

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



SHEET 2 OF 2

MACTEC PROJECT NO.: 6468-06-1472				COUNTY Louisa, VA				GEOLOGIST S. Lehman/B. Deobald								
SITE DESCRIPTION NORTH ANNA COL								GROUND WATER (ft) 0 HR. ND 24 HR. 19.3								
BORING NO. B-934		DRILL METHOD: Mud Rotary/Core			SAMPLE METHODS: SPT/CORE											
COLLAR ELEV. 294.8 ft (NAVD88)		NORTHING 3,909,860		US ft (NAD83)		EASTING 11,685,686		US ft (NAD83)								
TOTAL DEPTH 101.6 ft		DRILL MACHINE CME 55LC Track			DRILLER: D. White			HAMMER TYPE 140 lbs Auto								
DATE STARTED 10/26/06			COMPLETED 10/30/06			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						
220.0					Continued from previous page											
														Hard Rock: Light gray with orange Fe staining, slightly weathered to fresh, close to wide fracturing, hard to very hard, QUARTZ-BIOTITE GNEISS (continued)		
														193.2	101.6	Boring and coring terminated at 101.6 ft in Hard Rock: Very hard, QUARTZ-BIOTITE GNEISS

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



SHEET 1 OF 1

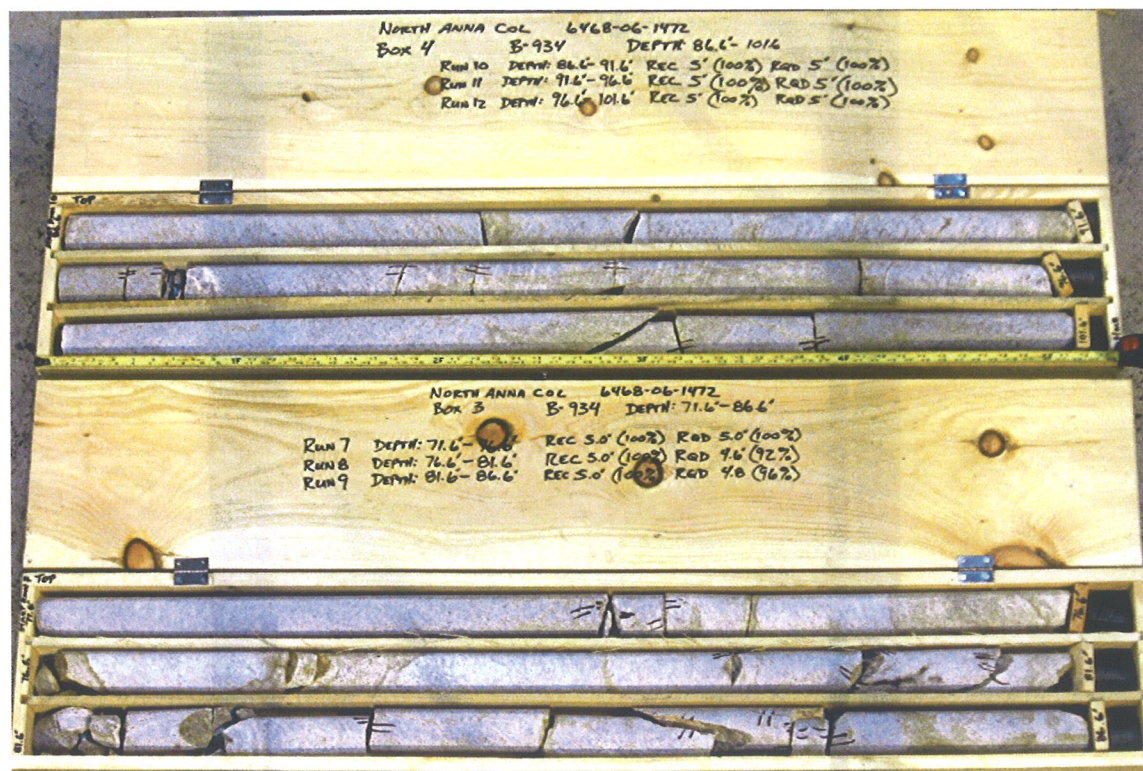
MACTEC PROJECT NO.: 6468-06-1472						COUNTY Louisa, VA				GEOLOGIST S. Lehman/B. Deobald			
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)			
BORING NO. B-934			DRILL METHOD: Mud Rotary/Core				SAMPLE METHODS: SPT/CORE				0 HR. ND		
COLLAR ELEV. 294.8 ft (NAVD88)			NORTHING 3,909,860		US ft (NAD83)		EASTING 11,685,686		US ft (NAD83)		24 HR. 19.3		
TOTAL DEPTH 101.6 ft			DRILL MACHINE CME 55LC Track				DRILLER: D. White				HAMMER TYPE 140 lbs Auto		
DATE STARTED 10/26/06			COMPLETED 10/30/06				CORE BARREL TYPE: HQ 3 triple tube-wireline						
CORE SIZE HQ3			TOTAL RUN 57.5 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 @ 44.1 ft			
250.7	44.1	2.5	0:37	(1.0)	(0.9)	1				249.2	Weathered Rock: No recovery-QUARTZ GNEISS with biotite (continued)		45.6
248.2	46.6		1:02	40%	36%					248.2	No Joints		46.6
		5.0	1:02/0.5	(3.2)	(2.7)	2				246.4	Hard Rock: Light gray with orange Fe staining, moderately severe to moderately weathered, close fracturing, medium to moderately hard, QUARTZ GNEISS with biotite		48.4
243.2	51.6		1:24 0:46 2:30 5:09 4:33	(3.2) 64%	(2.7) 54%						Weathered Rock: No recovery-QUARTZ GNEISS with biotite (1 joint at 20° slightly weathered; Quartz vein at 60° at 49.1 ft)		
		5.0	4:15 4:30 3:55 3:22 2:48	(5.0) 100%	(4.6) 92%	3					Hard Rock: Light gray to gray, moderately weathered to fresh, moderately close to wide fracturing, moderately hard to hard, QUARTZ GNEISS with biotite (1 joint at 45° with Fe stain; multiple fracture zone with Fe staining at 55.3-55.9 ft)		
238.2	56.6										(3 joints at 20-30° moderately to slightly weathered with Fe staining)		
		5.0	3:15 4:12 4:35 5:54 6:06	(5.0) 100%	(4.8) 96%	4							
233.2	61.6										(1 joint at 60°, 3 joints at 20-30°-all moderately weathered and Fe stained)		
		4.9	7:09 10:00 10:54 10:03 4:34/0.9	(4.9) 100%	(4.5) 92%	5							
228.3	66.5									228.3	Hard Rock: Light gray with orange Fe staining, slightly weathered to fresh, close to wide fracturing, hard to very hard, QUARTZ-BIOTITE GNEISS (3 joints at 10°, 1 joint at 30°, 1 joint at 80°-all with Fe stain)		66.5
		5.1	3:05 3:45 3:40 3:30 4:50/1.1	(5.1) 100%	(4.8) 94%	6					(1 joint at 5°, 1 joint at 20° both with Fe stain)		
223.2	71.6												
		5.0	5:20 8:55 14:34 2:30 1:55	(5.0) 100%	(5.0) 100%	7					(1 joint at 5°, 1 joint at 20° both with Fe stain)		
218.2	76.6												
		5.0	1:55 2:20 2:55 3:45 5:30	(5.0) 100%	(4.6) 92%	8					(1 joint at 40° and 3 joints at 60° with orange Fe stain)		
213.2	81.6												
		5.0	2:50 3:51 3:25 4:20 5:25	(5.0) 100%	(4.8) 96%	9					(1 joint at 10° with Fe stain)		
208.2	86.6												
		5.0	7:50 10:10 2:30 3:00 3:35	(5.0) 100%	(5.0) 100%	10					(1 joint at 10°)		
203.2	91.6												
		5.0	3:50 5:25 6:10 8:10 10:40	(5.0) 100%	(5.0) 100%	11					(1 joint at 0° slightly weathered and Fe stain)		
198.2	96.6												
		5.0	1:15 3:00 2:45 3:35 5:00	(5.0) 100%	(5.0) 100%	12					(1 joint at 45° slightly weathered and Fe stain)		
193.2	101.6									193.2	Coring terminated at 101.6 ft in Hard Rock: Very hard, QUARTZ-BIOTITE GNEISS		101.6

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



B-934 – Box 1

B-934 – Box 2



B-934 – Box 4

B-934 – Box 3

MACTEC PROJECT NO.: 6468-06-1472				COUNTY Louisa, VA				GEOLOGIST J. Wallen					
SITE DESCRIPTION NORTH ANNA COL								GROUND WATER (ft)					
BORING NO. B-936		DRILL METHOD: Mud Rotary/Core			SAMPLE METHODS: SPT/CORE			0 HR. 28.0					
COLLAR ELEV. 286.6 ft (NAVD88)		NORTHING 3,910,746		US ft (NAD83)		EASTING 11,685,929		US ft (NAD83)		24 HR. 24.0			
TOTAL DEPTH 100.7 ft		DRILL MACHINE CME 550 ATV			DRILLER: G. Akins			HAMMER TYPE 140 lbs Auto					
DATE STARTED 11/6/06		COMPLETED 11/7/06			CORE BARREL TYPE: HQ 3 triple tube-wireline								
ELEV.	DEPTH	BLOW COUNT			BLOWS PER FOOT					SAMP.	MOI	LOG	SOIL AND ROCK DESCRIPTION
(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	20	40	60	80	100	NO.		
286.6					Ground Surface								286.6 0.0
													No samples due to utility clearance operations-soft dig/vac. truck excavation
282.0	4.6												282.0 4.6
		9	8	11						936-1			280.1 6.5
277.4	9.2												Silty GRAVEL (GM) brownish yellow (10YR 6/8), moist, medium dense, fine to coarse sandy (Residual Soil)
275.6	11.0	5	10	12						936-2			Silty, fine to coarse SAND (SM) yellowish brown (10YR 5/6&5/4), moist, medium dense to very dense, relict rock fabric (Residual Soil)
		7	10	12						936-3			
272.3	14.3												
		13	19	28						936-4			
267.3	19.3												
		19	38	50/0.4						936-5			266.3 20.3
262.3	24.3												Weathered Rock: Dark yellowish brown (10YR 4/6) and light brownish gray (2.5Y 6/2), moist, very dense, severely weathered, BIOTITE-QUARTZ GNEISS
		50/0.3								936-6			
257.3	29.3												
		50/0.3								936-7			
253.4	33.2												253.1 33.5
		50/0.2								936-8			Hard Rock: Gray, moderately severe to slightly weathered, very close to close fracturing, hard, BIOTITE-QUARTZ GNEISS
													237.6 49.0
													Weathered Rock: No recovery-Very dark yellowish brown (10YR 3/4), moist, very dense, severely weathered, BIOTITE-QUARTZ GNEISS
230.5	56.1												
		50/0.3								936-9			226.2 60.4
													Hard Rock: Dark gray to gray, moderately severe to slightly weathered, very close to close fracturing, soft to hard, BIOTITE-QUARTZ GNEISS with severely weathered zones



MACTEC PROJECT NO.: 6468-06-1472										COUNTY Louisa, VA					GEOLOGIST J. Wallen														
SITE DESCRIPTION NORTH ANNA COL															GROUND WATER (ft)														
BORING NO. B-936					DRILL METHOD: Mud Rotary/Core					SAMPLE METHODS: SPT/CORE					0 HR. 28.0														
COLLAR ELEV. 286.6 ft (NAVD88)					NORTHING 3,910,746					US ft (NAD83)					EASTING 11,685,929					US ft (NAD83)					24 HR. 24.0				
TOTAL DEPTH 100.7 ft					DRILL MACHINE CME 550 ATV					DRILLER: G. Akins					HAMMER TYPE 140 lbs Auto														
DATE STARTED 11/6/06					COMPLETED 11/7/06					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																			
211.8					Continued from previous page																								
														Hard Rock: Dark gray to gray, moderately severe to slightly weathered, very close to close fracturing, soft to hard, BIOTITE-QUARTZ GNEISS with severely weathered zones (continued)															
																		196.2 ————— 90.4 Hard Rock: Gray, moderately to slightly weathered, very close to close fracturing, hard to very hard, BIOTITE-QUARTZ GNEISS											
																		185.9 ————— 100.7 Boring and coring terminated at 100.7 ft in Hard Rock: Hard to very hard, BIOTITE-QUARTZ GNEISS											



SHEET 1 OF 1

MACTEC PROJECT NO.: 6468-06-1472							COUNTY Louisa, VA			GEOLOGIST J. Wallen		
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)		
BORING NO. B-936			DRILL METHOD: Mud Rotary/Core			SAMPLE METHODS: SPT/CORE				0 HR. 28.0		
COLLAR ELEV. 286.6 ft (NAVD88)			NORTHING 3,910,746		US ft (NAD83)		EASTING 11,685,929		US ft (NAD83)		24 HR. 24.0	
TOTAL DEPTH 100.7 ft			DRILL MACHINE CME 550 ATV				DRILLER: G. Akins				HAMMER TYPE 140 lbs Auto	
DATE STARTED 11/6/06			COMPLETED 11/7/06				CORE BARREL TYPE: HQ 3 triple tube-wireline					
CORE SIZE HQ3			TOTAL RUN 66.9 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 @ 33.5 ft		
253.1	33.5	2.6	1:25/0.6	(2.1)	(0.0)	1				253.1	Hard Rock: Gray, moderately severe to slightly weathered, very close to close fracturing, hard, BIOTITE-QUARTZ GNEISS	
250.5	36.1		3:10	81%	0%						-Highly fractured	
		4.2	2:48	(4.0)	(0.5)	2					-Highly fractured	
			3:14	95%	12%							
246.3	40.3		2:56									
		5.7	2:38			3					-Highly fractured	
			2:59	(4.7)	(0.5)							
			2:40/0.2	82%	9%							
240.6	46.0		2:14									
		5.0	1:45	(3.0)	(0.7)	4					-Highly fractured	
			1:51	60%	14%							
			0:59									
			1:38									
			1:05/0.7									
235.6	51.0		1:10							237.6	Weathered Rock: No recovery-Very dark yellowish brown (10YR 3/4), moist, very dense, severely weathered, BIOTITE-QUARTZ GNEISS	
		5.1	1:53	(0.0)	(0.0)	5					-No Recovery	
			2:55	0%	0%							
			3:39/2.0									
230.5	56.1		3:44									
			2:23	(0.0)	(0.0)							
			3:12/1.1	0%	0%							
230.2	56.4	4.7	N=50/0.3	(0.7)	(0.0)	936-9					(1 joint at 80°)	
			3:45/0.7	15%	0%	6						
			3:08									
225.5	61.1		1:41									
		5.0	1:52	(1.8)	(0.3)	7				226.2	Hard Rock: Dark gray to gray, moderately severe to slightly weathered, very close to close fracturing, soft to hard, BIOTITE-QUARTZ GNEISS with severely weathered zones	
			1:19	36%	6%						-Highly fractured	
220.5	66.1		2:19									
		5.1	2:42	(2.5)	(1.0)	8					(5 joints at 60°)	
			2:16/2.0	49%	20%							
			1:06									
215.4	71.2		0:56									
		4.9	0:42	(1.8)	(0.4)	9					-Highly fractured	
			0:52	37%	8%							
			1:08/1.1									
210.5	76.1		1:23									
		5.0	1:52	(3.3)	(0.7)	10					(3 joints at 60°, 2 joints at 30°)	
			1:38/0.9	66%	14%							
205.5	81.1		2:01	(5.0)	(1.5)	11					(8 joints at 70°, 7 joints at 30°)	
		5.0	2:09	100%	30%							
			0:45									
			0:58									
			1:37									
200.5	86.1		1:20									
		4.3	1:54	(1.7)	(0.0)	12					-Highly fractured	
			1:09	40%	0%							
			1:06									
			1:29									
196.2	90.4		2:26	(5.6)	(2.1)	13				196.2	Hard Rock: Gray, moderately to slightly weathered, very close to close fracturing, hard to very hard, BIOTITE-QUARTZ GNEISS	
		5.6	2:10/0.3	100%	38%						-Highly fractured	
			1:23/0.7									
190.6	96.0		2:38	(4.7)	(2.7)	14					(1 joint at 15°, 2 joints at 30°, 3 joints at 45°, 3 joints at 60°)	
		4.7	1:53	100%	57%							
			2:02									
			2:18									
185.9	100.7		4:32/0.9									
			3:19									
			3:33									
			3:01									
			3:06									
			2:20/0.7							185.9	Coring terminated at 100.7 ft in Hard Rock: Hard to very hard, BIOTITE-QUARTZ GNEISS	

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



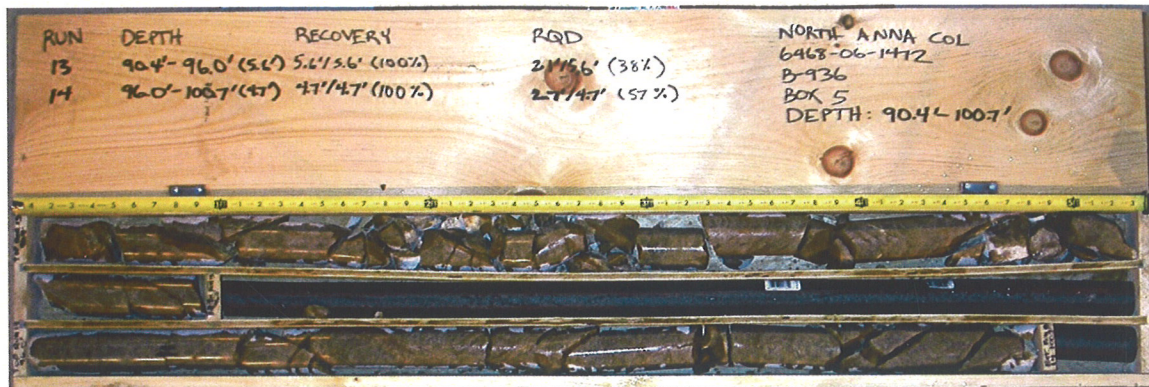
B-936 - Box 1

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B-936 - Box 3



B-936 – Box 5



SHEET 1 OF 1

MACTEC PROJECT NO.: 6468-06-1472					COUNTY Louisa, VA					GEOLOGIST J. Lachewitz/Nicely/Wallen				
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)				
BORING NO. B-937			DRILL METHOD: Mud Rotary/Core			SAMPLE METHODS: SPT/CORE			0 HR. 15.2					
COLLAR ELEV. 270.3 ft (NAVD88)			NORTHING 3,910,689		US ft (NAD83)		EASTING 11,686,672		US ft (NAD83)		24 HR. 16.7			
TOTAL DEPTH 55.3 ft			DRILL MACHINE CME 45 Trailer			DRILLER: D. Rhodes			HAMMER TYPE 140 lbs Auto					
DATE STARTED 9/18/06			COMPLETED 9/19/06			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	100	MOI			
270.3					Ground Surface							270.3 0.0		
268.8	1.5									937-1		Silty SAND (SM) brown (7.5YR 4/4) to strong brown (7.5YR 5/8), moist, medium dense to loose, trace gravel, micaceous (Fill)		
266.8	3.5	12	14	13						937-2				
264.3	6.0	7	9	8						937-3				
261.8	8.5	3	3	3						937-4				
259.3	11.0	3	4	6						937-5				
256.8	13.5	7	7	7						937-6		262.3 8.0		
		4	5	6								SILT (ML) strong brown (7.5YR 5/8), moist, stiff to hard, fine sandy, micaceous (Residual Soil)		
251.8	18.5	9	17	26						937-7				
												249.3 21.0		
246.8	23.5	11	20	21						937-8		Silty SAND (SM) strong brown (7.5YR 5/6), moist, dense, micaceous (Residual Soil)		
													240.8 29.5	
241.8	28.5	18	27	50						937-9		Weathered Rock: Black (10YR 2/1), light yellowish brown (2.5YR 6/4), yellowish brown (10YR 5/6), and dark brown (10YR 2/2), moist to dry, very dense, severely weathered, BIOTITE GNEISS		
238.0	32.3									937-10				
237.2	33.1	50/0.2								937-11				
235.0	35.3	50/0.2								937-12				
												231.3 39.0		
230.0	40.3	14	23	23						937-13		Fine sandy SILT (ML) brown (7.5YR 4/4), moist, hard (Residual Soil)		
													227.5 42.8	
												226.8 43.9		
												Weathered Rock: Brown (7.5YR 4/4), very dense, severely weathered, BIOTITE GNEISS Hard Rock: Gray to dark gray, moderately to slightly weathered, close to moderately close fracturing, moderately hard to hard, BIOTITE GNEISS		
													215.0 55.3	
												Boring and coring terminated at 55.3 ft in Hard Rock: Moderately hard to hard, BIOTITE GNEISS		

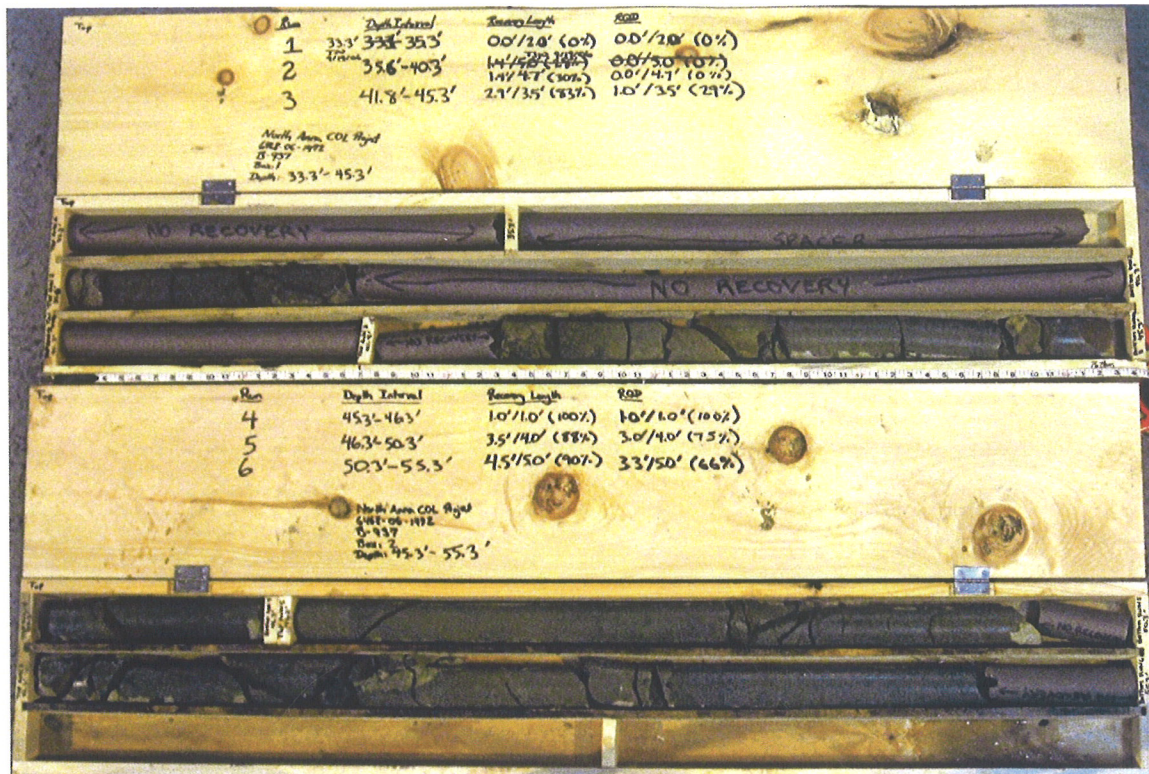
NORTH ANNA COL LOG NORTH ANNA COL DATA REPORT REV0.GPJ NORTH ANNA COL GDT 1/19/07



SHEET 1 OF 1

MACTEC PROJECT NO.: 6468-06-1472										COUNTY Louisa, VA		GEOLOGIST J. Lachewitz/Nicely/Wallen	
SITE DESCRIPTION NORTH ANNA COL												GROUND WATER (ft)	
BORING NO. B-937		DRILL METHOD: Mud Rotary/Core				SAMPLE METHODS: SPT/CORE				0 HR. 15.2			
COLLAR ELEV. 270.3 ft (NAVD88)		NORTHING 3,910,689		US ft (NAD83)		EASTING 11,686,672		US ft (NAD83)		24 HR. 16.7			
TOTAL DEPTH 55.3 ft		DRILL MACHINE CME 45 Trailer				DRILLER: D. Rhodes				HAMMER TYPE 140 lbs Auto			
DATE STARTED 9/18/06				COMPLETED 9/19/06				CORE BARREL TYPE: HQ 3 triple tube-wireline					
CORE SIZE HQ3				TOTAL RUN 20.2 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 @ 33.3 ft			
237.0	33.3	2.0	7:43	(0.0)	(0.0)	1					Weathered Rock: Black (10YR 2/1), light yellowish brown (2.5YR 6/4), yellowish brown (10YR 5/6), and dark brown (10YR 2/2), moist to dry, very dense, severely weathered, BIOTITE GNEISS (continued) -No Recovery		
235.0	35.3		4:59	0%	0%								
234.7	35.6	4.7	N=50/0.3 14:06/0.7 0:50 0:54 11:58 3:34 N=46	(1.4) 30%	(0.0) 0%	937-12 2							
230.0	40.3					937-13					Fine sandy SILT (ML) brown (7.5YR 4/4), moist, hard (Residual Soil)		
228.5	41.8	3.5	3:02/0.5 5:24 2:28 2:39	(2.9) 83%	(1.0) 29%	3					(1 joint at 45°, 1 joint at 60°)		
225.0	45.3										Weathered Rock: Brown (7.5YR 4/4), very dense, severely weathered, BIOTITE GNEISS		
224.0	46.3	1.0	3:29	(1.0)	(1.0)	4					Hard Rock: Gray to dark gray, moderately to slightly weathered, close to moderately close fracturing, moderately hard to hard, BIOTITE GNEISS (1 joint at 40°) (2 joints at 70°, 1 joint at 80°)		
		4.0	10:45 2:28 2:46 1:59	100% (3.5) 88%	100% (3.0) 75%	5							
220.0	50.3										(6 joints at 30°, 2 joints at 45°)		
		5.0	2:09 2:30 2:34 2:32 2:07	(4.5) 90%	(3.3) 66%	6							
215.0	55.3										Coring terminated at 55.3 ft in Hard Rock: Moderately hard to hard, BIOTITE GNEISS		

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



B-937 - Box 1

B-937 - Box 2