 40°, 4 joints at 10°)	
196.2	120.3	5.0	1:32 1:20 1:27 1:28 1:27	(3.5) 70%	(2.4) 48%	19				(5 joints at 10°, 6 joints at 30°)	
191.2	125.3	5.0	1:45 1:47 1:42 2:42 3:05	(4.6) 92%	(3.5) 70%	UC-120.9'				(7 joints at 40°, 1 joint at 10°)	
186.2	130.3	5.0	3:21 2:53 1:43 1:37 2:24	(4.8) 96%	(4.0) 80%	21				(5 joints at 70°, 4 joints at 10°)	
181.2	135.3	5.0	2:57 2:25 1:55 1:45 1:45	(4.9) 98%	(3.4) 68%	22				(8 joints at 45°, 5 joints at 70°)	
176.2	140.3	5.0	2:03 2:44 4:14 5:25 4:40	(4.8) 96%	(3.9) 78%	23				(5 joints at 30°, 1 joint at 70°, 4 joints at 10°)	
171.2	145.3	5.0	4:24 5:31 3:16 5:20 5:32	(5.0) 100%	(4.2) 84%	UC-142.1'				(4 joints at 45°, 1 joint at 15°; quartz vein from 142.9-143.6 ft)	
168.1	148.4	3.1	4:03 2:43 5:24/1.1	(3.0) 97%	(2.1) 68%	25				(5 joints at 45°, 1 joint at 30°)	
									168.1	148.4	Coring terminated at 148.4 ft in Hard Rock: Hard to very hard, BIOTITE-QUARTZ GNEISS

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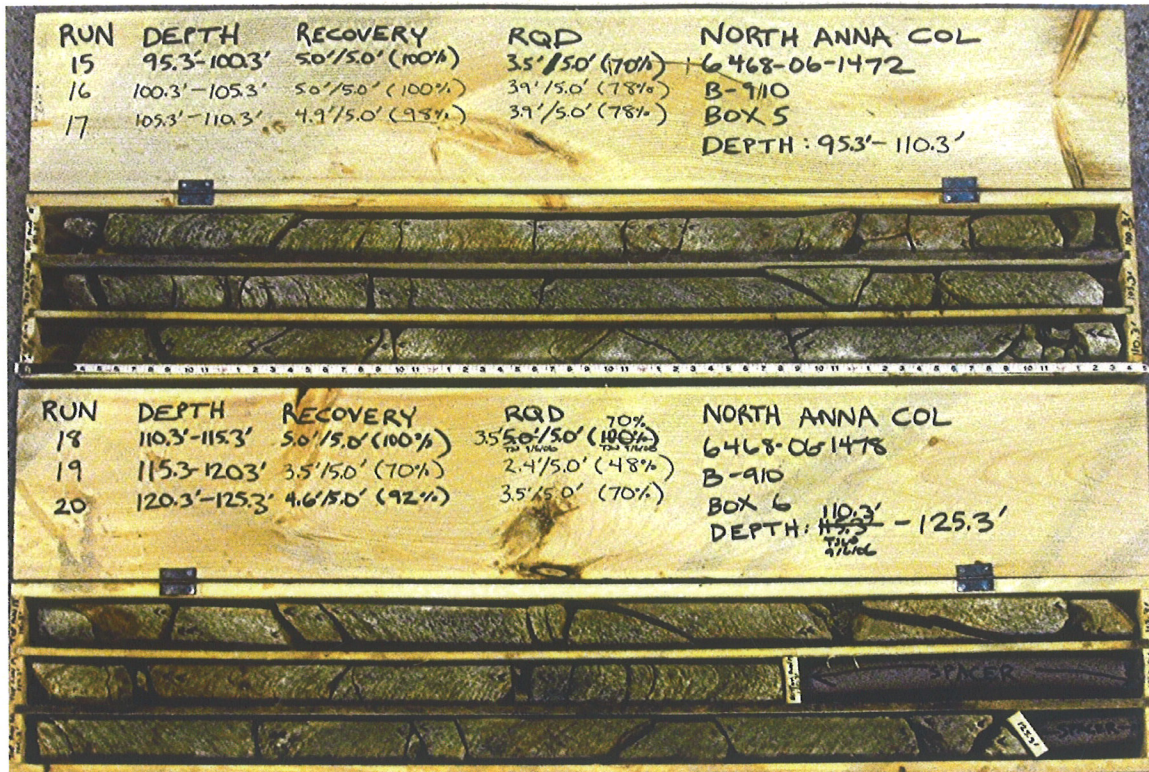
B-910 - Box 1

B-910 - Box 2



B-910 - Box 3

B-910 - Box 4



B-910 - Box 5

B-910 - Box 6



B-910 - Box 7

B-910 - Box 8