



MACTEC PROJECT NO.: 6468-06-1472					COUNTY Louisa, VA					GEOLOGIST S. Nicely				
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)				
BORING NO. B-946			DRILL METHOD: Mud Rotary/Core					SAMPLE METHODS: SPT/CORE					0 HR. 25.0	
COLLAR ELEV. 333.4 ft (NAVD88)			NORTHING 3,908,787		US ft (NAD83)			EASTING 11,683,811		US ft (NAD83)			24 HR. ND	
TOTAL DEPTH 100.7 ft			DRILL MACHINE CME 550 ATV					DRILLER: G. Akins					HAMMER TYPE 140 lbs Auto	
DATE STARTED 10/23/06			COMPLETED 10/25/06					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
333.4					Ground Surface								333.4	0.0
331.8	1.6													
330.1	3.3	12	11	9							946-1			
327.3	6.1	4	5	7							946-2		328.4	5.0
324.9	8.5	3	4	5							946-3			
322.3	11.1	4	5	7							946-4			
319.2	14.2	4	5	8							946-5		320.4	13.0
314.2	19.2	3	4	4							946-6			
309.2	24.2	2	4	6							946-7			
304.2	29.2	3	5	8							946-8			
299.2	34.2	3	5	7							946-9		302.4	31.0
294.2	39.2	19	41	38							946-10			
291.6	41.8	6	10	14							946-11			
		50/0.1									946-12		292.4	41.0
													291.5	41.9

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. Nicely							
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)					
BORING NO. B-946		DRILL METHOD: Mud Rotary/Core				SAMPLE METHODS: SPT/CORE				0 HR. 25.0					
COLLAR ELEV. 333.4 ft (NAVD88)		NORTHING 3,908,787		US ft (NAD83)		EASTING 11,683,811		US ft (NAD83)		24 HR. ND					
TOTAL DEPTH 100.7 ft		DRILL MACHINE CME 550 ATV				DRILLER: G. Akins				HAMMER TYPE 140 lbs Auto					
DATE STARTED 10/23/06			COMPLETED 10/25/06			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	
258.6					Continued from previous page										
													257.6	75.8	Hard Rock: Gray to light gray and reddish brown, moderately weathered to fresh, very close to moderately close fracturing, hard to very hard, BIOTITE-QUARTZ GNEISS
													232.7	100.7	Boring and coring terminated at 100.7 ft in Hard Rock: Very hard, BIOTITE-QUARTZ GNEISS

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



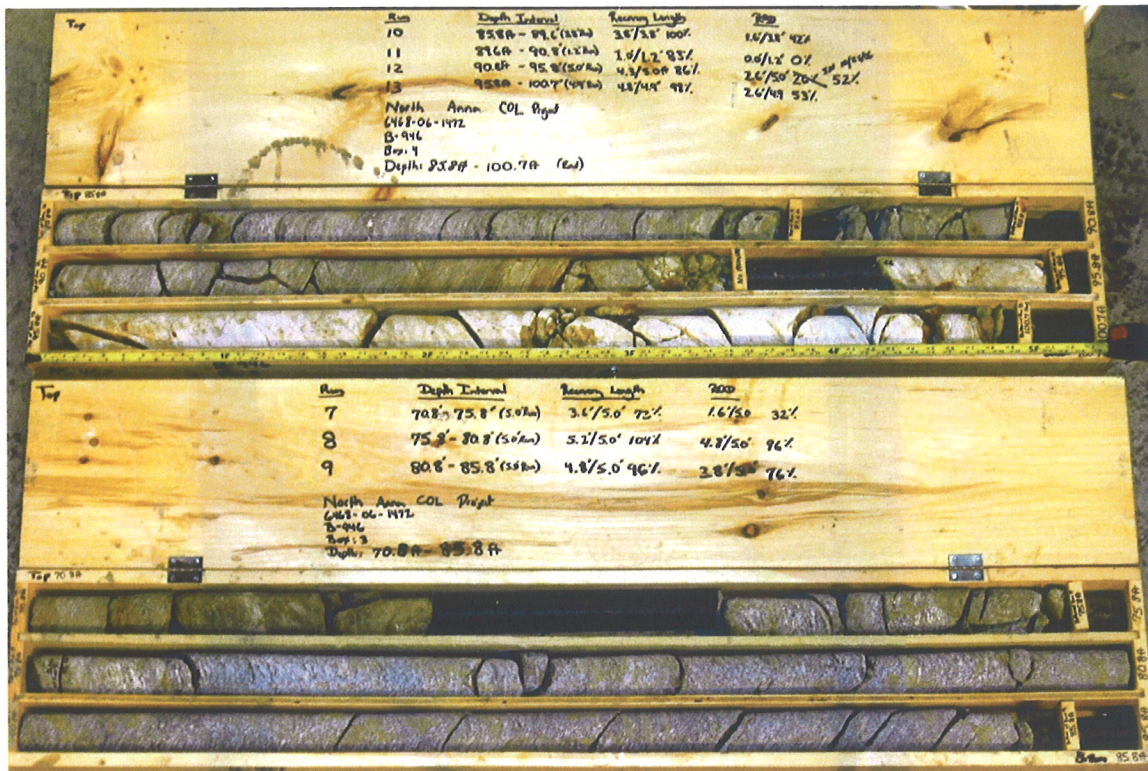
MACTEC PROJECT NO.: 6468-06-1472				COUNTY Louisa, VA		GEOLOGIST S. Nicely	
SITE DESCRIPTION NORTH ANNA COL							GROUND WATER (ft)
BORING NO. B-946		DRILL METHOD: Mud Rotary/Core		SAMPLE METHODS: SPT/CORE			0 HR. 25.0
COLLAR ELEV. 333.4 ft (NAVD88)		NORTHING 3,908,787 US ft (NAD83)		EASTING 11,683,811 US ft (NAD83)		24 HR. ND	
TOTAL DEPTH 100.7 ft		DRILL MACHINE CME 550 ATV		DRILLER: G. Akins		HAMMER TYPE 140 lbs Auto	
DATE STARTED 10/23/06		COMPLETED 10/25/06		CORE BARREL TYPE: HQ 3 triple tube-wireline			
CORE SIZE HQ3		TOTAL RUN 58.8 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) %		
										Begin Coring @ 41.9 ft
291.5	41.9	3.9	3:46 1:54 2:16 1:12/0.9	(3.1) 79%	(2.6) 67%	1				291.5 Hard Rock: Light gray, gray, brown, and reddish brown, moderately severe to slightly weathered, very close to moderately close fracturing, soft to very hard, BIOTITE-QUARTZ GNEISS with severely weathered zones (1 joints at 30° with Fe stain; severely weathered fracture zone with no recovery from 42.3-43.1 ft)
287.6	45.8	4.9	1:29 1:32 2:16 2:20 1:31/0.9	(1.6) 33%	(1.3) 27%	2				(2 joints at 50° with Fe and Mn staining; 2 joints at 10° with Fe stain; no recovery from 45.3-49.1 ft)
282.7	50.7	5.0	2:48 1:25 1:41 1:25 1:12	(4.2) 84%	(2.1) 42%	3				-Highly fractured zones from 50.7-51.5 ft and 54.8-55.7 ft
277.7	55.7	5.0	1:05 1:26 1:31 1:49 1:42	(4.3) 86%	(3.5) 70%	4				(6 joints at 15-25° with Fe staining; 5 joints at 30-40° with Fe staining)
272.7	60.7	5.0	1:31 1:22 1:36 3:06 1:31	(4.9) 98%	(2.9) 58%	5				(10 joints at 20-30°, some with Fe staining)
267.7	65.7	5.1	2:05 2:09 1:10 1:15 1:09/1.1	(2.3) 45%	(1.9) 37%	6				(2 joints at 10° with Fe staining; no recovery from 67.7-70.5 ft)
262.6	70.8	5.0	2:16 1:25 1:19 1:06 1:23	(3.6) 72%	(1.6) 32%	7				-Highly fractured, no recovery from 72.7-73.9 ft
257.6	75.8	5.0	1:16 1:26 1:20 1:20 1:10	(5.2) 104%	(4.8) 96%	8				257.6 Hard Rock: Gray to light gray and reddish brown, moderately weathered to fresh, very close to moderately close fracturing, hard to very hard, BIOTITE-QUARTZ GNEISS (5 joints at 35-45° with trace Fe stain; 2 joints at 30°)
252.6	80.8	5.0	2:11 1:31 1:20 1:18 1:31	(4.8) 96%	(3.8) 76%	9				(7 joints at 35-45°; 1 joint at 70° with clay)
247.6	85.8	3.8	1:31 1:47 2:08	(3.8) 100%	(1.6) 42%	10				(12 joints at 30-40° with clay; 2 joints at 75° with Fe and Mn stain)
243.8	89.6	1.2	3:18/0.8	(1.0) 83%	(0.0) 0%	11				-Water loss during coring at 90.1 ft
242.6	90.8	5.0	5:15/1.2	(4.3) 86%	(2.6) 52%	12				(2 joints at 80° with Fe and Mn staining; 7 joints at 20-30° with Fe staining and clay; severely weathered zone from 93.8-95.0 ft with no recovery)
237.6	95.8	4.9	2:18 2:24 4:15 2:23 3:17	(4.8) 98%	(2.6) 53%	13				(2 joints at 65-75°, 8 joints at 35-45°, 2 joints at 20-30° -all with Fe and Mn staining)
232.7	100.7		2:22 2:21 2:23 2:48/0.9							232.7 Coring terminated at 100.7 ft in Hard Rock: Very hard, BIOTITE-QUARTZ GNEISS

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



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B-946 - Box 2



B-946 - Box 4
B-946 - Box 3



MACTEC PROJECT NO.: 6468-06-1472				COUNTY Louisa, VA				GEOLOGIST S. Lehman						
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)				
BORING NO. B-947		DRILL METHOD: Mud Rotary				SAMPLE METHODS: SPT				0 HR. ND				
COLLAR ELEV. 312.5 ft (NAVD88)		NORTHING 3,909,575		US ft (NAD83)		EASTING 11,686,367		US ft (NAD83)		24 HR. 19.5				
TOTAL DEPTH 88.8 ft		DRILL MACHINE CME 55LC Track				DRILLER: D. White				HAMMER TYPE 140 lbs Auto				
DATE STARTED 9/27/06				COMPLETED 9/28/06				CORE BARREL TYPE: NA						
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	
312.5					Ground Surface							312.5	0.0	
311.0	1.5										947-1			Elastic SILT (MH) light gray (2.5Y 7/2) and light greenish gray (GLE Y 8/5GY), dry to moist, stiff (Residual Soil)
309.0	3.5	4	6	9							947-2			
306.5	6.0	6	5	6							947-3			
304.0	8.5	4	3	6							947-4			Silty, SAND (SM) strong brown (7.5YR 4/6), moist, loose (Residual Soil)
301.5	11.0	4	4	5							947-5			
299.0	13.5	2	4	5							947-6			Sandy SILT (ML) light gray (2.5Y 7/2), moist, medium stiff (Residual Soil)
293.8	18.7	2	3	4							947-7			
288.8	23.7	5	6	6							947-8			Silty, fine to medium SAND (SM) reddish yellow (7.5YR 6/6), yellowish brown (2.5 Y 6/4), white (2.5Y 8/1), light yellow (2.5Y 7/3), and light olive brown (2.5Y 5/4&5/3), wet, medium dense to very dense, relict rock fabric (Residual Soil)
283.8	28.7	5	6	10							947-9			
278.8	33.7	4	3	10							947-10			
273.8	38.7	3	7	12							947-11			
268.8	43.7	12	14	16							947-12			
263.8	48.7	9	11	17							947-13			
258.8	53.7	13	23	24							947-14			
253.8	58.7	23	27	28							947-15			
248.8	63.7	36	50/0.4								947-16			Weathered Rock: Light yellowish brown (2.5Y 6/4) and light brownish gray (2.5Y 6/2), moist, very dense, severely weathered, soft, QUARTZ GNEISS
243.8	68.7	50/0.4									947-17			
238.8	73.7	50/0.3									947-18			

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-947		DRILL METHOD: Mud Rotary				SAMPLE METHODS: SPT				0 HR. ND							
COLLAR ELEV. 312.5 ft (NAVD88)		NORTHING 3,909,575		US ft (NAD83)		EASTING 11,686,367		US ft (NAD83)		24 HR. 19.5							
TOTAL DEPTH 88.8 ft		DRILL MACHINE CME 55LC Track				DRILLER: D. White				HAMMER TYPE 140 lbs Auto							
DATE STARTED 9/27/06				COMPLETED 9/28/06				CORE BARREL TYPE: NA									
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			
237.7					Continued from previous page												
233.8	78.7									947-19			Weathered Rock: Light yellowish brown (2.5Y 6/4) and light brownish gray (2.5Y 6/2), moist, very dense, severely weathered, soft, QUARTZ GNEISS (continued)				
228.8	83.7	50/0.2														947-20	
223.8	88.7	50/0.1														947-21	
													223.7	88.8	Boring terminated at 88.8 ft in Weathered Rock: Very dense, severely weathered, soft, QUARTZ GNEISS		

NORTH ANNA COL ...URE 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-948		DRILL METHOD: Mud Rotary/Core				SAMPLE METHODS: SPT/CORE				0 HR. 21.7					
COLLAR ELEV. 310.4 ft (NAVD88)		NORTHING 3,909,619		US ft (NAD83)		EASTING 11,685,566		US ft (NAD83)		24 HR. 21.7					
TOTAL DEPTH 100.6 ft		DRILL MACHINE CME 550 ATV				DRILLER: G. Akins				HAMMER TYPE 140 lbs Auto					
DATE STARTED 9/26/06				COMPLETED 9/28/06				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	
310.4					Ground Surface									310.4	0.0
308.9	1.5										948-1				
306.9	3.5	4	7	8							948-2				
304.4	6.0	5	9	10							948-3				
301.9	8.5	8	9	10							948-4				
299.4	11.0	9	9	9							948-5			299.9	10.5
296.7	13.7	6	8	11							948-6				
291.9	18.5	9	15	15							948-7				
286.9	23.5	7	8	10							948-8			288.4	22.0
281.9	28.5	45	50/0.4								948-9				
276.9	33.5	43	50/0.3								948-10				
		50/0.1												274.2	36.2
														261.0	49.4
														244.7	65.7

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



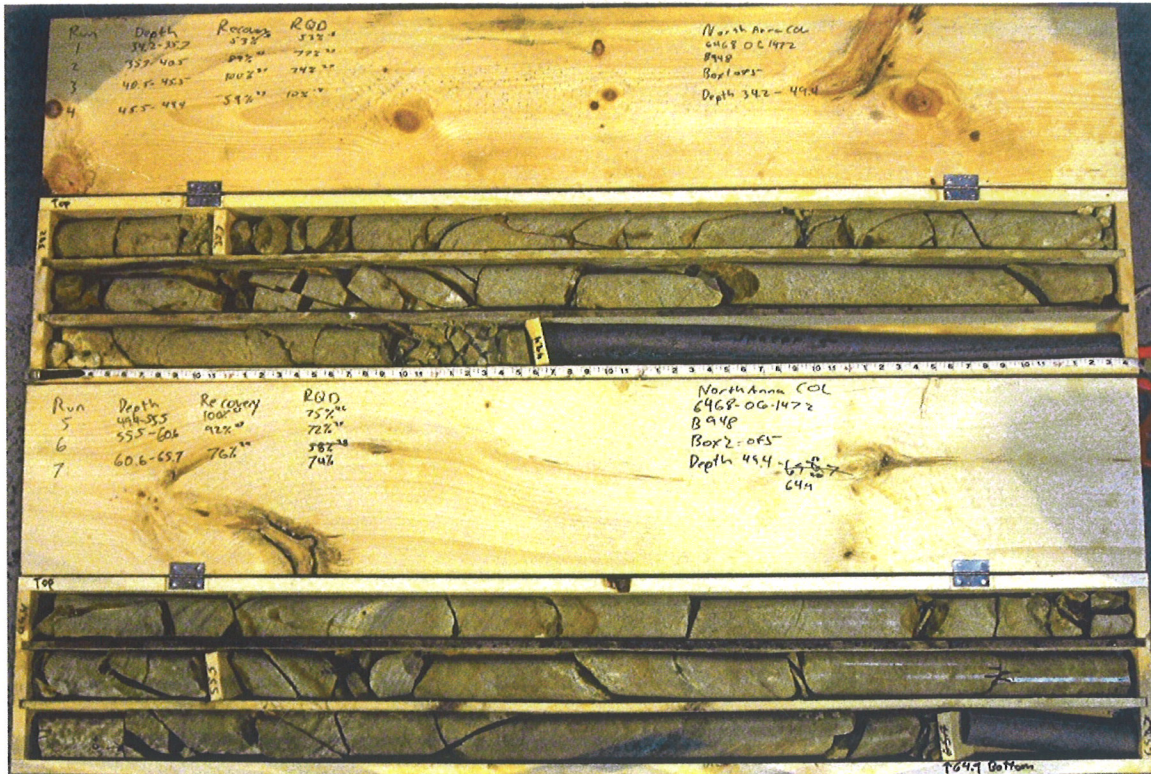
MACTEC PROJECT NO.: 6468-06-1472				COUNTY Louisa, VA				GEOLOGIST J. Howard							
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)					
BORING NO. B-948		DRILL METHOD: Mud Rotary/Core				SAMPLE METHODS: SPT/CORE				0 HR. 21.7					
COLLAR ELEV. 310.4 ft (NAVD88)		NORTHING 3,909,619		US ft (NAD83)		EASTING 11,685,566		US ft (NAD83)		24 HR. 21.7					
TOTAL DEPTH 100.6 ft		DRILL MACHINE CME 550 ATV				DRILLER: G. Akins				HAMMER TYPE 140 lbs Auto					
DATE STARTED 9/26/06			COMPLETED 9/28/06			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	
235.6					Continued from previous page										
												Hard Rock: Blue gray, slightly weathered to fresh, close to moderately close fracturing, hard, BIOTITE-QUARTZ GNEISS (continued)		
												209.8		
													100.6	Boring and coring terminated at 100.6 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



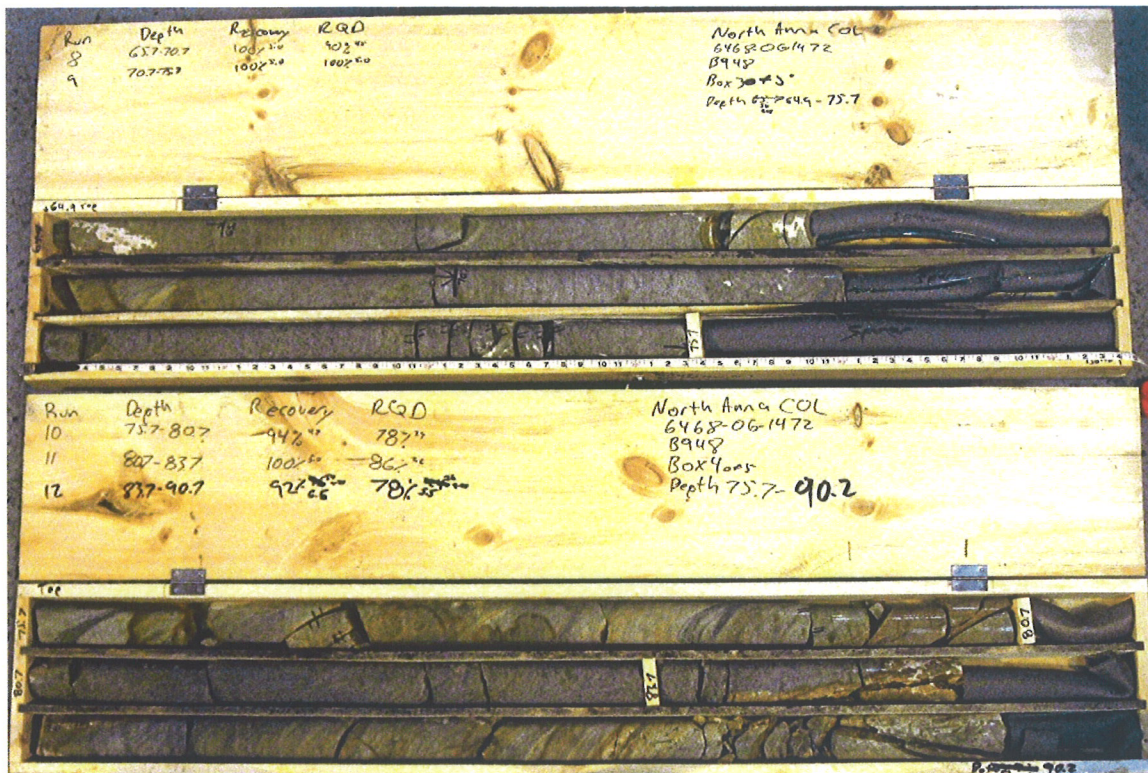
MACTEC PROJECT NO.: 6468-06-1472										COUNTY Louisa, VA		GEOLOGIST J. Howard	
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)			
BORING NO. B-948			DRILL METHOD: Mud Rotary/Core			SAMPLE METHODS: SPT/CORE				0 HR. 21.7			
COLLAR ELEV. 310.4 ft (NAVD88)			NORTHING 3,909,619		US ft (NAD83)		EASTING 11,685,566		US ft (NAD83)		24 HR. 21.7		
TOTAL DEPTH 100.6 ft			DRILL MACHINE CME 550 ATV			DRILLER: G. Akins			HAMMER TYPE 140 lbs Auto				
DATE STARTED 9/26/06			COMPLETED 9/28/06			CORE BARREL TYPE: HQ 3 triple tube-wireline							
CORE SIZE HQ3			TOTAL RUN 66.4 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 @ 34.2 ft			
276.2	34.2	1.5	1:30/1.5	(0.8)	(0.8)	1				Weathered Rock: Tan gray and brown tan, severely weathered, BIOTITE-QUARTZ GNEISS (continued) 36.2			
274.7	35.7	4.8	1:15 1:30 1:30 1:15 1:30/0.8	53% (4.3)	53% (3.7)	2				Hard Rock: Tan brown, moderately severe to moderately weathered, close fracturing, medium hard, BIOTITE-QUARTZ GNEISS with severely weathered zones			
269.9	40.5	5.0	2:15 1:00 1:15 1:30	(5.0)	(3.7)	3				(4 joints at 50°, 1 joint at 8°, 1 joint at 20°)			
264.9	45.5	3.9	1:00 1:00 0:45 2:30/0.9	(2.3)	(0.4)	4							
261.0	49.4	6.1	1:30 1:45 1:45 1:00 1:30 1:30/1.1	100% (6.1)	75% (4.6)	5				Hard Rock: Orange tan and tan gray, moderately weathered to fresh, close to moderately close fracturing, medium hard to hard, BIOTITE-QUARTZ GNEISS (5 joints at 30°, 3 joints at 60-70°)			
254.9	55.5	5.1	1:00 1:15 1:00 2:00 1:30/1.1	(4.7)	(3.7)	UC-56.8'				(3 joints at 40°, 1 joint at 10°)			
249.8	60.6	5.1	1:30 1:30 1:30 1:15 2:15/1.1	(3.9)	(3.8)	7							
244.7	65.7	5.0	2:00 2:15 3:00 3:30 4:15	(5.0)	(4.5)	8				Hard Rock: Blue gray, slightly weathered to fresh, close to moderately close fracturing, hard, BIOTITE-QUARTZ GNEISS 65.7			
239.7	70.7	5.0	3:15 1:45 1:45 2:30 3:15	(5.0)	(5.0)	9				(1 joint at 80°, 5 joints at 10°)			
234.7	75.7	5.0	2:30 2:15 3:15 2:15 3:30	(4.7)	(3.9)	UC-76.1'				(2 joints at 30°, 3 joints at 50°)			
229.7	80.7	3.0	5:30 8:45 10:45	(3.0)	(2.6)	11				(4 joints at 20-30°)			
226.7	83.7	7.0	9:30 3:30 2:00 1:30 2:15 ND ND	(6.5)	(5.5)	12							
219.7	90.7	4.7	2:45 2:30 3:30 3:15 4:00/0.7	(4.7)	(3.8)	13				(2 joints at 70°, 3 joints at 10-20°, 2 joints at 40-50°)			
215.0	95.4	5.2	4:15 4:00 4:00 3:30 3:33/1.2	(5.0)	(4.6)	14				(2 joints at 10°, 4 joints at 30-40°, 2 joints at 70°)			
209.8	100.6									Coring terminated at 100.6 ft in Hard Rock: Hard, BIOTITE-QUARTZ GNEISS 100.6			

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



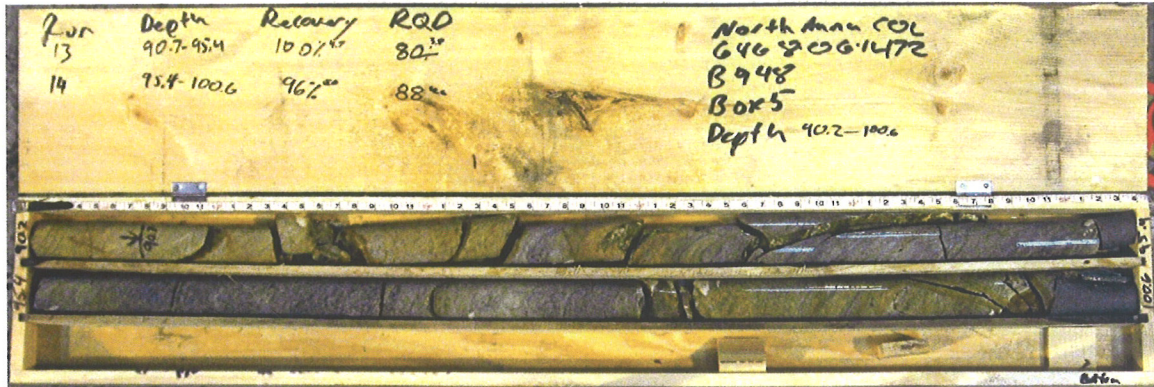
B-948 - Box 1

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B-948 - Box 5



MACTEC PROJECT NO.: 6468-06-1472				COUNTY Louisa, VA			GEOLOGIST J. Lachewitz		
SITE DESCRIPTION NORTH ANNA COL							GROUND WATER (ft)		
BORING NO. B-949		DRILL METHOD: Mud Rotary/Core			SAMPLE METHODS: SPT/CORE			0 HR. 20.2	
COLLAR ELEV. 334.8 ft (NAVD88)		NORTHING 3,909,018		US ft (NAD83)		EASTING 11,685,157		US ft (NAD83)	
TOTAL DEPTH 106.4 ft		DRILL MACHINE CME 550 ATV			DRILLER: G. Akins			HAMMER TYPE 140 lbs Auto	
DATE STARTED 8/11/06			COMPLETED 8/15/06			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						
334.8					Ground Surface									334.8	0.0	
333.3	1.5										949-1			Sandy SILT (ML) light yellowish brown (2.5Y 6/4), moist, stiff to very stiff (Residual Soil)		
331.3	3.5	3	5	6							949-2					
328.8	6.0	5	7	10							949-3					
326.3	8.5	5	6	9							949-4					
323.8	11.0	7	9	13							949-5					
321.3	13.5	5	6	8							949-6					
		5	7	10							949-7					
314.9	19.9	5	7	9							949-8					
309.9	24.9	7	8	10							949-9					
304.9	29.9	10	12	13							949-10					
299.9	34.9	16	50/0.5								949-11					
294.9	39.9	4	11	20							949-12					
289.9	44.9	12	22	19							949-13					
284.9	49.9	5	6	14							949-14					
279.9	54.9	9	14	50/0.2							949-15					
274.0	60.8	50/0.5									949-16					
268.5	66.3	50/0.2											278.9	55.9	Weathered Rock: Brown, black, and very dark gray, severely weathered, very close to close fracturing, very soft to soft, BIOTITE GNEISS	

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



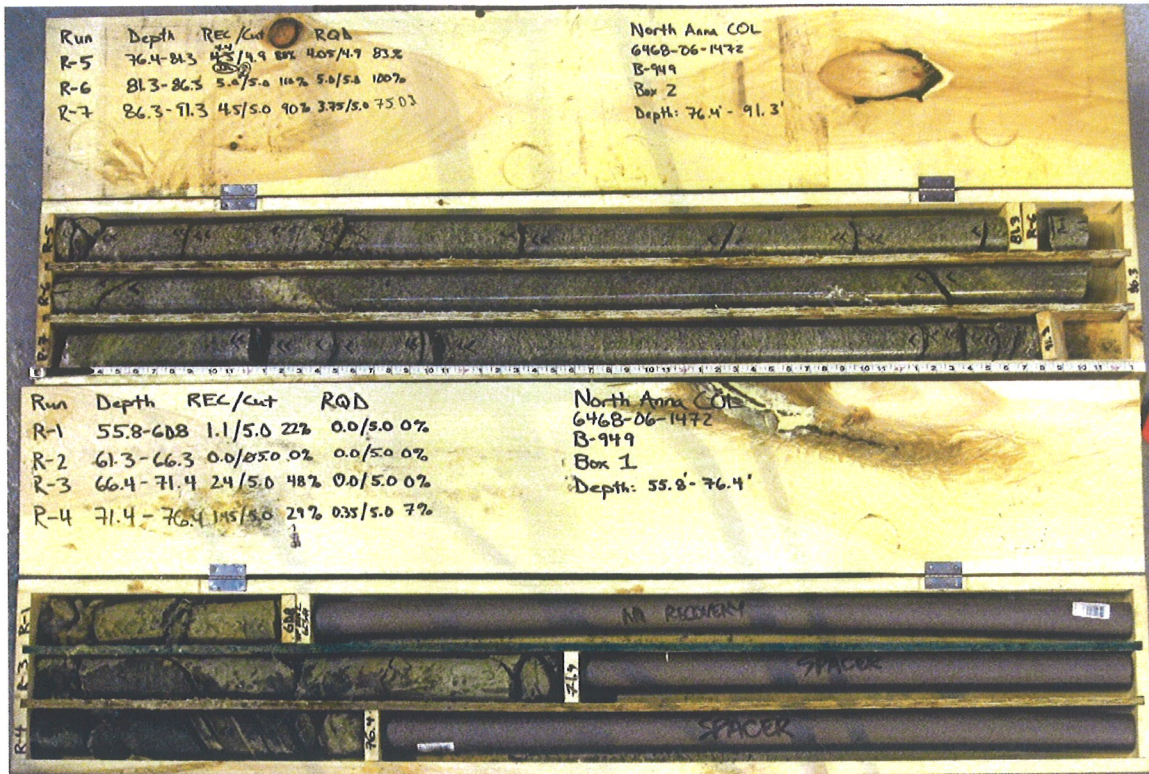
MACTEC PROJECT NO.: 6468-06-1472				COUNTY Louisa, VA				GEOLOGIST J. Lachewitz						
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)				
BORING NO. B-949		DRILL METHOD: Mud Rotary/Core				SAMPLE METHODS: SPT/CORE				0 HR. 20.2				
COLLAR ELEV. 334.8 ft (NAVD88)		NORTHING 3,909,018		US ft (NAD83)		EASTING 11,685,157		US ft (NAD83)		24 HR. ND				
TOTAL DEPTH 106.4 ft		DRILL MACHINE CME 550 ATV				DRILLER: G. Akins				HAMMER TYPE 140 lbs Auto				
DATE STARTED 8/11/06			COMPLETED 8/15/06			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	
260.0					Continued from previous page									
												258.4	76.4	Hard Rock: Gray to white, moderately to slightly weathered, close to moderately close fracturing, medium hard to hard, QUARTZ-BIOTITE GNEISS with trace magnetite
												228.4	106.4	Boring and coring terminated at 106.4 ft in Hard Rock: Moderately hard, QUARTZ-BIOTITE GNEISS

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



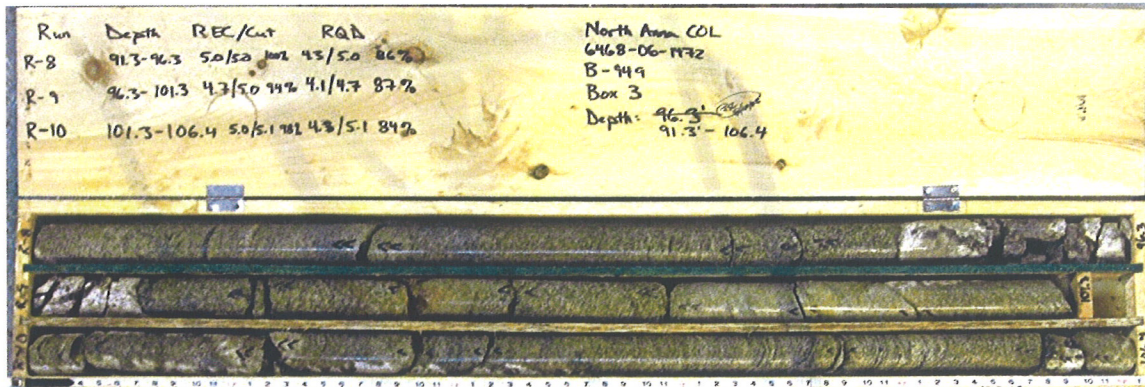
MACTEC PROJECT NO.: 6468-06-1472							COUNTY Louisa, VA			GEOLOGIST J. Lachewitz		
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)		
BORING NO. B-949			DRILL METHOD: Mud Rotary/Core			SAMPLE METHODS: SPT/CORE				0 HR. 20.2		
COLLAR ELEV. 334.8 ft (NAVD88)			NORTHING 3,909,018		US ft (NAD83)		EASTING 11,685,157		US ft (NAD83)		24 HR. ND	
TOTAL DEPTH 106.4 ft			DRILL MACHINE CME 550 ATV			DRILLER: G. Akins			HAMMER TYPE 140 lbs Auto			
DATE STARTED 8/11/06			COMPLETED 8/15/06			CORE BARREL TYPE: HQ 3 triple tube-wireline						
CORE SIZE HQ3			TOTAL RUN 50.0 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 @ 56.1 ft		
278.7	56.1	4.7	0:57 2:22 1:17 1:50	(1.1) 23%	(0.0) 0%	1				Weathered Rock: Brown, black, and very dark gray, severely weathered, very close to close fracturing, very soft to soft, BIOTITE GNEISS (continued) -Poor Recovery		
274.0	60.8		1:02/0.7									
273.5	61.3	5.0	N=50/0.5 1:41 1:32 1:27 1:38 1:43	(0.0) 0%	(0.0) 0%	949-15 2				-No Recovery		
268.5	66.3											
268.3	66.5	4.9	N=50/0.2 4:49 2:58 5:50 3:01	(2.4) 49%	(0.0) 0%	949-16 3				-Poor Recovery		
263.4	71.4		2:43/0.9									
		5.0	3:33 3:34 2:46 1:27 2:20	(1.5) 30%	(0.0) 0%	4				-Poor Recovery		
258.4	76.4											
		4.9	1:35 1:39 1:46 1:33 2:09/0.9	(4.3) 88%	(4.1) 84%	5				Hard Rock: Gray to white, moderately to slightly weathered, close to moderately close fracturing, medium hard to hard, QUARTZ-BIOTITE GNEISS with trace magnetite (5 joints at 0-30° with Fe stain) (2 joints at 45-55° with Fe stain)		
253.5	81.3											
		5.0	1:35 2:22 2:24 2:31 4:10	(5.0) 100%	(5.0) 100%	6						
248.5	86.3											
		5.0	2:00 1:00 1:47 1:28 1:41	(4.5) 90%	(3.8) 76%	7				(4 joints at 10-40°)		
243.5	91.3											
		5.0	1:28 2:00 1:59 1:15 2:53	(5.0) 100%	(4.3) 86%	8				(5 joints at 5-45°)		
238.5	96.3											
		5.0	1:07 1:19 1:09 0:55 1:30	(4.7) 94%	(4.4) 88%	9				(Multiple joints at 0-75°)		
233.5	101.3											
		5.1	1:02 1:22 1:22 1:07 1:32/1.1	(5.0) 98%	(4.3) 84%	10				(Multiple joints at 0-75°)		
228.4	106.4											
										Coring terminated at 106.4 ft in Hard Rock: Moderately hard, QUARTZ-BIOTITE GNEISS		

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



B-949 - Box 2

B-949 - Box 1



B-949 - Box 3



MACTEC PROJECT NO.: 6468-06-1472		COUNTY Louisa, VA		GEOLOGIST S. Nicely	
SITE DESCRIPTION NORTH ANNA COL					GROUND WATER (ft)
BORING NO. B-950		DRILL METHOD: Mud Rotary/Core		SAMPLE METHODS: SPT/CORE	
COLLAR ELEV. 282.5 ft (NAVD88)		NORTHING 3,910,836	US ft (NAD83)	EASTING 11,686,282	US ft (NAD83)
TOTAL DEPTH 100.8 ft		DRILL MACHINE CME 55 Truck		DRILLER: H. Meyerson	
DATE STARTED 8/11/06		COMPLETED 8/15/06		CORE BARREL TYPE: HQ 3 triple tube-wireline	
TOTAL DEPTH 100.8 ft		DRILL MACHINE CME 55 Truck		DRILLER: H. Meyerson	
DATE STARTED 8/11/06		COMPLETED 8/15/06		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			
282.5					Ground Surface							282.5 0.0
281.0	1.5											Silty, fine to coarse SAND (SM) yellowish brown (10YR 5/4), moist, loose to very loose, trace gravel (Fill)
279.0	3.5	3	5	5								
276.5	6.0											Sandy SILT (ML) yellowish brown (10YR 5/6), moist, medium stiff, trace clay (Residual Soil)
274.0	8.5	WOH	WOH	2								
271.4	11.1	4	4	4								Silty, fine to coarse SAND (SM) yellowish brown (10YR 5/6) to dark yellowish brown (10YR 4/4&4/6), moist, medium dense to dense, trace gravel (Residual Soil)
269.0	13.5	4	5	8								
263.8	18.7	5	7	14								Weathered Rock: Dark yellowish brown (10YR 4/6) and very dark greenish gray (GLEY 1 3/1), moist to dry, very dense, severely weathered, BIOTITE GNEISS
258.8	23.7	11	17	19								
253.8	28.7	28	50/0.5									Hard Rock: Dark gray, slightly to very slightly weathered, very close to moderately close fracturing, hard, QUARTZ-BIOTITE GNEISS
248.8	33.7	50/0.3										
243.8	38.7	50/0.2										Hard Rock: Dark gray, very slightly weathered to fresh, very close to wide fracturing, hard to very hard, QUARTZ-BIOTITE GNEISS
238.8	43.7	50/0.3										
233.8	48.7	50/0.3										232.2 50.3
232.2	50.3	50/0.3										
		50/0.0										218.7 63.8

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



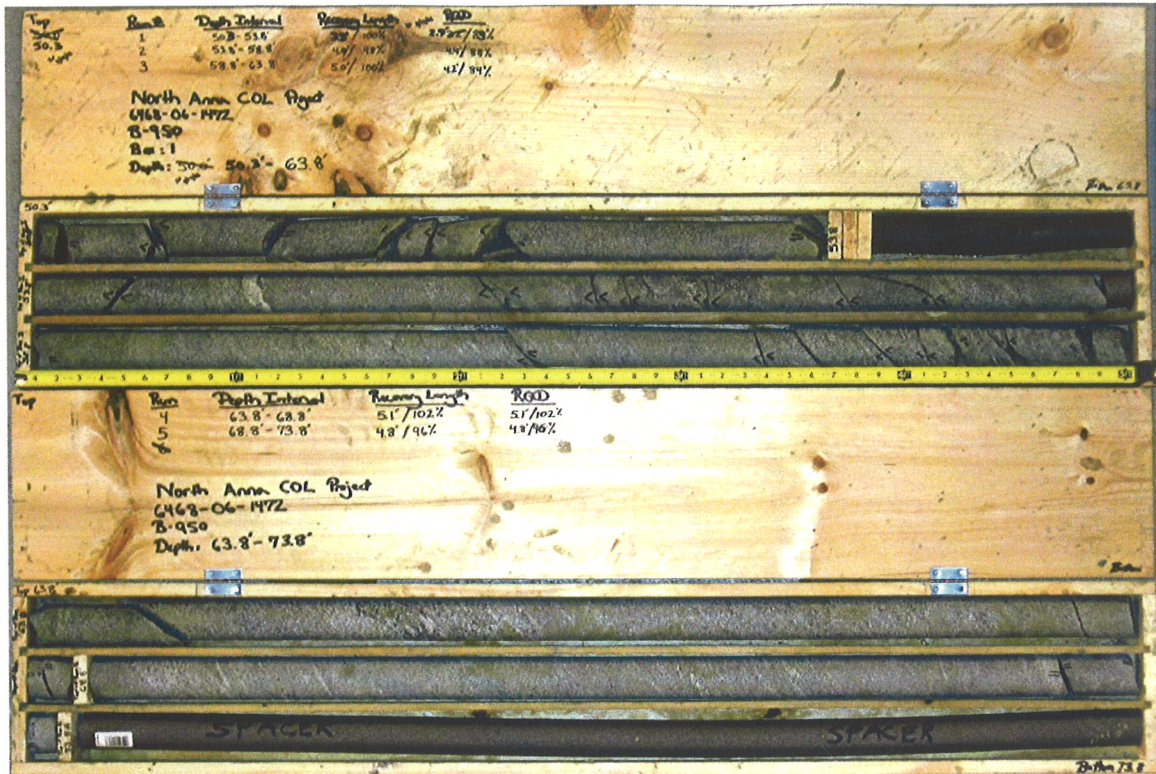
MACTEC PROJECT NO.: 6468-06-1472				COUNTY Louisa, VA				GEOLOGIST S. Nicely					
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)			
BORING NO. B-950		DRILL METHOD: Mud Rotary/Core				SAMPLE METHODS: SPT/CORE				0 HR. 10.4			
COLLAR ELEV. 282.5 ft (NAVD88)		NORTHING 3,910,836		US ft (NAD83)		EASTING 11,686,282		US ft (NAD83)		24 HR. 41.1			
TOTAL DEPTH 100.8 ft		DRILL MACHINE CME 55 Truck				DRILLER: H. Meyerson				HAMMER TYPE 140 lbs Auto			
DATE STARTED 8/11/06			COMPLETED 8/15/06			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				
207.7					Continued from previous page								
													Hard Rock: Dark gray, very slightly weathered to fresh, very close to wide fracturing, hard to very hard, QUARTZ-BIOTITE GNEISS (continued)
													Boring and coring terminated at 100.8 ft in Hard Rock: Very hard, QUARTZ-BIOTITE GNEISS
													100.8

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



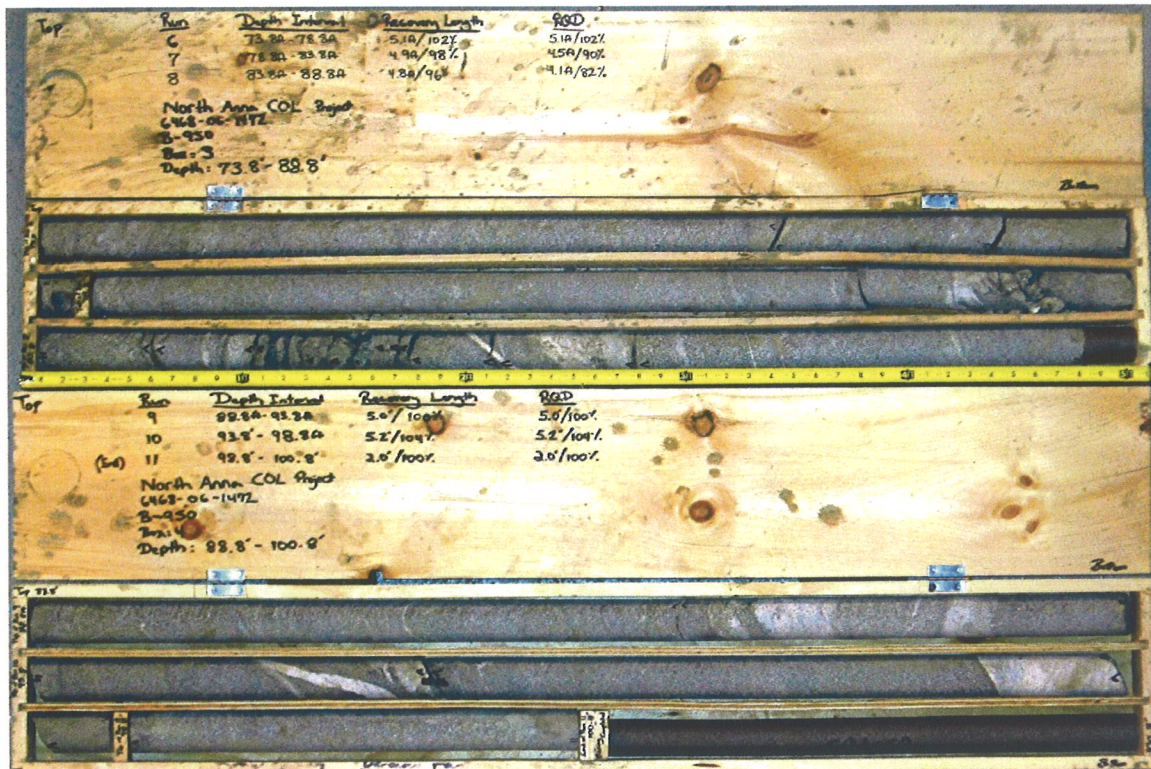
MACTEC PROJECT NO.: 6468-06-1472				COUNTY Louisa, VA				GEOLOGIST S. Nicely			
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)	
BORING NO. B-950		DRILL METHOD: Mud Rotary/Core				SAMPLE METHODS: SPT/CORE				0 HR. 10.4	
COLLAR ELEV. 282.5 ft (NAVD88)		NORTHING 3,910,836		US ft (NAD83)		EASTING 11,686,282		US ft (NAD83)		24 HR. 41.1	
TOTAL DEPTH 100.8 ft		DRILL MACHINE CME 55 Truck				DRILLER: H. Meyerson				HAMMER TYPE 140 lbs Auto	
DATE STARTED 8/11/06				COMPLETED 8/15/06				CORE BARREL TYPE: HQ 3 triple tube-wireline			
CORE SIZE HQ3				TOTAL RUN 50.5 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) %			
										Begin Coring @ 50.3 ft	
232.2	50.3	3.5	N=50/0.0 2:57/0.5	(3.5) 100%	(2.9) 83%	1				232.2 Hard Rock: Dark gray, slightly to very slightly weathered, very close to moderately close fracturing, hard, QUARTZ-BIOTITE GNEISS	
228.7	53.8	5.0	1:50 1:58 1:39	(4.9) 98%	(4.4) 88%	2				(2 joints at 40-50° with clay; 2 joints at 10-20°; 1 joint at 50-60°; severely weathered zone from 52.3-52.5 ft)	
223.7	58.8	5.0	2:03 2:14 2:08 2:35 2:34	(5.0) 100%	(4.2) 84%	3				(1 joint at 70-80° with chlorite; 3 joints at 20-30° with clay; 3 joints at 30-40° with clay)	
218.7	63.8	5.0	2:16 2:10 2:18 2:10 2:46	(5.1) 102%	(5.1) 102%	4				(6 joints at 40-50° and 3 joints at 20-30° with moderate weathering)	
213.7	68.8	5.0	3:55 1:44 1:34 2:25 1:44	(5.1) 102%	(5.1) 102%	4				218.7 Hard Rock: Dark gray, very slightly weathered to fresh, very close to wide fracturing, hard to very hard, QUARTZ-BIOTITE GNEISS	
208.7	73.8	5.0	1:51 1:24 1:37 1:46 2:36	(4.8) 96%	(4.8) 96%	5				(1 joint at 40-50°)	
203.7	78.8	5.0	2:31 1:30 1:42 1:23 1:47	(5.1) 102%	(5.1) 102%	6				-No Joints	
198.7	83.8	5.0	1:34 1:47 1:52 2:05 1:48	(4.9) 98%	(4.5) 90%	7				(1 joint at 20-30° with clay)	
193.7	88.8	5.0	2:01 1:46 2:02 2:23 2:20	(4.8) 96%	(4.1) 82%	8				(1 joint at 20-30°; Quartz vein from 83.0-83.4 ft)	
188.7	93.8	5.0	2:10 2:11 2:18 3:17 2:00	(5.0) 100%	(5.0) 100%	9				(2 joints at 10-20° with Fe stain; Quartz vein from 86.2-86.5 ft with small vugs and epidote mineralization; highly fractured, severely weathered zone from 84.8-85.5 ft)	
183.7	98.8	5.0	2:43 1:53 1:58 1:54 3:34	(5.2) 104%	(5.2) 104%	10				(1 joint at 10-20° with trace clay)	
181.7	100.8	2.0	2:09 2:03	(2.0) 100%	(2.0) 100%	11				(2 joints at 20-30°)	
										-No Joints	
										181.7 Coring terminated at 100.8 ft in Hard Rock: Very hard, QUARTZ-BIOTITE GNEISS	

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B-950 - Box 1

B-950 - Box 2



B-950 - Box 3

B-950 - Box 4