



MACTEC PROJECT NO.: 6468-06-1472				COUNTY Louisa, VA				GEOLOGIST J. Howard								
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)						
BORING NO. B-905		DRILL METHOD: Mud Rotary/Core				SAMPLE METHODS: SPT/CORE				0 HR. 23.0						
COLLAR ELEV. 306.8 ft (NAVD88)		NORTHING 3,909,733		US ft (NAD83)		EASTING 11,685,822		US ft (NAD83)		24 HR. 21.9						
TOTAL DEPTH 150.4 ft		DRILL MACHINE CME 550 ATV				DRILLER: G. Akins				HAMMER TYPE 140 lbs Auto						
DATE STARTED 9/19/06		COMPLETED 9/25/06				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						
306.8					Ground Surface										306.8	0.0
305.3	1.5										905-1			Silty SAND (SM), reddish yellow (7.5YR 6/8), pinkish gray (7.5YR 7/2), reddish yellow (7.5YR 6/6), and light gray (5YR 7/1), dry, medium dense to very dense, micaceous and saprolitic (Residual Soil)		
303.8	3.0	6	6	6							905-2					
		7	10	13												
298.3	8.5	6	8	9							905-3					
291.9	14.9	13	16	14			905-4									
286.9	19.9	27	27	30			905-5									
281.9	24.9	50/0.3					905-6									
280.7	26.1	50/0.0					905-7									
														282.9	23.9	
														280.7	26.1	
														286.3	40.5	

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

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SHEET 3 OF 3

MACTEC PROJECT NO.: 6468-06-1472										COUNTY Louisa, VA			GEOLOGIST J. Howard		
SITE DESCRIPTION NORTH ANNA COL													GROUND WATER (ft) 0 HR. 23.0 24 HR. 21.9		
BORING NO. B-905			DRILL METHOD: Mud Rotary/Core				SAMPLE METHODS: SPT/CORE								
COLLAR ELEV. 306.8 ft (NAVD88)			NORTHING 3,909,733		US ft (NAD83)		EASTING 11,685,822		US ft (NAD83)						
TOTAL DEPTH 150.4 ft			DRILL MACHINE CME 550 ATV				DRILLER: G. Akins				HAMMER TYPE 140 lbs Auto				
DATE STARTED 9/19/06			COMPLETED 9/25/06				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					
157.1					Continued from previous page										
													156.4 Hard Rock: Blue-gray and brown, moderately to slightly weathered, moderately close fracturing, moderately hard, BIOTITE GNEISS (continued) Boring and coring terminated at 150.4 ft in Hard Rock: Hard, BIOTITE GNEISS 150.4		



SHEET 1 OF 2

MACTEC PROJECT NO.: 6468-06-1472							COUNTY Louisa, VA			GEOLOGIST J. Howard		
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft) 0 HR. 23.0 24 HR. 21.9		
BORING NO. B-905			DRILL METHOD: Mud Rotary/Core			SAMPLE METHODS: SPT/CORE						
COLLAR ELEV. 306.8 ft (NAVD88)			NORTHING 3,909,733		US ft (NAD83)		EASTING 11,685,822		US ft (NAD83)			
TOTAL DEPTH 150.4 ft		DRILL MACHINE CME 550 ATV				DRILLER: G. Akins			HAMMER TYPE 140 lbs Auto			
DATE STARTED 9/19/06				COMPLETED 9/25/06			CORE BARREL TYPE: HQ 3 triple tube-wireline					
CORE SIZE HQ3				TOTAL RUN 124.3 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 @ 26.1 ft		
280.7	26.1	4.4	N=50/0.0 2:00 1:30 0:30 1:00	(2.2) 50%	(2.2) 50%	1				280.7	Hard Rock: Tan gray, moderately to very slightly weathered, close to moderately close fracturing, medium hard to hard, QUARTZ GNEISS 26.1	
276.3	30.5	4.9	1:30/0.4 2:00 1:45 1:15 1:30 3:00/0.9	(3.9) 80%	(3.0) 61%	2						
271.4	35.4	5.1	3:00 3:00 2:30 3:15 3:30/1.1	(5.1) 100%	(5.1) 100%	3					(2 joints at 80°)	
266.3	40.5	5.0	3:45 4:15 5:00 7:15 4:30	(4.7) 94%	(4.7) 94%	4				266.3	Hard Rock: Blue-gray to tan-gray, moderately weathered to fresh, close to moderately close fracturing, hard to very hard, BIOTITE GNEISS 40.5 (1 joint at 40°, 1 joint at 75°, 2 joints at 20°; loss of circulation from 44.4 to 44.6 ft)	
261.3	45.5	4.9	5:00 7:00 7:15 10:30 9:30/0.9	(4.9) 100%	(4.9) 100%	5					(1 joint at 10°, 1 joint at 80°, 2 joints at 50°)	
256.4	50.4	4.8	3:00 8:30 7:15 6:45 7:30/0.8	(4.2) 88%	(3.4) 71%	6						
251.6	55.2	5.1	9:15 3:45 3:00 2:30 4:00/1.1	(5.1) 100%	(4.2) 82%	7					(4 joints at 30-40°)	
246.5	60.3	4.9	6:45 3:00 3:45 6:30 8:00/0.9	(4.9) 100%	(4.9) 100%	8					(2 joints at 20°, 2 joints at 40°)	
241.6	65.2	5.1	6:00 3:00 1:45 2:00 2:15/1.1	(4.8) 94%	(4.0) 78%	9					(3 joints at 30°, 1 joint at 10°)	
236.5	70.3	2.9	4:00 2:15 2:30/0.9	(2.9) 100%	(1.3) 45%	10					(5 joints at 10°, 1 joint at 50°, 1 joint at 85°; trace epidote)	
233.6	73.2	7.0	3:30 4:00 3:30 3:45 2:30 3:30 5:00	(5.3) 76%	(4.7) 67%	11					(4 joints at 10°, 1 joint at 85°)	
229.0	77.8									229.0	Weathered Rock: Tan-gray, severely weathered, BIOTITE GNEISS 77.8	
226.6	80.2	5.3	4:30 4:45 5:00 6:00 5:15	(5.3) 100%	(3.8) 72%	12				226.6	Hard Rock: Gray-tan, light gray, and blue-gray, moderate severely weathered to fresh, very close to moderately close fracturing, medium hard to hard, BIOTITE GNEISS 80.2 (7 joints at 20°, 3 joints at 80°)	
221.3	85.5	5.0	2:45 2:00 3:45 3:30 4:30	(3.3) 66%	(0.5) 10%	13						
216.3	90.5	5.0	2:30 2:00 2:15 2:00 2:00	(3.5) 70%	(1.3) 26%	14					(2 joints at 40°, 1 joint at 85°)	
211.3	95.5	5.0	1:45 1:30 1:30 1:15 1:00	(4.5) 90%	(3.8) 76%	15					(3 joints at 60°, 1 joint at 85°)	
206.3	100.5											

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 J. Howard

SITE DESCRIPTION NORTH ANNA COL

GROUND WATER (ft)

BORING NO. B-905

DRILL METHOD: Mud Rotary/Core

SAMPLE METHODS: SPT/CORE

0 HR. 23.0

COLLAR ELEV. 306.8 ft (NAVD88)

NORTHING 3,909,733

US ft (NAD83)

EASTING 11,685,822

US ft (NAD83)

24 HR. 21.9

TOTAL DEPTH 150.4 ft

DRILL MACHINE CME 550 ATV

DRILLER: G. Akins

HAMMER TYPE 140 lbs Auto

DATE STARTED 9/19/06

COMPLETED 9/25/06

CORE BARREL TYPE: HQ 3 triple tube-wireline

CORE SIZE HQ3

TOTAL RUN 124.3 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

Continued from previous page

201.3

105.5

5.0

1:30 ND ND ND ND

(5.0) 100%

(4.8) 96%

16

(2 joints at 10°, 2 joints at 60-70°)
Hard Rock: Gray-tan, light gray, and blue-gray, moderate severely weathered to fresh, very close to moderately close fracturing, medium hard to hard, BIOTITE GNEISS (continued)

196.3

110.5

5.0

2:00 1:45 1:30 1:15 1:45

(5.0) 100%

(4.5) 90%

17

(1 joint at 20°, 2 joints at 40-50°; quartz+felspar veins)

191.3

115.5

5.0

2:45/2.0 2:00 1:30 1:45

(4.7) 94%

(4.2) 84%

18

(4 joints at 10-20°, 2 joints at 50°)

186.3

120.5

5.0

1:30 1:15 1:30 1:45 1:45

(4.3) 86%

(2.7) 54%

19

(3 joints at 30-40°, 4 joints at 50-60°)

181.4

125.4

4.9

3:00 3:15 2:00 2:15 2:30/0.9

(1.6) 33%

(0.4) 8%

20

185.0 ----- 121.8
Weathered Rock: BIOTITE GNEISS-little to no recovery

179.4

127.4

2.0

2:00/2.0

(2.0) 100%

(1.2) 60%

21

181.4 ----- 125.4
Hard Rock: Gray-tan and blue-gray, moderately weathered to fresh, very close to wide fracturing, hard to very hard, BIOTITE GNEISS, locally with quartz and felspar veins

176.2

130.6

3.2

1:15 1:00 2:00

(2.6) 81%

(1.2) 38%

22

(3 joints at 30°)

171.3

135.5

4.9

0:30/0.2 2:15 2:00 4:00 3:00 4:30/0.9

(4.9) 100%

(4.9) 100%

23

(2 joints at 40°, 1 joint at 30°, 1 joint at 0°; quartz+felspar veins)

168.1

138.7

3.2

6:30 6:00 12:30

(3.2) 100%

(3.2) 100%

24

-No Joints

161.5

145.3

6.6

4:00/0.2 6:30 6:30 3:00 3:30 4:00 6:00/1.6

(6.6) 100%

(6.6) 100%

25

-No Joints

156.4

150.4

5.1

6:45 6:15 2:30 2:30 2:00/1.1

(5.1) 100%

(5.0) 98%

26

159.2 ----- 147.6
Hard Rock: Blue-gray and brown, moderately to slightly weathered, moderately close fracturing, moderately hard, BIOTITE GNEISS

Coring terminated at 150.4 ft in Hard Rock: Hard, BIOTITE GNEISS

150.4 ----- 150.4

1/19/07

NORTH ANNA COL

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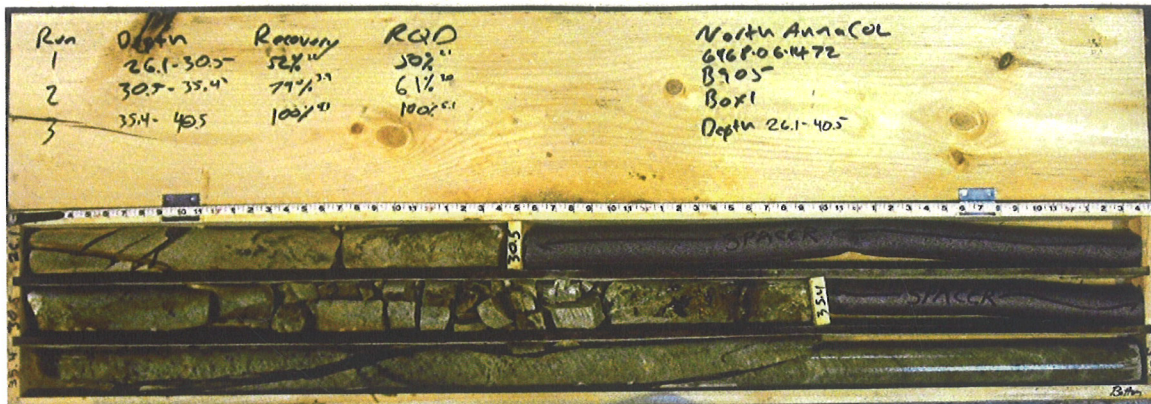
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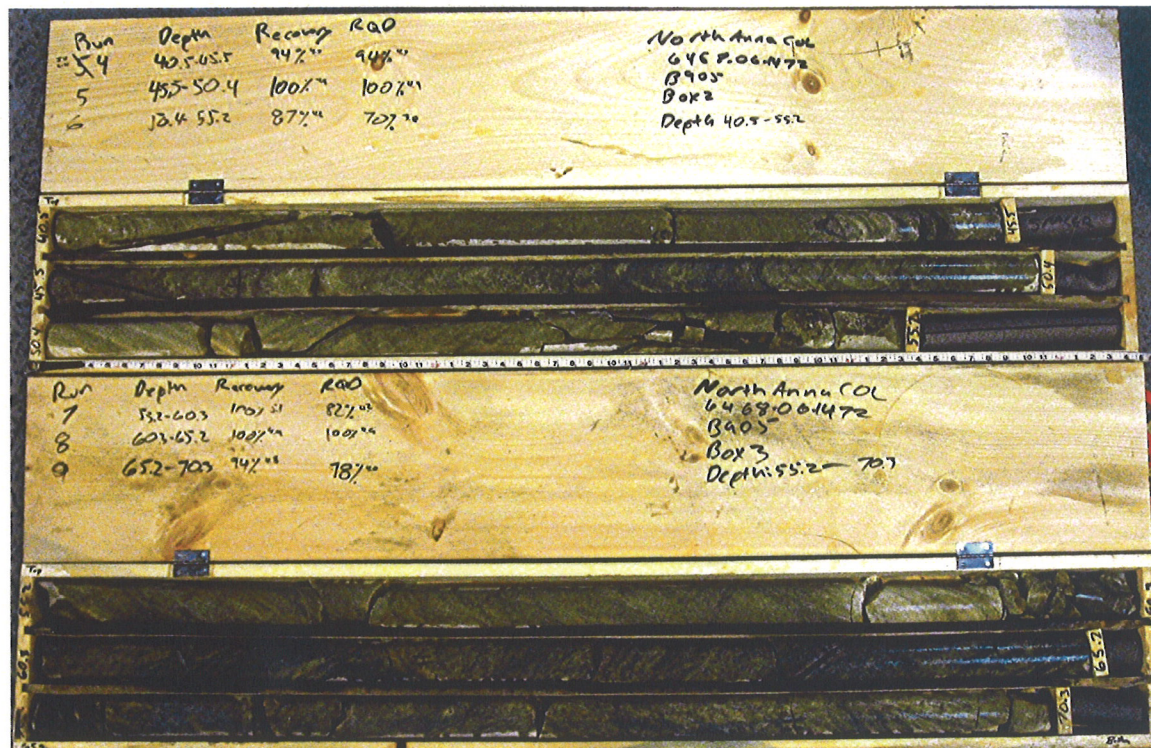
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NORTH ANNA COL CORE NORTH ANNA COL DATA REPORT REV0.GPJ NORTH ANNA COL GDT 1/19/07



B-905 – Box 1



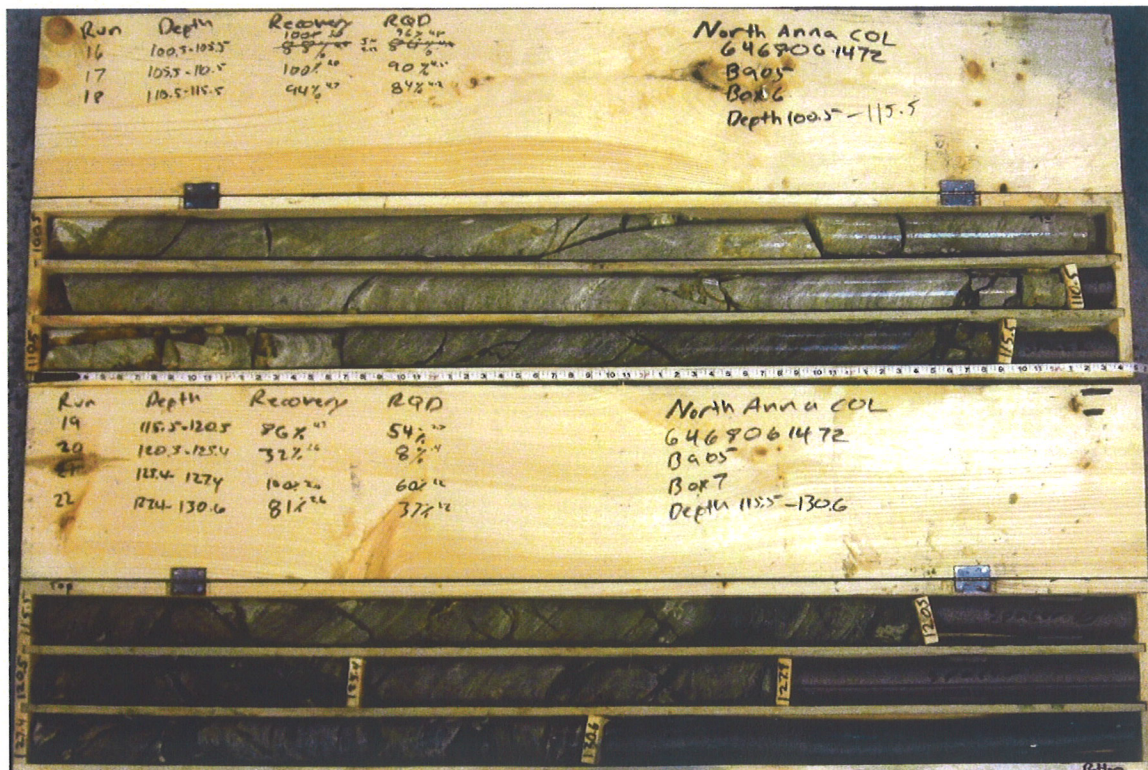
B-905 – Box 2

B-905 – Box 3



B-905 – Box 4

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B-905 – Box 7



B-905 – Box 8
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