



MACTEC PROJECT NO.: 6468-06-1472				COUNTY Louisa, VA				GEOLOGIST J. Lachewitz/ M. Lear								
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)						
BORING NO. B-925		DRILL METHOD: Mud Rotary/Core				SAMPLE METHODS: SPT/CORE				0 HR. 12.3						
COLLAR ELEV. 270.0 ft (NAVD88)		NORTHING 3,910,037		US ft (NAD83)		EASTING 11,686,576		US ft (NAD83)		24 HR. 12.3						
TOTAL DEPTH 75.8 ft		DRILL MACHINE CME 550 ATV				DRILLER: G. Akins				HAMMER TYPE 140 lbs Auto						
DATE STARTED 10/30/06			COMPLETED 10/31/06			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			
270.0					Ground Surface							270.0	0.0			
261.4	8.6	4	6	8						925-1		262.0	8.0	No samples due to utility clearance operations-soft dig/vac. truck excavation		
259.0	11.0	23	12	14						925-2			Silty, fine to coarse SAND (SM), brown (7.5YR 4/4) and gray (GLEY1 5/N), moist, medium dense (Residual Soil)			
254.9	15.1	19	17	12						925-3						
250.3	19.7	8	50/0.2							925-4						
												249.8	20.2	249.8	20.2	Weathered Rock: Very dense, BIOTITE-QUARTZ GNEISS Hard Rock: Light gray and pinkish white, moderately severely to slightly weathered, very close to close fracturing, soft to moderately hard, BIOTITE-QUARTZ GNEISS
												213.7	56.3		Hard Rock: Light gray, slightly weathered to fresh, moderately close to wide fracturing, 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



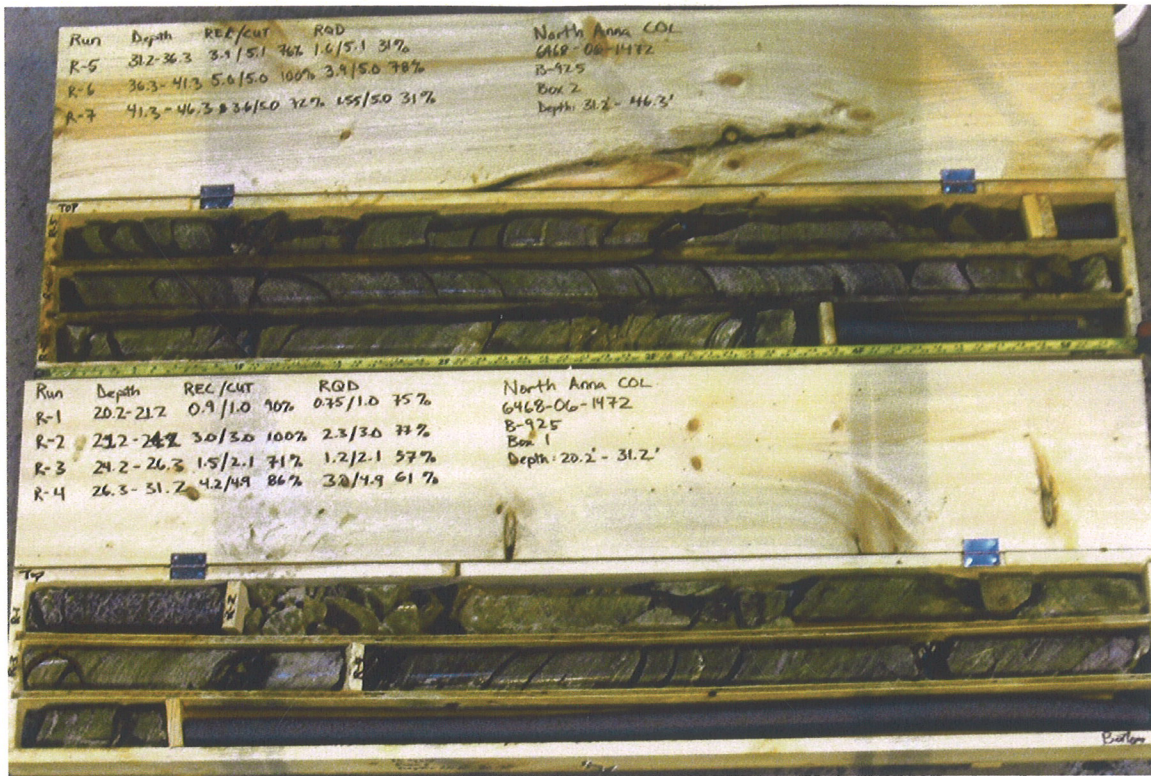
MACTEC PROJECT NO.: 6468-06-1472				COUNTY Louisa, VA				GEOLOGIST J. Lachewitz/ M. Lear							
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)					
BORING NO. B-925		DRILL METHOD: Mud Rotary/Core				SAMPLE METHODS: SPT/CORE				0 HR. 12.3					
COLLAR ELEV. 270.0 ft (NAVD88)		NORTHING 3,910,037		US ft (NAD83)		EASTING 11,686,576		US ft (NAD83)		24 HR. 12.3					
TOTAL DEPTH 75.8 ft		DRILL MACHINE CME 550 ATV				DRILLER: G. Akins				HAMMER TYPE 140 lbs Auto					
DATE STARTED 10/30/06			COMPLETED 10/31/06			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	
195.2					Continued from previous page										
													194.2	75.8	Boring and coring terminated at 75.8 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



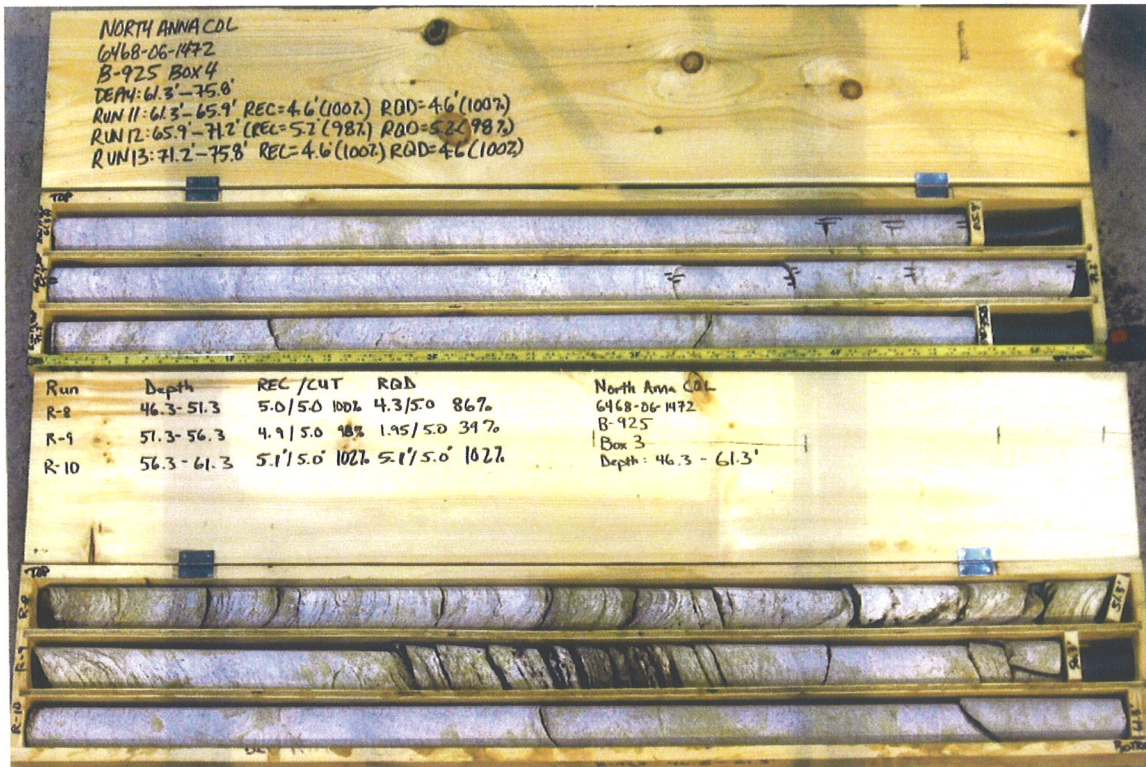
MACTEC PROJECT NO.: 6468-06-1472							COUNTY Louisa, VA			GEOLOGIST J. Lachewitz/ M. Lear		
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)		
BORING NO. B-925			DRILL METHOD: Mud Rotary/Core			SAMPLE METHODS: SPT/CORE			0 HR. 12.3			
COLLAR ELEV. 270.0 ft (NAVD88)			NORTHING 3,910,037		US ft (NAD83)		EASTING 11,686,576		US ft (NAD83)		24 HR. 12.3	
TOTAL DEPTH 75.8 ft			DRILL MACHINE CME 550 ATV			DRILLER: G. Akins			HAMMER TYPE 140 lbs Auto			
DATE STARTED 10/30/06				COMPLETED 10/31/06			CORE BARREL TYPE: HQ 3 triple tube-wireline					
CORE SIZE HQ3				TOTAL RUN 55.6 ft								
ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS		
				REC. (%)	RQD (%)		REC. (%)	RQD (%)				
										Begin Coring @ 20.4 ft		
249.6	20.4	0.8	5.48/0.8	(0.8)	(0.8)	1				249.6 Hard Rock: Light gray and pinkish white, moderately severely to slightly weathered, very close to close fracturing, soft to moderately hard, BIOTITE-QUARTZ GNEISS (2 joints at 0-10° slight weathering and Fe stain) (Multiple joints at 0-60°; highly weathered fracture zone from 21.2-22.2 ft) (3 joints at 45-60° with Fe stain) (Multiple joints at 45° with Fe stain and weathering) (Multiple joints at 0-90° with Fe stain, clay, and weathering) (Multiple joints at 35-75°, some with Fe stain and weathering) (Multiple joints at 10-60°, severely weathered) (Multiple joints at 10-45°, some severely weathered with Fe staining) (Multiple joints at 10-55°, some severely weathered with Fe staining) 213.7 213.7 Hard Rock: Light gray, slightly weathered to fresh, moderately close to wide fracturing, hard to very hard, BIOTITE-QUARTZ GNEISS (2 joints at 50-60° with trace clay) -No Joints -No Joints (2 joints at 40-50° with trace clay) 194.2 194.2 Coring terminated at 75.8 ft in Hard Rock: Hard to very hard, BIOTITE-QUARTZ GNEISS		
248.8	21.2	3.0	2:59	100%	100%	2						
245.8	24.2		2:38	(3.0)	(2.3)							
			4:02	100%	77%	3						
243.7	26.3	2.1	4:38	(1.5)	(1.2)							
			3:39/1.1	71%	57%	4						
			2:42	(4.2)	(3.0)							
			1:54	86%	61%							
238.8	31.2	4.9	1:54									
			1:46									
			1:59/0.9									
			1:39	(3.9)	(1.6)	5						
			1:18	76%	31%							
			1:37									
233.7	36.3	5.1	2:22									
			1:56/1.1									
			3:11	(5.0)	(3.9)	6						
			2:12	100%	78%							
			2:23									
228.7	41.3	5.0	2:10									
			3:44									
			2:29	(3.6)	(1.6)	7						
			2:05	72%	32%							
			1:29									
223.7	46.3	5.0	1:37									
			4:31									
			1:28	(5.0)	(4.3)	8						
			2:21	100%	86%							
			1:18									
			2:30									
218.7	51.3	5.0	2:09									
			2:37	(4.9)	(2.0)	9						
			2:13	98%	40%							
			1:23									
			2:27									
213.7	56.3	5.0	2:14									
			2:40	(5.1)	(5.1)	10						
			2:46	102%	102%							
			3:28									
208.7	61.3	4.6	3:12									
			3:56									
			4:10	(4.6)	(4.6)	11						
			5:04	100%	100%							
			5:30									
204.1	65.9	5.3	5:45									
			6:40/0.6									
			3:45	(5.2)	(5.2)	12						
			2:47	98%	98%							
			3:18									
198.8	71.2	4.6	3:48									
			5:48/1.3									
			3:47	(4.6)	(4.6)	13						
			3:38	100%	100%							
			3:52									
194.2	75.8		3:58									
			2:54/0.6									

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B-925 - Box 2

B-925 - Box 1



B-925 - Box 4

B-925 - Box 3



MACTEC PROJECT NO.: 6468-06-1472			COUNTY Louisa, VA			GEOLOGIST J. Howard		
SITE DESCRIPTION NORTH ANNA COL							GROUND WATER (ft)	
BORING NO. B-926		DRILL METHOD: Mud Rotary/Core			SAMPLE METHODS: SPT/CORE			0 HR. 18.6
COLLAR ELEV. 289.0 ft (NAVD88)		NORTHING 3,910,043		US ft (NAD83)		EASTING 11,685,709		US ft (NAD83) 24 HR. 19.8
TOTAL DEPTH 155.5 ft		DRILL MACHINE CME 550 ATV			DRILLER: G. Akins			HAMMER TYPE 140 lbs Auto
DATE STARTED 9/29/06			COMPLETED 10/10/06			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			
289.0					Ground Surface							289.0	0.0			
287.5	1.5															
285.5	3.5	5	9	9							926-1	286.0	3.0	Silty SAND (SM), reddish yellow (5YR 5/6), dry, medium dense (Fill)		
283.0	6.0	6	6	5							926-2	283.5	5.5	Clayey, coarse SAND (SC), yellowish red (5YR 5/8), wet, medium dense (Fill)		
280.5	8.5	2	2	2							926-3			Sandy SILT (ML), yellowish red (5YR 5/8), moist, soft to stiff, micaceous (Residual Soil)		
278.0	11.0	1	1	2							926-4					
274.9	14.1	1	2	3							926-5					
270.5	18.5	2	2	4							926-6					
265.5	23.5	2	2	5							926-7					
260.5	28.5	2	4	5							926-8					
255.5	33.5	4	6	7							926-9	258.0	31.0	Sandy SILT (ML), reddish gray (5YR 5/2) to very dark gray (5YR 3/1), moist, stiff to very stiff, micaceous (Residual Soil)		
250.5	38.5	7	8	11							926-10					
245.5	43.5	6	12	18							926-11					
240.5	48.5	6	9	18							926-12					
235.5	53.5	24	50/0.3								926-13					
229.8	59.2	50/0.1									926-14	235.0	54.0	Weathered Rock: Tan-orange, BIOTITE-QUARTZ GNEISS		
											926-15					
												225.2	63.8	Hard Rock: Tan-gray, moderately weathered, close fracturing, medium hard, BIOTITE-QUARTZ GNEISS		
												224.4	64.8	Weathered Rock: No recovery-BIOTITE-QUARTZ GNEISS		
												222.4	66.6	Hard Rock: Tan-gray to blue-gray, moderately weathered to fresh, close to moderately close fracturing, hard to very hard, BIOTITE-QUARTZ GNEISS with trace magnetite and epidote		

NORTH ANNA CO., JRE NORTH ANNA COL DATA REPORT REV.0.GPJ NORTH ANNA COL.GDT I/19/07



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SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)			
BORING NO. B-926		DRILL METHOD: Mud Rotary/Core				SAMPLE METHODS: SPT/CORE				0 HR. 18.6			
COLLAR ELEV. 289.0 ft (NAVD88)		NORTHING 3,910,043		US ft (NAD83)		EASTING 11,685,709		US ft (NAD83)		24 HR. 19.8			
TOTAL DEPTH 155.5 ft		DRILL MACHINE CME 550 ATV				DRILLER: G. Akins				HAMMER TYPE 140 lbs Auto			
DATE STARTED 9/29/06				COMPLETED 10/10/06				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				
214.2					Continued from previous page								
													Hard Rock: Tan-gray to blue-gray, moderately weathered to fresh, close to moderately close fracturing, hard to very hard, BIOTITE-QUARTZ GNEISS with trace magnetite and epidote (continued)
													185.6 ----- 103.4 Hard Rock: Brown, dark gray, and dark gray-blue, moderately weathered, close fracturing, moderately hard, BIOTITE-QUARTZ GNEISS with weathered zones
													179.5 ----- 109.5 Hard Rock: Blue-gray, slightly weathered to fresh, close to moderately close fracturing, hard to very hard, BIOTITE-QUARTZ GNEISS
													149.7 ----- 139.3 Hard Rock-Weathered Rock: Brown and blue-gray, severely to slightly weathered, very close to closely fractured, soft to moderately hard, BIOTITE-QUARTZ GNEISS

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



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BORING NO. B-926		DRILL METHOD: Mud Rotary/Core				SAMPLE METHODS: SPT/CORE				0 HR. 18.6					
COLLAR ELEV. 289.0 ft (NAVD88)		NORTHING 3,910,043		US ft (NAD83)		EASTING 11,685,709		US ft (NAD83)		24 HR. 19.8					
TOTAL DEPTH 155.5 ft		DRILL MACHINE CME 550 ATV				DRILLER: G. Akins				HAMMER TYPE 140 lbs Auto					
DATE STARTED 9/29/06				COMPLETED 10/10/06				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	
139.4					Continued from previous page										
													138.5	150.5	Hard Rock: Blue-gray, very slightly weathered to fresh, close to moderately close fracturing, hard, BIOTITE-QUARTZ GNEISS
													133.5	155.5	Boring and coring terminated at 155.5 ft in Hard Rock: Hard, BIOTITE-QUARTZ GNEISS

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 J. Howard		
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)		
BORING NO. B-926			DRILL METHOD: Mud Rotary/Core			SAMPLE METHODS: SPT/CORE				0 HR. 18.6		
COLLAR ELEV. 289.0 ft (NAVD88)			NORTHING 3,910,043		US ft (NAD83)		EASTING 11,685,709		US ft (NAD83)		24 HR. 19.8	
TOTAL DEPTH 155.5 ft			DRILL MACHINE CME 550 ATV			DRILLER: G. Akins			HAMMER TYPE 140 lbs Auto			
DATE STARTED 9/29/06			COMPLETED 10/10/06			CORE BARREL TYPE: HQ 3 triple tube-wireline						
CORE SIZE HQ3			TOTAL RUN 96.2 ft									
ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		L O G	DESCRIPTION AND REMARKS		
				REC. (%)	RQD (%)		REC. (%)	RQD (%)				
										Begin Coring @ 59.3 ft		
229.7	59.3	5.3	1:15 1:15 1:00 1:45	(1.5) 28%	(0.0) 0%	1				Weathered Rock: Tan-orange, BIOTITE-QUARTZ GNEISS (continued)		
224.4	64.6		1:15/1.3							225.2 224.4		
		5.0	0:45 1:45 1:45 2:45 2:30	(3.0) 60%	(2.9) 58%	2				Hard Rock: Tan-gray, moderately weathered, close fracturing, medium hard, BIOTITE-QUARTZ GNEISS Weathered Rock: No recovery-BIOTITE-QUARTZ GNEISS (2 joints at 50°) Hard Rock: Tan-gray to blue-gray, moderately weathered to fresh, close to moderately close fracturing, hard to very hard, BIOTITE-QUARTZ GNEISS with trace magnetite and epidote (3 joints at 30°, 2 joints at 60°, 1 joint at 40°)		
219.4	69.6		1:45 1:30 1:15 2:15 3:30	(4.7) 94%	(4.0) 80%	3						
		5.0	2:30 2:45 1:45 1:15 2:45	(5.0) 100%	(5.0) 100%	4				(2 joints at 60°)		
214.4	74.6		2:15 2:15 2:00 2:15 2:00/0.8	(4.5) 94%	(4.5) 94%	5				(1 joint at 30°, 2 joints at 70°; complete loss of circulation/100% water loss to formation)		
		4.8	2:15 2:15 2:00 2:15 2:00/0.8	(4.5) 94%	(4.5) 94%	5						
209.4	79.6		3:45 3:45 3:15 3:00 5:15/1.1	(5.0) 98%	(5.0) 98%	6				(3 joints at 60-70°)		
		5.1	3:45 3:45 3:15 3:00 5:15/1.1	(5.0) 98%	(5.0) 98%	6						
199.5	89.5		6:00 3:15 3:00 3:45 5:30	(4.2) 84%	(3.3) 66%	7				(1 joint at 20°, 1 joint at 70°)		
		5.0	3:15 3:00 3:45 5:30	(4.2) 84%	(3.3) 66%	7						
194.5	94.5		9:00 14:15	(2.0) 100%	(2.0) 100%	8				(1 joint at 50°, 1 joint at 30°)		
		2.0	9:00 14:15	(2.0) 100%	(2.0) 100%	8						
192.5	96.5		4:00 3:00 4:15 2:30 3:00 2:45 2:30 2:15	(8.0) 100%	(7.0) 88%	9						
		8.0	4:00 3:00 4:15 2:30 3:00 2:45 2:30 2:15	(8.0) 100%	(7.0) 88%	9						
184.5	104.5		3:30 2:15 2:45 2:15 2:30	(4.9) 98%	(2.9) 58%	10				185.6 103.4		
		5.0	3:30 2:15 2:45 2:15 2:30	(4.9) 98%	(2.9) 58%	10				Hard Rock: Brown, dark gray, and dark gray-blue, moderately weathered, close fracturing, moderately hard, BIOTITE-QUARTZ GNEISS with weathered zones (13 joints at 30-40°, 1 joint at 70°)		
179.5	109.5		4:30 4:30 4:00 4:15 4:45	(5.0) 100%	(4.9) 98%	11				179.5 109.5		
		5.0	4:30 4:30 4:00 4:15 4:45	(5.0) 100%	(4.9) 98%	11				Hard Rock: Blue-gray, slightly weathered to fresh, close to moderately close fracturing, hard to very hard, BIOTITE-QUARTZ GNEISS (2 joints at 80°, 1 joint at 30°)		
174.5	114.5		4:30 3:00 4:15 4:30 2:45	(5.0) 100%	(4.9) 98%	12				(2 joints at 60°, 1 joint at 0°, 1 joint at 20°)		
		5.0	4:30 3:00 4:15 4:30 2:45	(5.0) 100%	(4.9) 98%	12						
169.5	119.5		3:00 1:30 1:30 2:00 1:45	(5.0) 100%	(4.5) 90%	13				(5 joints at 10-20°, 1 joint at 60°, 1 joint at 40°)		
		5.0	3:00 1:30 1:30 2:00 1:45	(5.0) 100%	(4.5) 90%	13						
164.5	124.5		3:00 4:00 3:00 3:00 4:30	(5.0) 100%	(4.9) 98%	14				(3 joints at 80°, 2 joints at 10°, 1 joint at 60°)		
		5.0	3:00 4:00 3:00 3:00 4:30	(5.0) 100%	(4.9) 98%	14						
159.5	129.5		2:45 2:45 3:15	(3.6) 92%	(3.4) 87%	15						
		3.9	2:45 2:45 3:15	(3.6) 92%	(3.4) 87%	15						
155.6	133.4		3:15/0.9									

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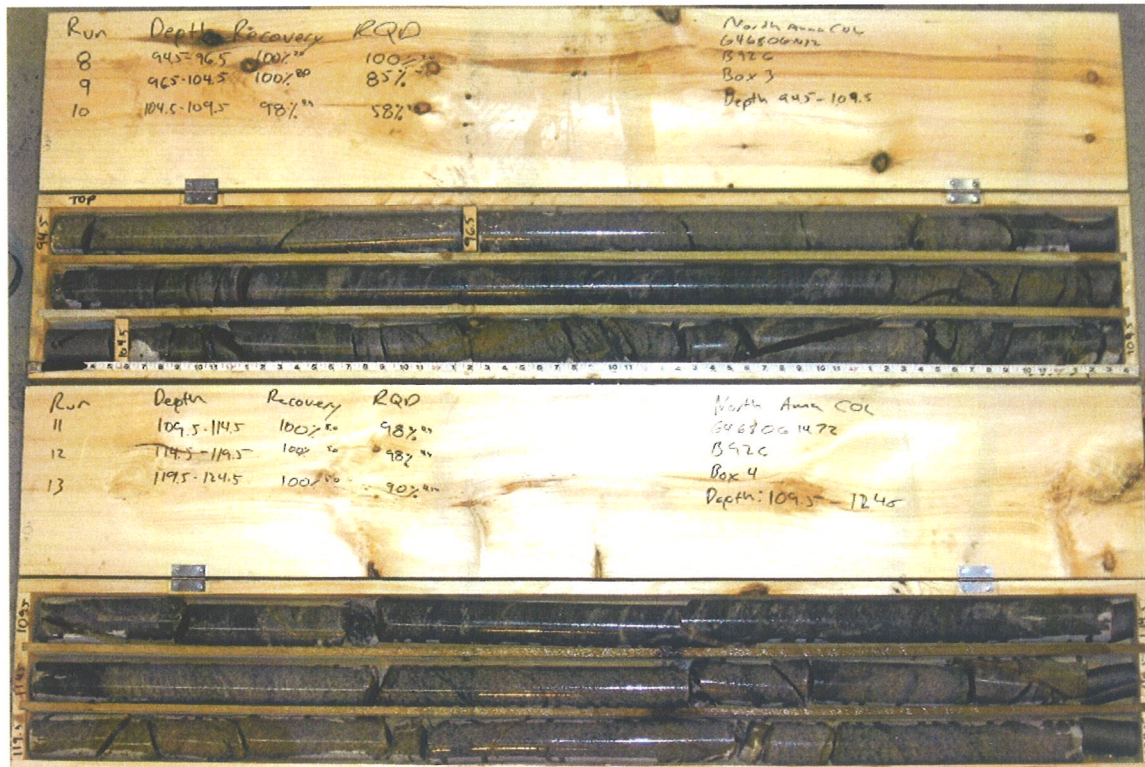
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SITE DESCRIPTION NORTH ANNA COL									GROUND WATER (ft)	
BORING NO. B-926			DRILL METHOD: Mud Rotary/Core			SAMPLE METHODS: SPT/CORE			0 HR. 18.6	
COLLAR ELEV. 289.0 ft (NAVD88)			NORTHING 3,910,043 US ft (NAD83)		EASTING 11,685,709 US ft (NAD83)		24 HR. 19.8			
TOTAL DEPTH 155.5 ft			DRILL MACHINE CME 550 ATV			DRILLER: G. Akins			HAMMER TYPE 140 lbs Auto	
DATE STARTED 9/29/06			COMPLETED 10/10/06			CORE BARREL TYPE: HQ 3 triple tube-wireline				
CORE SIZE HQ3			TOTAL RUN 96.2 ft							
ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		L O G	DESCRIPTION AND REMARKS
				REC. (ft) %	RQD (ft) %		REC. (ft) %	RQD (ft) %		
										Continued from previous page
149.7	139.3	5.9	4:30 6:00 9:00 3:00 2:45 4:15/0.9	(5.9) 100%	(4.2) 71%	16				(3 joints at 40°, 2 joints at 20°) Hard Rock: Blue-gray, slightly weathered to fresh, close to moderately close fracturing, hard to very hard, BIOTITE-QUARTZ GNEISS (<i>continued</i>)
144.1	144.9	5.6	2:30 2:15 2:15 3:45 5:45/1.6	(0.2) 4%	(0.0) 0%	17				Hard Rock-Weathered Rock: Brown and blue-gray, severely to slightly weathered, very close to closely fractured, soft to moderately hard, BIOTITE-QUARTZ GNEISS
138.5	150.5	5.6	2:00 0:45 2:45 2:45 3:30/1.6	(1.9) 34%	(0.0) 0%	18				Hard Rock: Blue-gray, very slightly weathered to fresh, close to moderately close fracturing, hard, BIOTITE-QUARTZ GNEISS
133.5	155.5	5.0	2:00 2:00 2:00 2:00 2:30	(5.0) 100%	(4.6) 92%	19				Hard Rock: Blue-gray, very slightly weathered to fresh, close to moderately close fracturing, hard, BIOTITE-QUARTZ GNEISS (1 joint at 70°, 3 joints at 40°)
										Coring terminated at 155.5 ft in Hard Rock: Hard, BIOTITE-QUARTZ GNEISS

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B-926 - Box 1

B-926 - Box 2



B-926 - Box 3

B-926 - Box 4



B-926 - Box 5
B-926 - Box 6