



SHEET 1 OF 2

MACTEC PROJECT NO.: 6468-06-1472					COUNTY Louisa, VA					GEOLOGIST J. Wallen/ J. Lachewitz						
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)						
BORING NO. B-923			DRILL METHOD: Mud Rotary/Core			SAMPLE METHODS: SPT/CORE			0 HR. ND							
COLLAR ELEV. 272.0 ft (NAVD88)			NORTHING 3,910,077			US ft (NAD83)			EASTING 11,686,309			US ft (NAD83)				
TOTAL DEPTH 75.4 ft			DRILL MACHINE CME 45 Trailer			DRILLER: D. Rhodes			HAMMER TYPE 140 lbs Auto			24 HR. ND				
DATE STARTED 8/29/06			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						
272.0					Ground Surface									272.0	0.0	
270.3	1.7													269.2	2.8	Silty GRAVEL (GM), reddish brown (5YR 4/3) and light gray (GLE1 7/N), moist, medium dense, fine to coarse sand (Fill)
268.7	3.3	14	16	6							923-1			268.9	5.1	CLayey, fine to coarse SAND (SC), reddish brown (5YR 4/3), moist, loose (Residual Soil)
266.9	5.1	4	2	4							923-2			266.9	5.1	Weathered Rock: Greenish gray (GLE1 6/1), moist, very dense, BIOTITE-QUARTZ GNEISS
		50/0.1									923-3					Hard Rock: Light to medium gray, gray-blue, and gray-white, slightly weathered to fresh, very close to moderately close fracturing, hard to very hard, BIOTITE-QUARTZ GNEISS with trace magnetite

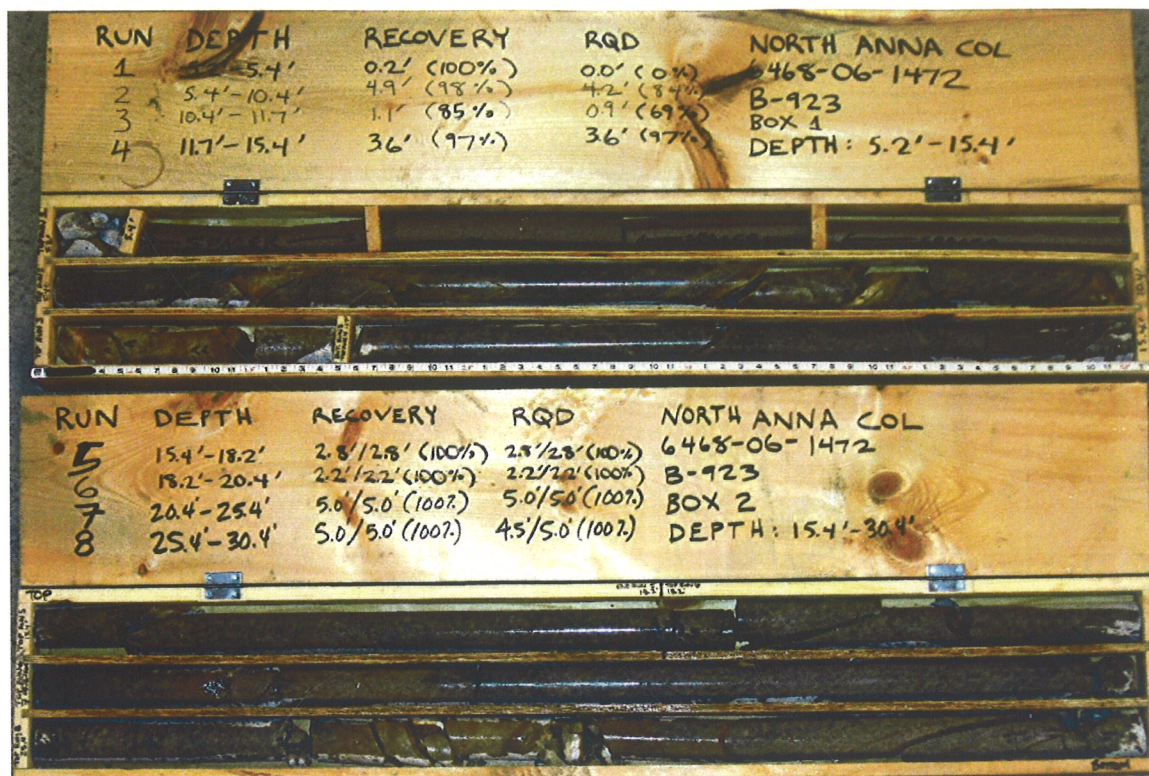
NORTH ANNA COL BORE NORTH ANNA COL DATA REPORT REV0.GPJ NORTH ANNA COL.GDT 1/19/07



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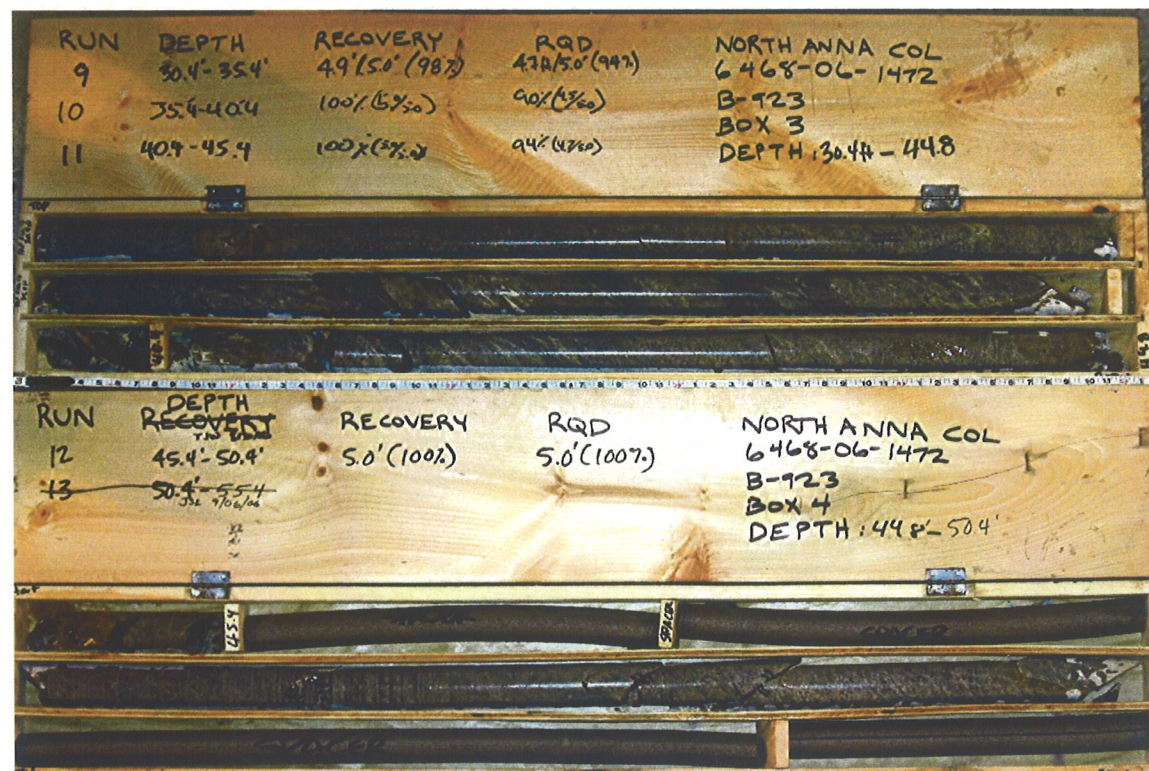
MACTEC PROJECT NO.: 6468-06-1472					COUNTY Louisa, VA					GEOLOGIST J. Wallen/ J. Lachewitz				
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)				
BORING NO. B-923			DRILL METHOD: Mud Rotary/Core				SAMPLE METHODS: SPT/CORE				0 HR. ND			
COLLAR ELEV. 272.0 ft (NAVD88)			NORTHING 3,910,077		US ft (NAD83)		EASTING 11,686,309		US ft (NAD83)		24 HR. ND			
TOTAL DEPTH 75.4 ft			DRILL MACHINE CME 45 Trailer				DRILLER: D. Rhodes				HAMMER TYPE 140 lbs Auto			
DATE STARTED 8/29/06			COMPLETED 9/7/06				CORE BARREL TYPE: HQ 3 triple tube-wireline							
CORE SIZE HQ3			TOTAL RUN 70.2 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 @ 5.2 ft				
266.8	5.2	0.2	0:32/0.2	(0.2)	(0.0)	1				266.8	Hard Rock: Light to medium gray, gray-blue, and gray-white, slightly weathered to fresh, very close to moderately close fracturing, hard to very hard, BIOTITE-QUARTZ GNEISS with trace magnetite (5 joints at 45°, 2 joints at 75° with Fe staining)			
266.6	5.4	5.0	5:00 5:54 7:03 10:04 13:20	100% (4.9) 98%	0% (4.2) 84%	2								
261.6	10.4													
260.3	11.7	1.3	17:27	(1.1)	(0.9)	3					(3 joints at 40° with Fe staining)			
		3.7	16:27/0.3	85%	69%	4					(1 joint at 45°)			
			3:30/0.7 6:16 9:10 9:30	(3.6) 97%	(3.6) 97%									
256.6	15.4													
		2.8	10:21 14:30 32:20/0.8	(2.8) 100%	(2.8) 100%	5					-No Joints			
253.8	18.2													
		2.2	4:32/0.2 27:37	(2.2) 100%	(2.2) 100%	UCS-20.0'					(1 joint at 70° with Fe staining)			
251.6	20.4		23:24	(5.0)	(5.0)	7					(1 joint at 80° with trace clay, quartz pyrite)			
		5.0	10:39 9:54 9:34 14:22 17:31	100% 100%	100%									
246.6	25.4													
		5.0	33:33 4:45 3:47 5:24 6:32	(5.0) 100%	(4.5) 90%	8					(6 joints at 40-50° with orange Fe stain; 2 joints at 80° with red Fe stain; moderately weathered fracture zone from 26.9-28.0 ft)			
241.6	30.4													
		5.0	4:21 6:00 6:39 8:05 6:42	(4.9) 98%	(4.7) 94%	UC-30.8'					(1 joint at 20° and 1 joint at 10° with orange Fe staining)			
236.6	35.4													
		5.0	8:30 8:00 9:00 13:30 14:30	(5.0) 100%	(4.5) 90%	10					(1 joint at 60°, 1 joint at 80°, 2 joints at 40°)			
231.6	40.4													
		5.0	24:00 9:00 5:30 6:00 5:30	(5.0) 100%	(4.7) 94%	11								
226.6	45.4													
		5.0	7:58 8:58 16:24 13:18 10:31	(5.0) 100%	(5.0) 100%	UC-45.7'					(3 joints at 70-80° with trace quartz+clay)			
221.6	50.4													
		5.0	11:29 8:44 5:34 4:50 3:33	(5.0) 100%	(5.0) 100%	13					(1 joint at 0°; 1 joint at 45° with Fe stain and trace clay)			
216.6	55.4													
		5.0	5:43 5:03 6:05 5:52 4:56	(5.0) 100%	(4.4) 88%	14					(5 joints at 0-60°, some with slight Fe stain)			
211.6	60.4													
		5.0	5:40 4:00 3:53 3:10 4:46	(5.0) 100%	(5.0) 100%	15					(5 joints at 50-60° with trace clay and orange Fe stain)			
206.6	65.4													
		3.0	5:17 6:10 14:17	(2.7) 90%	(2.0) 67%	UCS-65.7'					(1 joint at 90° with trace clay and orange Fe stain)			
203.6	68.4													
		2.0	2:27 3:22	(1.9) 95%	(1.5) 75%	17					(3 joints at 10-60°, some with Fe stain and trace clay)			
201.6	70.4													
		5.0	3:19 2:29 3:00 2:46 2:52	(5.0) 100%	(4.1) 82%	18					(7 joints at 5-45° trace clay and Fe staining; extremely fractured zone from 74.4-74.9 ft)			
196.6	75.4									196.6	Coring terminated at 75.4 ft in Hard Rock: Very hard, 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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B-923 - Box 3

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B-923 - Box 5
B-923 - Box 6



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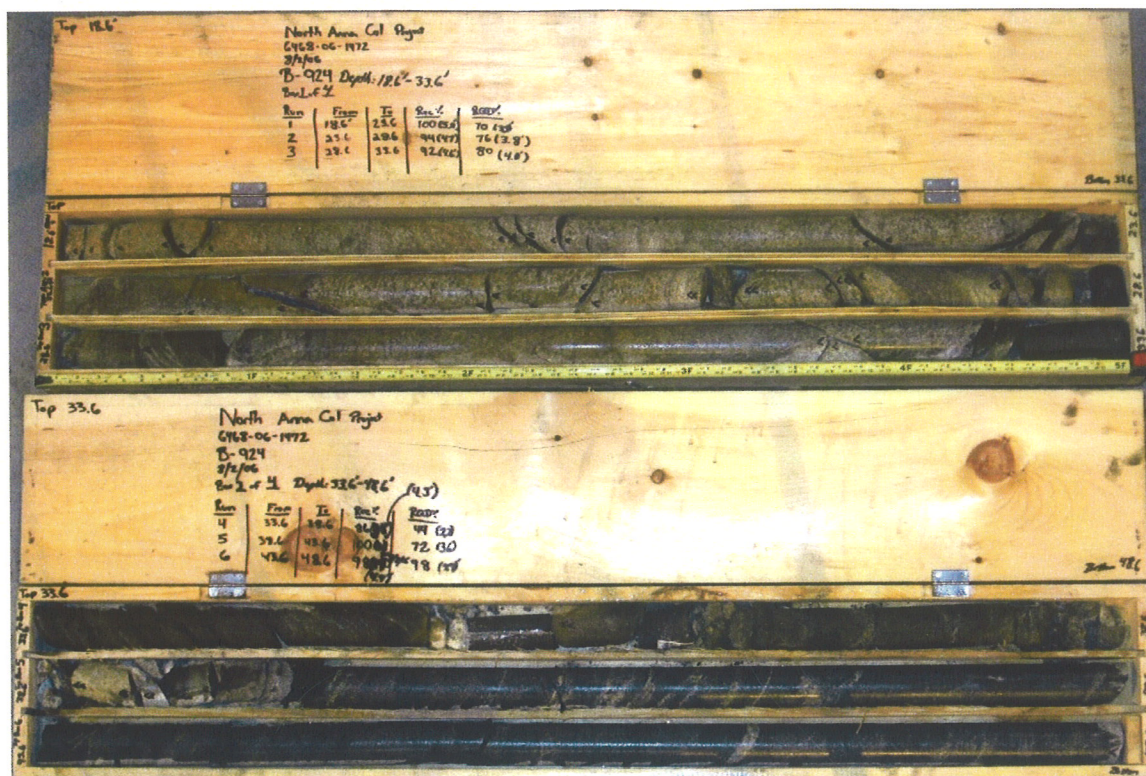
MACTEC PROJECT NO.: 6468-06-1472					COUNTY Louisa, VA					GEOLOGIST S. Nicely						
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft) 0 HR. 5.1 24 HR. ND						
BORING NO. B-924			DRILL METHOD: Mud Rotary/Core			SAMPLE METHODS: SPT/CORE										
COLLAR ELEV. 271.5 ft (NAVD88)			NORTHING 3,909,970		US ft (NAD83)		EASTING 11,686,475		US ft (NAD83)							
TOTAL DEPTH 75.6 ft			DRILL MACHINE CME 55 Truck			DRILLER: H. Meyerson				HAMMER TYPE 140 lbs Auto						
DATE STARTED 8/1/06			COMPLETED 8/7/06			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						
196.7					Continued from previous page											
														195.9	75.6	Boring and coring terminated at 75.6 ft in Hard Rock: Very hard, BIOTITE-QUARTZ GNEISS Boring grouted immediately after drilling completed due to location in roadway.



SHEET 1 OF 1

MACTEC PROJECT NO.: 6468-06-1472						COUNTY Louisa, VA				GEOLOGIST S. Nicely			
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)			
BORING NO. B-924			DRILL METHOD: Mud Rotary/Core				SAMPLE METHODS: SPT/CORE				0 HR. 5.1		
COLLAR ELEV. 271.5 ft (NAVD88)			NORTHING 3,909,970		US ft (NAD83)		EASTING 11,686,475		US ft (NAD83)		24 HR. ND		
TOTAL DEPTH 75.6 ft			DRILL MACHINE CME 55 Truck				DRILLER: H. Meyerson			HAMMER TYPE 140 lbs Auto			
DATE STARTED 8/1/06				COMPLETED 8/7/06			CORE BARREL TYPE: HQ 3 triple tube-wireline						
CORE SIZE HQ3				TOTAL RUN 57.0 ft									
ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	REC. (ft) %	RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	RQD (ft) %	L O G	DESCRIPTION AND REMARKS			
										Begin Coring @ 18.6 ft			
252.9	18.6	5.0	2:15 1:45 2:00 2:00 2:45	(5.0) 100%	(3.5) 70%	UC-21.7'				252.9	18.6	Hard Rock: Light to dark gray, moderately to slightly weathered, very close to moderately close fracturing, moderately hard to very hard, BIOTITE-QUARTZ GNEISS (4 joints at 10-20°, 3 joints at 40-50°, 3 joints at 50-60°, some with Fe staining)	
247.9	23.6	5.0	2:00 2:00 1:00 1:00 1:15	(4.7) 94%	(3.8) 76%	2						(2 joints at 60-70°, 6 joints at 30-40°, 3 joints at 10-20°-all with Fe staining)	
242.9	28.6	5.0	2:15 3:15 4:15 4:00 5:15	(4.6) 92%	(4.0) 80%	UC-30.2'						(7 joints at 20-30°, 2 joints at 50-60°-all with Fe staining))	
237.9	33.6	5.0	2:15 2:30 2:00 3:00 3:00	(4.3) 86%	(2.2) 44%	4						(5 joints at 30-40°, 6 joints at 10-20°-all with Fe staining; severely weathered zone from 36.7-37.2 ft)	
232.9	38.6	5.0	4:00 2:15 3:30 3:15 2:15	(5.0) 100%	(3.6) 72%	5						(12 joints at 20-30°, 1 joint at 60-70°; highly fractured severely weathered zone from 38.6-39.9 ft)	
227.9	43.6	5.0	3:15 3:00 2:00 2:45 2:45	(4.9) 98%	(4.9) 98%	UCS-44.0'				227.9	43.6	Hard Rock: Gray to dark gray, slightly weathered to fresh, very close to moderately close fracturing, hard to very hard, BIOTITE-QUARTZ GNEISS (2 joints at 20-30°; quartz vein at 46.8-46.9 ft)	
222.9	48.6	5.0	2:30 2:00 1:30 3:15 2:45	(5.1) 102%	(4.7) 94%	7							
217.9	53.6	5.0	3:15 5:30 2:15 2:00 3:15	(4.8) 96%	(4.0) 80%	8						(5 joints at 10-20°, 3 joints at 40-50°, with weathering)	
212.9	58.6	5.0	3:00 4:15 5:30 8:00 14:15	(5.2) 104%	(4.8) 96%	9						(2 joints at 40-50°, 2 joints at 20-30°-all with Fe stain)	
207.9	63.6	5.0	43:00 6:00 7:00 13:00 45:00	(5.1) 102%	(4.7) 94%	10						(3 joints at 40-50°; vugs noted at 68.4-68.6 ft with unknown brown mineral)	
202.9	68.6	5.0	14:30 14:30 4:30 3:45 3:30	(4.9) 98%	(4.1) 82%	11						(3 joints at 10-20°, 4 joints at 20-30°; vugs noted from 68.6-68.8 ft with unknown brown mineral)	
197.9	73.6	2.0	3:00 3:30	(2.0) 100%	(2.0) 100%	UC-75.1'						-No Joints	
195.9	75.6									195.9	75.6	Coring terminated at 75.6 ft in Hard Rock: Very hard, BIOTITE-QUARTZ GNEISS	

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



B-924 - Box 1

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