GEOTECHNICAL BORING LOG

MACTEC

MACTEC PROJECT NO.: 6468-06-1472	COUNTY Louisa, VA	GEOLOGIST S. Lehman
SITE DESCRIPTION NORTH ANNA COL		GROUND WATER (ft)
BORING NO. B-943	DRILL METHOD: Mud Rotary/Core	SAMPLE METHODS: SPT/CORE	0 HR. 6.2
COLLAR ELEV. 300.4 ft (NAVD88)	NORTHING 3,909,355 US ft (NAD83)	EASTING 11,683,892 US ft (NAD83)	24 HR. 4.2
TOTAL DEPTH 101.9 ft	DRILL MACHINE CME 55LC Track	DRILLER: D. White	HAMMER TYPE 140 lbs Auto
DATE STARTED 10/16/06	COMPLETED 10/17/06	CORE BARREL TYPE: HQ 3 triple tube-wireline	

ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (0 20 40 60 80 100)	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
300.4					Ground Surface				300.4 / 0.0
300.4	0.0	4	5	7	12	943-1			Sandy SILT (ML) light brownish gray (2.5Y 6/3), brown (7.5YR 4/4), and dark yellowish brown (2.5Y 4/4), moist, stiff and medium stiff to very stiff, trace clay, micaceous, relict rock fabric (Residual Soil)
296.9	3.5	2	4	5	9	943-2	▼		
294.4	6.0	2	3	2	5	943-3			
291.9	8.5	2	3	4	7	943-4			
289.4	11.0	5	7	14	21	943-5			
286.9	13.5	4	8	9	17	943-6			
281.3	19.1	12	50/0.3			943-7			280.8 / 19.6 Weathered Rock: Light brownish gray (2.5Y 6/2), moist, very dense, severely weathered, QUARTZ GNEISS
276.3	24.1	50/0.0				943-8			276.3 / 24.1 Hard Rock: Light gray with orange Fe staining, moderately to slightly weathered, moderately hard, QUARTZ GNEISS with biotite
									274.1 / 26.3 Weathered Rock: No recovery-QUARTZ GNEISS with biotite
									271.2 / 29.2 Hard Rock: Light gray, slightly weathered, moderately hard, QUARTZ GNEISS with biotite
									268.5 / 31.9 Weathered Rock: No recovery-QUARTZ GNEISS with biotite
									Hard Rock: Light gray, moderately severe to slightly weathered, close to moderately close fracturing, soft to moderately hard, QUARTZ GNEISS with biotite
									253.7 / 46.7 Weathered Rock: No recovery-QUARTZ GNEISS with biotite
									250.1 / 50.3 Hard Rock: Light gray, moderately severe to very slightly weathered, close to moderately close fracturing, medium hard to hard, QUARTZ GNEISS with biotite
									243.5 / 56.9 Hard Rock: Light gray, slightly weathered to fresh, close to moderately close fracturing, hard, QUARTZ GNEISS with biotite and trace pyrite

GEOTECHNICAL BORING LOG

MACTEC

MACTEC PROJECT NO.: 6468-06-1472	COUNTY Louisa, VA	GEOLOGIST S. Lehman	
SITE DESCRIPTION NORTH ANNA COL		GROUND WATER (ft)	
BORING NO. B-943	DRILL METHOD: Mud Rotary/Core	SAMPLE METHODS: SPT/CORE	0 HR. 6.2
COLLAR ELEV. 300.4 ft (NAVD88)	NORTHING 3,909,355 US ft (NAD83)	EASTING 11,683,892 US ft (NAD83)	24 HR. 4.2
TOTAL DEPTH 101.9 ft	DRILL MACHINE CME 55LC Track	DRILLER: D. White	HAMMER TYPE 140 lbs Auto
DATE STARTED 10/16/06	COMPLETED 10/17/06	CORE BARREL TYPE: HQ 3 triple tube-wireline	

ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 20 40 60 80 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
225.6					Continued from previous page				
									223.1 / 77.3 Weathered Rock: No recovery-BIOTITE GNEISS
									220.1 / 80.3 Hard Rock: Dark gray, moderately weathered to fresh, close to moderately close fracturing, medium hard to hard, QUARTZ-BIOTITE GNEISS
									198.5 / 101.9 Boring and coring terminated at 101.9 ft in Hard Rock: Hard, QUARTZ-BIOTITE GNEISS

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

GEOTECHNICAL CORING LOG

MACTEC

MACTEC PROJECT NO.: 6468-06-1472	COUNTY Louisa, VA	GEOLOGIST S. Lehman	
SITE DESCRIPTION NORTH ANNA COL			GROUND WATER (ft)
BORING NO. B-943	DRILL METHOD: Mud Rotary/Core	SAMPLE METHODS: SPT/CORE	0 HR. 6.2
COLLAR ELEV. 300.4 ft (NAVD88)	NORTHING 3,909,355 US ft (NAD83)	EASTING 11,683,892 US ft (NAD83)	24 HR. 4.2
TOTAL DEPTH 101.9 ft	DRILL MACHINE CME 55LC Track	DRILLER: D. White	HAMMER TYPE 140 lbs Auto
DATE STARTED 10/16/06	COMPLETED 10/17/06	CORE BARREL TYPE: HQ 3 triple tube-wireline	
CORE SIZE HQ3	TOTAL RUN 77.8 ft		

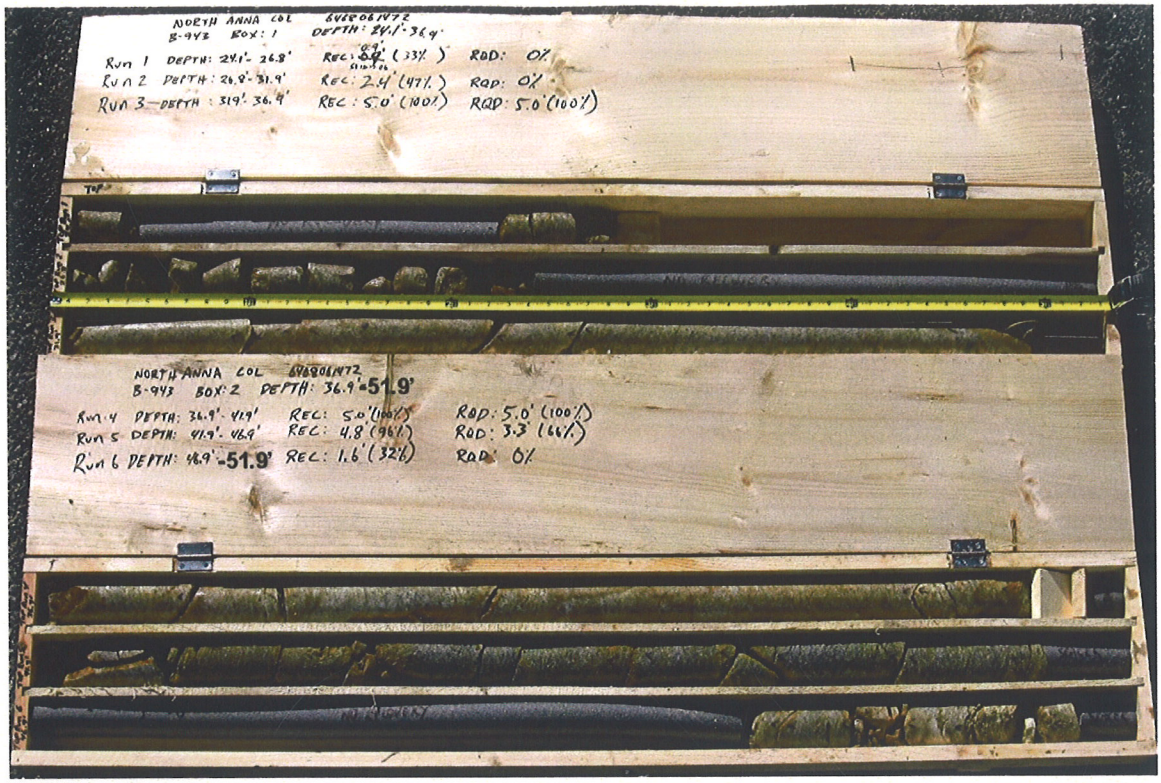
ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS
										Begin Coring @ 24.1 ft
276.3	24.1	2.7	N=50/0.0	(0.9)	(0.0)	1				276.3 Hard Rock: Light gray with orange Fe staining, moderately to slightly weathered, moderately hard, QUARTZ GNEISS with biotite (24.1–26.3)
273.6	26.8		1:26 1:48 1:36/0.7	33%	0%					276.0 Weathered Rock: No recovery-QUARTZ GNEISS with biotite (24.4)
		5.1	2:30 2:01 3:20 2:57 2:12/1.1	(2.4) 47%	(0.0) 0%	2				274.1 Hard Rock: Light gray, slightly weathered, moderately hard, QUARTZ GNEISS with biotite (26.3–29.2)
268.5	31.9									271.2 Weathered Rock: No recovery-QUARTZ GNEISS with biotite (29.2–31.9)
		5.0	2:10 2:35 2:18 2:23 2:40	(5.0) 100%	(5.0) 100%	3				268.5 Hard Rock: Light gray, moderately severe to slightly weathered, close to moderately close fracturing, soft to moderately hard, QUARTZ GNEISS with biotite (31.9–46.7) (2 joints at 70° and 4 joints 45° moderately to slightly weathered with Fe stain)
263.5	36.9									
		5.0	2:49 2:33 2:32 2:51 2:48	(5.0) 100%	(5.0) 100%	4				(2 joints at 60° and 3 joints 45° moderately to slightly weathered with Fe stain)
258.5	41.9									
		5.0	2:01 1:56 2:06 2:15 1:58	(4.8) 96%	(3.3) 66%	5				(2 joints at 60° and 3 joints 20° very severely to moderately weathered with Fe stain)
253.5	46.9									253.7 Weathered Rock: No recovery-QUARTZ GNEISS with biotite (46.7–50.3)
		5.0	3:38 2:28 2:24 2:20 1:52	(1.6) 32%	(0.0) 0%	6				
248.5	51.9									250.1 Hard Rock: Light gray, moderately severe to very slightly weathered, close to moderately close fracturing, medium hard to hard, QUARTZ GNEISS with biotite (50.3–56.9) (3 joints at 60° and 5 joints 45° slightly weathered with Fe stain)
		5.0	1:43 2:10 2:01 2:16 2:24	(4.6) 92%	(1.4) 28%	7				
243.5	56.9									243.5 Hard Rock: Light gray, slightly weathered to fresh, close to moderately close fracturing, hard, QUARTZ GNEISS with biotite and trace pyrite (56.9–77.3) (4 joints at 60° and 2 joints 45° slightly weathered with Fe stain)
		5.0	2:20 2:40 3:57 4:10 3:19	(4.9) 98%	(3.7) 74%	8				
238.5	61.9									(1 joint at 90° moderately to slightly weathered with Fe stain; 1 joint at 60° with clay and Fe stain; 3 joints at 45° weathered with Fe stain)
		5.0	3:05 3:30 3:15 4:00 4:14	(5.0) 100%	(4.8) 96%	9				
233.5	66.9									(2 joints at 70°, 1 joint at 90°, 3 joints at 30°-all slightly weathered with Fe stain)
		5.0	4:40 3:48 3:47 3:42 3:52	(5.0) 100%	(4.3) 86%	10				
228.5	71.9									(2 joints at 70° and 3 joints 45° slightly weathered with Fe stain)
		5.0	3:05 3:28 4:36 4:28 3:34	(5.0) 100%	(5.0) 100%	11				
223.5	76.9									223.1 Weathered Rock: No recovery-BIOTITE GNEISS (77.3–80.3)
		5.0	5:49 2:53 4:02 3:27 5:14	(2.0) 40%	(1.6) 32%	12				
218.5	81.9									220.1 Hard Rock: Dark gray, moderately weathered to fresh, close to moderately close fracturing, medium hard to hard, QUARTZ-BIOTITE GNEISS (80.3–101.9) (1 joint at 45°, 3 joints at 20° moderately to slightly weathered with light Fe stain)
		5.0	3:21 3:24 2:57 2:34 2:41	(5.0) 100%	(4.7) 94%	13				
213.5	86.9									(1 joint at 45° and 1 joint at 70° weathered and trace clay)
		5.0	3:37 3:03 2:31 2:17 2:59	(4.7) 94%	(4.3) 86%	14				
208.5	91.9									(1 joint at 60° with clay, moderately severe weathering; 2 joints at 45° moderately weathered)
		5.0	4:24 4:21 4:11 4:49 3:59	(4.9) 98%	(4.4) 88%	15				
203.5	96.9									(1 joint at 20° slightly weathered)
		5.0	3:01 2:29	(4.9) 98%	(4.7) 94%	16				

GEOTECHNICAL CORING LOG

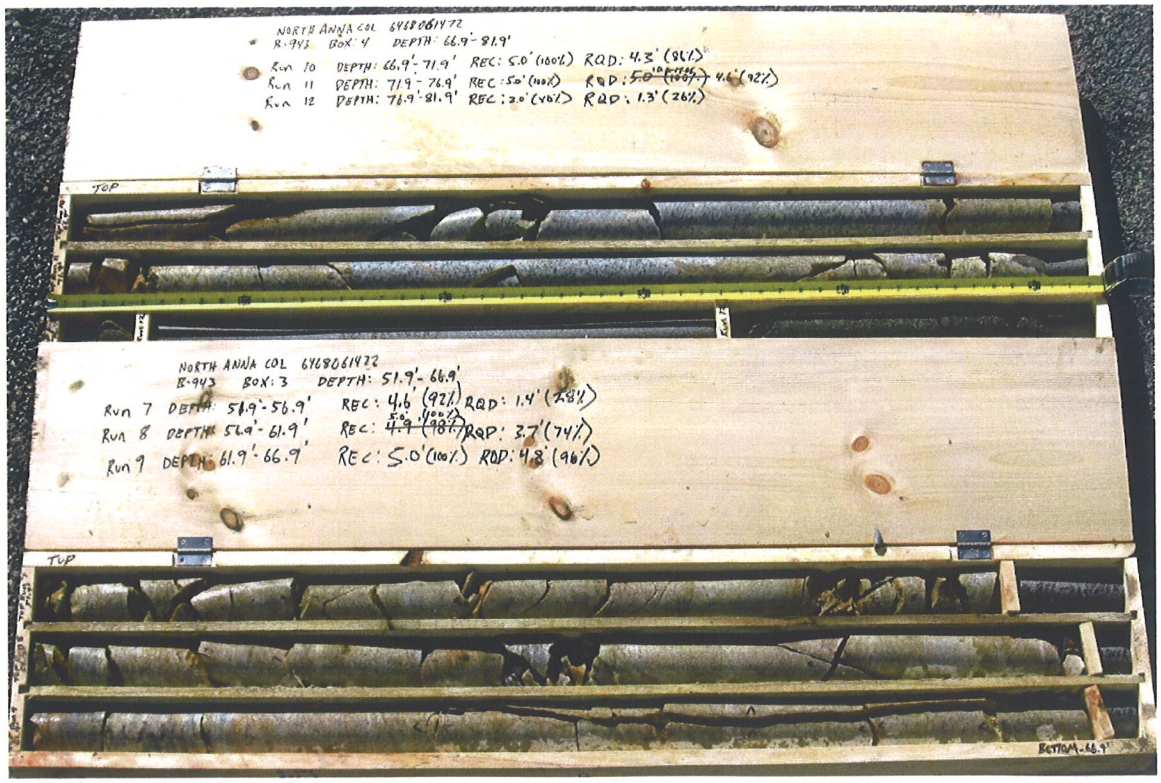
MACTEC

MACTEC PROJECT NO.: 6468-06-1472	COUNTY Louisa, VA	GEOLOGIST S. Lehman	
SITE DESCRIPTION NORTH ANNA COL			GROUND WATER (ft)
BORING NO. B-943	DRILL METHOD: Mud Rotary/Core	SAMPLE METHODS: SPT/CORE	0 HR. 6.2
COLLAR ELEV. 300.4 ft (NAVD88)	NORTHING 3,909,355 US ft (NAD83)	EASTING 11,683,892 US ft (NAD83)	24 HR. 4.2
TOTAL DEPTH 101.9 ft	DRILL MACHINE CME 55LC Track	DRILLER: D. White	HAMMER TYPE 140 lbs Auto
DATE STARTED 10/16/06	COMPLETED 10/17/06	CORE BARREL TYPE: HQ 3 triple tube-wireline	
CORE SIZE HQ3	TOTAL RUN 77.8 ft		

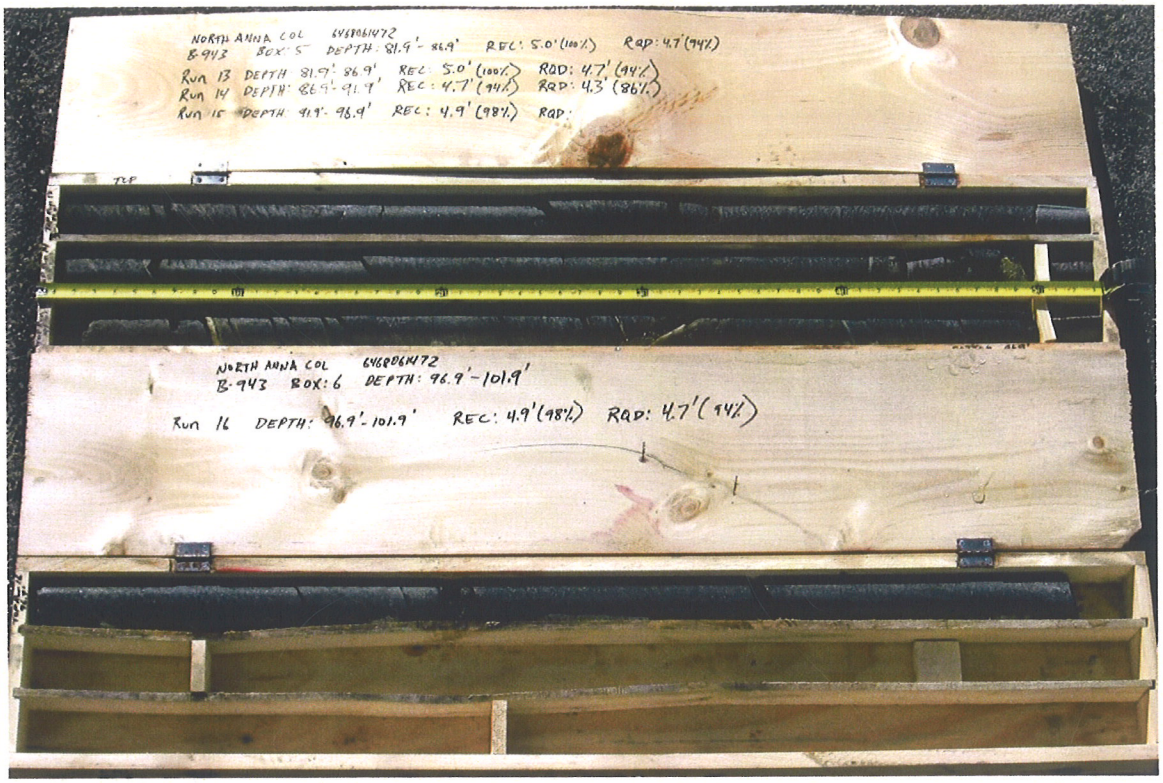
ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS
										Continued from previous page
198.5	101.9		2:49 2:46 2:26							Hard Rock: Dark gray, moderately weathered to fresh, close to moderately close fracturing, medium hard to hard, QUARTZ-BIOTITE GNEISS *(continued)* 198.5 101.9
										Coring terminated at 101.9 ft in Hard Rock: Hard, QUARTZ-BIOTITE GNEISS



B-943 – Box 1
B-943 – Box 2



B-943 – Box 4
B-943 – Box 3



B-943 – Box 5
B-943 – Box 6

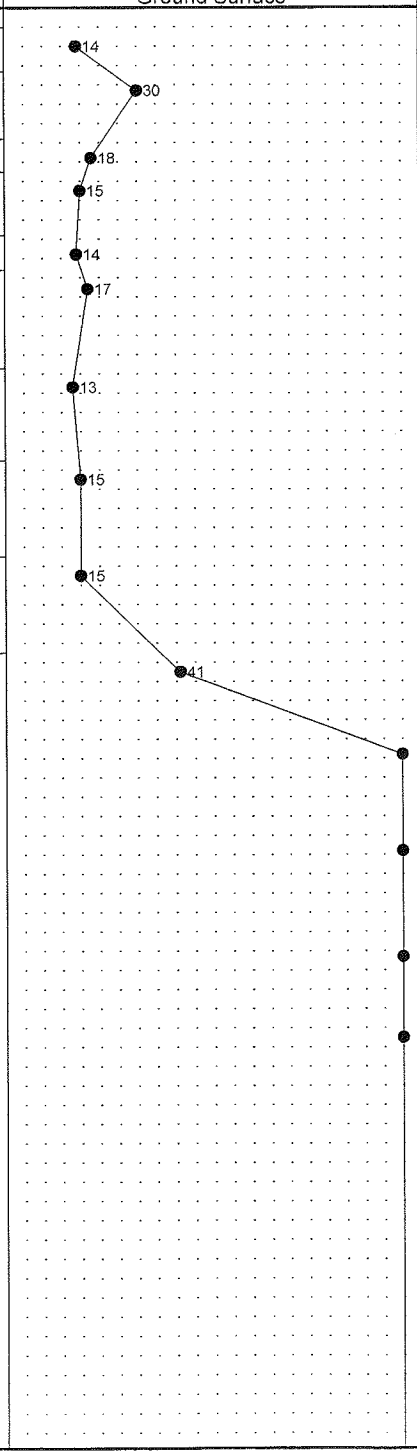
GEOTECHNICAL BORING LOG

MACTEC

MACTEC PROJECT NO.: 6468-06-1472	COUNTY Louisa, VA	GEOLOGIST S. Nicely
SITE DESCRIPTION NORTH ANNA COL		GROUND WATER (ft)
BORING NO. B-944	DRILL METHOD: Mud Rotary/Core	SAMPLE METHODS: SPT/CORE	0 HR. 7.1
COLLAR ELEV. 334.7 ft (NAVD88)	NORTHING 3,908,772 US ft (NAD83)	EASTING 11,684,128 US ft (NAD83)	24 HR. 23.4
TOTAL DEPTH 86.4 ft	DRILL MACHINE CME 550 ATV	DRILLER: F. Cox (Knoxville 550)	HAMMER TYPE 140 lbs Auto
DATE STARTED 10/18/06	COMPLETED 10/20/06	CORE BARREL TYPE: HQ 3 triple tube-wireline	

ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	SAMP. NO.	SOIL AND ROCK DESCRIPTION	
334.7						Ground Surface	334.7 / 0.0
333.7	1.0					Silty CLAY (CL) yellowish red (5YR 4/6), moist, stiff, trace gravel (Fill)	
331.4	3.3	7	10	4	944-1		331.7 / 3.0
		9	14	16	944-2	Sandy GRAVEL (GP) yellowish red (5YR 5/8), moist, dense, trace silt and clay (Fill)	329.7 / 5.0
327.9	6.8					Sandy SILT (ML) reddish brown (5YR 5/4), moist, very stiff, contains root fragments (Fill)	326.7 / 8.0
326.2	8.5	4	8	10	944-3		
		7	6	9	944-4	Silty, fine to medium SAND (SM) reddish brown (5YR 5/4), moist, medium dense, trace clay (Fill)	
322.9	11.8						
321.1	13.6	5	7	7	944-5		
		3	7	10	944-6		
316.0	18.7						
		5	6	7	944-7		
311.2	23.5						310.8 / 23.9
		6	7	8	944-8	Silty, fine to medium SAND (SM) brownish yellow (10YR 6/6) and white (10YR 8/1), moist, medium dense to dense (Residual Soil)	
306.2	28.5						
		6	7	8	944-9		
301.2	33.5						
		10	18	23	944-10		
296.2	38.5						297.7 / 37.0
		50/0.3			944-11	Weathered Rock: Yellow (10YR 7/6), yellowish brown (10YR 5/4), and light yellowish brown (10YR 6/4), moist, very dense, severely weathered, BIOTITE-QUARTZ GNEISS	
291.2	43.5						
		50/0.3			944-12		
286.2	48.5						
		38	50/0.3		944-13		
281.3	53.4						281.2 / 53.5
		50/0.1			944-14	Hard Rock: Reddish brown and light gray, moderately severe to moderately weathered, very close to moderately close fracturing, soft to very hard, BIOTITE-QUARTZ GNEISS	

BLOWS PER FOOT (0, 20, 40, 60, 80, 100)



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

GEOTECHNICAL BORING LOG

MACTEC

MACTEC PROJECT NO.: 6468-06-1472	COUNTY Louisa, VA	GEOLOGIST S. Nicely	
SITE DESCRIPTION NORTH ANNA COL			GROUND WATER (ft)
BORING NO. B-944	DRILL METHOD: Mud Rotary/Core	SAMPLE METHODS: SPT/CORE	0 HR. 7.1
COLLAR ELEV. 334.7 ft (NAVD88)	NORTHING 3,908,772 US ft (NAD83)	EASTING 11,684,128 US ft (NAD83)	24 HR. 23.4
TOTAL DEPTH 86.4 ft	DRILL MACHINE CME 550 ATV	DRILLER: F. Cox (Knoxville 550)	HAMMER TYPE 140 lbs Auto
DATE STARTED 10/18/06	COMPLETED 10/20/06	CORE BARREL TYPE: HQ 3 triple tube-wireline	

ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 20 40 60 80 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
259.9					Continued from previous page				
									Hard Rock: Reddish brown and light gray, moderately severe to moderately weathered, very close to moderately close fracturing, soft to very hard, BIOTITE-QUARTZ GNEISS *(continued)*
									253.5 — 81.2
									Weathered Rock: Light gray, severely weathered, very closely fractured, soft, BIOTITE-QUARTZ GNEISS
248.5	86.2								248.3 — 86.4
		50/0.2				944-15			Boring and coring terminated at 86.4 ft in Weathered Rock: Soft, severely weathered, BIOTITE-QUARTZ GNEISS

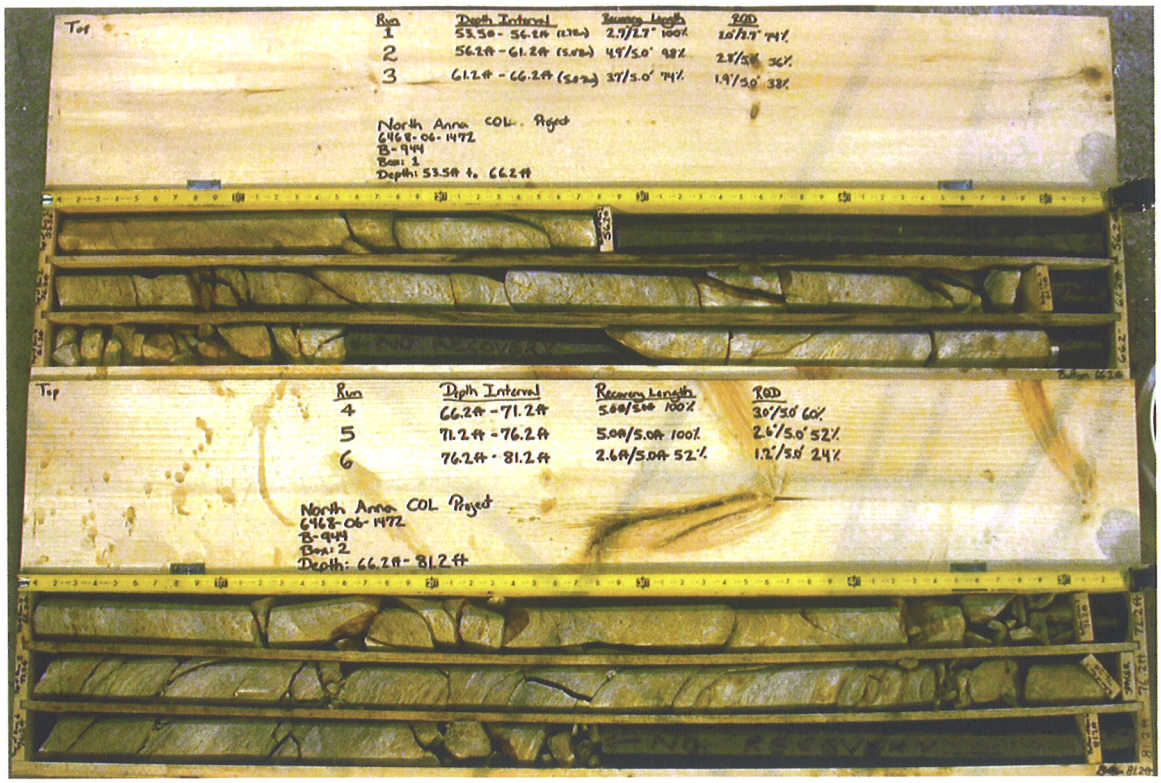
NORTH ANNA COL_CORE NORTH ANNA COL DATA REPORT REV0.GPJ NORTH ANNA COL.GDT 1/19/07

GEOTECHNICAL CORING LOG

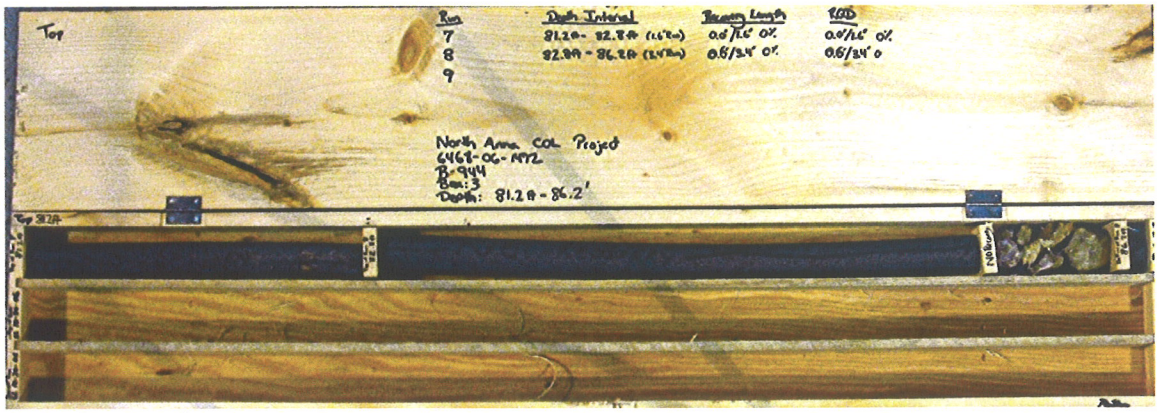
MACTEC

MACTEC PROJECT NO.: 6468-06-1472	COUNTY Louisa, VA	GEOLOGIST S. Nicely	
SITE DESCRIPTION NORTH ANNA COL			GROUND WATER (ft)
BORING NO. B-944	DRILL METHOD: Mud Rotary/Core	SAMPLE METHODS: SPT/CORE	0 HR. 7.1
COLLAR ELEV. 334.7 ft (NAVD88)	NORTHING 3,908,772 US ft (NAD83)	EASTING 11,684,128 US ft (NAD83)	24 HR. 23.4
TOTAL DEPTH 86.4 ft	DRILL MACHINE CME 550 ATV	DRILLER: F. Cox (Knoxville 550)	HAMMER TYPE 140 lbs Auto
DATE STARTED 10/18/06	COMPLETED 10/20/06	CORE BARREL TYPE: HQ 3 triple tube-wireline	
CORE SIZE HQ3	TOTAL RUN 32.7 ft		

ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS
										Begin Coring @ 53.5 ft
281.2	53.5	2.7	5:45 2:57 1:36/0.7	(2.7) 100%	(2.0) 74%	1				281.2 — 53.5 Hard Rock: Reddish brown and light gray, moderately severe to moderately weathered, very close to moderately close fracturing, soft to very hard, BIOTITE-QUARTZ GNEISS
278.5	56.2	5.0	2:18 2:47 1:49 1:47 1:43	(4.9) 98%	(2.8) 56%	2				(2 joints at 20° with Fe and Mn stain; 1 joint at 60° with Fe stain) (7 joints at 60-70° with Fe and Mn stain; 2 joints at 40° with Fe stain; 7 joints at 20-30° with Fe stain)
273.5	61.2	5.0	1:18 1:25 1:25 1:47 2:10	(3.7) 74%	(1.9) 38%	3				(2 joints at10-15° with Fe and Mn stain)
268.5	66.2	5.0	2:30 2:12 2:29 2:01 2:03	(5.0) 100%	(3.0) 60%	4				(4 joints at 40-50° with Fe and Mn stain; 1 joint at 90° with Fe and Mn stain; 5 joints at 70-80° with Fe and Mn stain)
263.5	71.2	5.0	2:01 2:14 2:12 2:27 2:11	(5.0) 100%	(1.7) 34%	5				-Highly fractured throughout entire run
258.5	76.2	5.0	1:52 1:37 1:10 1:17 1:45	(2.6) 52%	(1.2) 24%	6				(5 joints at 30° with Fe stain and clay; highly fractured, severely weathered zone from 79.2-91.2 ft)
253.5	81.2	1.6	2:28 4:01/0.6	(0.0) 0%	(0.0) 0%	7				253.5 — 81.2 Weathered Rock: Light gray, severely weathered, very closely fractured, soft, BIOTITE-QUARTZ GNEISS -No Recovery
251.9	82.8	3.4	3:24 2:35 2:15/1.4	(0.6) 18%	(0.0) 0%	8				-Very poor recovery
248.5	86.2									248.5 — 86.2 Coring terminated at 86.2 ft in Weathered Rock: Soft, severely weathered, BIOTITE-QUARTZ GNEISS



B-944 – Box 1
B-944 – Box 2



B-944 – Box 3

GEOTECHNICAL BORING LOG

MACTEC

MACTEC PROJECT NO.: 6468-06-1472	COUNTY Louisa, VA	GEOLOGIST S. Nicely
SITE DESCRIPTION NORTH ANNA COL		GROUND WATER (ft)
BORING NO. B-945	DRILL METHOD: Mud Rotary/Core	SAMPLE METHODS: SPT/CORE	0 HR. ND
COLLAR ELEV. 281.5 ft (NAVD88)	NORTHING 3,910,136 US ft (NAD83)	EASTING 11,683,780 US ft (NAD83)	24 HR. ND
TOTAL DEPTH 100.6 ft	DRILL MACHINE CME 550 ATV	DRILLER: G. Akins	HAMMER TYPE 140 lbs Auto
DATE STARTED 10/25/06	COMPLETED 10/26/06	CORE BARREL TYPE: HQ 3 triple tube-wireline	

ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (0 20 40 60 80 100)	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
281.5					Ground Surface				281.5 / 0.0
280.0	1.5								Silty, fine to coarse SAND (SM) pale brown (10YR 6/3), light yellowish brown (10YR 6/4), yellowish brown (10YR 5/8), light olive brown (2.5YR 5/4), and light yellowish brown (2.5YR 6/4), dry to wet, medium dense, micaceous (Residual Soil)
278.3	3.2	4	7	7	14	945-1			
275.3	6.2	6	6	7	13	945-2			
273.2	8.3	6	8	8	16	945-3			
270.2	11.3	5	7	7	14	945-4			
267.1	14.4	5	5	8	13	945-5			
262.1	19.4	5	7	7	14	945-6			
257.1	24.4	5	6	8	14	945-7			
252.1	29.4	5	6	8	14	945-8			
247.1	34.4	5	7	8	15	945-9			
242.1	39.4	5	7	9	16	945-10			
237.1	44.4	7	10	13	23	945-11			
232.1	49.4	8	11	13	24	945-12			
227.1	54.4	10	15	15	30	945-13			228.0 / 53.5
222.1	59.4	31	50/0.4			945-14			Weathered Rock: Light yellowish brown (2.5YR 6/4), moist, very dense, severely weathered, BIOTITE-QUARTZ GNEISS
		50/0.1				945-15			221.0 / 60.5
									Hard Rock: Light gray, moderately to slightly weathered, very close to close fracturing, medium hard to very hard, BIOTITE-QUARTZ GNEISS
									210.6 / 70.9
									Hard Rock: Light gray, slightly weathered to fresh, very close to wide fracturing, very hard, BIOTITE-QUARTZ GNEISS

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

GEOTECHNICAL BORING LOG

MACTEC

MACTEC PROJECT NO.: 6468-06-1472	COUNTY Louisa, VA	GEOLOGIST S. Nicely
SITE DESCRIPTION NORTH ANNA COL		GROUND WATER (ft)
BORING NO. B-945	DRILL METHOD: Mud Rotary/Core	SAMPLE METHODS: SPT/CORE
COLLAR ELEV. 281.5 ft (NAVD88)	NORTHING 3,910,136 US ft (NAD83)	EASTING 11,683,780 US ft (NAD83)
TOTAL DEPTH 100.6 ft	DRILL MACHINE CME 550 ATV	DRILLER: G. Akins
DATE STARTED 10/25/06	COMPLETED 10/26/06	CORE BARREL TYPE: HQ 3 triple tube-wireline

GROUND WATER (ft)	
0 HR.	ND
24 HR.	ND

HAMMER TYPE 140 lbs Auto

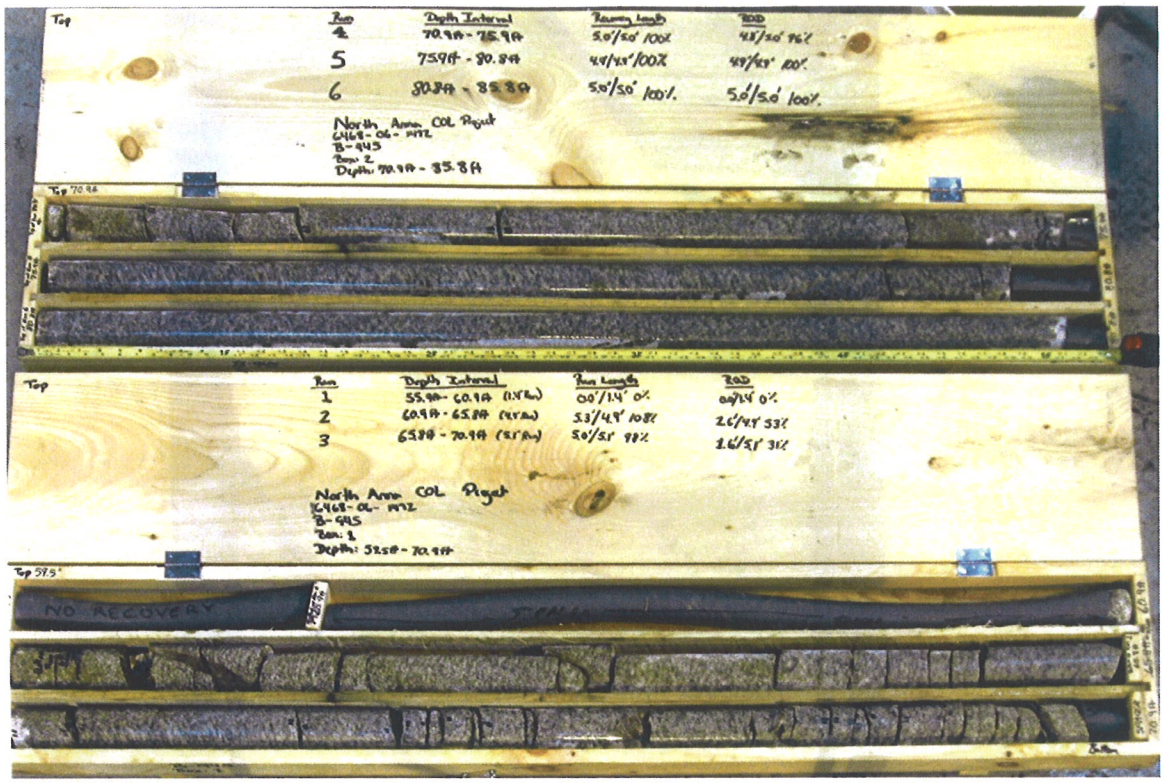
ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 20 40 60 80 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
206.7					Continued from previous page				
									Hard Rock: Light gray, slightly weathered to fresh, very close to wide fracturing, very hard, BIOTITE-QUARTZ GNEISS *(continued)*
									180.9 — 100.6
									Boring and coring terminated at 100.6 ft in Hard Rock: Very hard, BIOTITE-QUARTZ GNEISS

GEOTECHNICAL CORING LOG

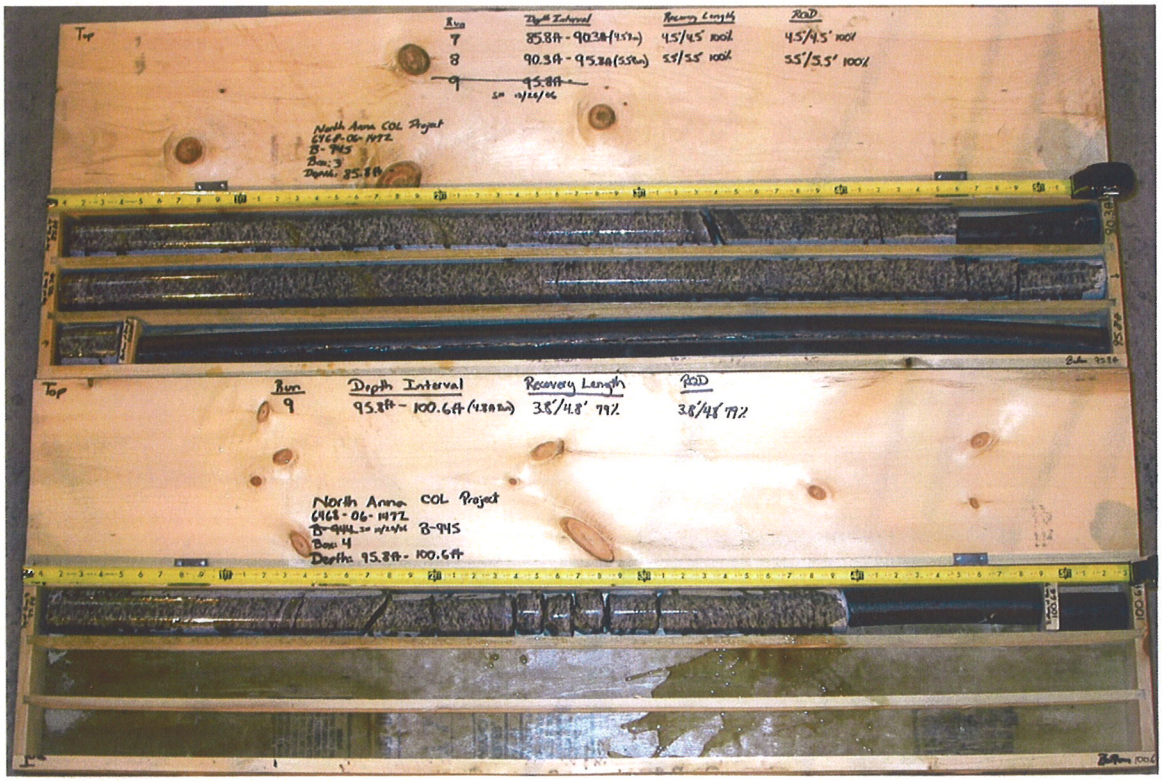
MACTEC

MACTEC PROJECT NO.: 6468-06-1472	**COUNTY** Louisa, VA	**GEOLOGIST** S. Nicely
SITE DESCRIPTION NORTH ANNA COL		**GROUND WATER (ft)**
BORING NO. B-945	**DRILL METHOD:** Mud Rotary/Core	**SAMPLE METHODS:** SPT/CORE — 0 HR. ND
COLLAR ELEV. 281.5 ft (NAVD88)	**NORTHING** 3,910,136 US ft (NAD83)	**EASTING** 11,683,780 US ft (NAD83) — 24 HR. ND
TOTAL DEPTH 100.6 ft	**DRILL MACHINE** CME 550 ATV	**DRILLER:** G. Akins — **HAMMER TYPE** 140 lbs Auto
DATE STARTED 10/25/06	**COMPLETED** 10/26/06	**CORE BARREL TYPE:** HQ 3 triple tube-wireline
CORE SIZE HQ3	**TOTAL RUN** 41.1 ft	

ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS
										Begin Coring @ 59.5 ft
222.0	59.5	1.4	0:44/1.4	(0.0) 0%	(0.0) 0%	1				221.0 — 60.5 Weathered Rock: Light yellowish brown (2.5YR 6/4), moist, very dense, severely weathered, BIOTITE-QUARTZ GNEISS *(continued)* -No Recovery
220.6	60.9	4.9	0:57 0:58 1:04 1:03 1:53/0.9	(5.3) 108%	(2.6) 53%	2				Hard Rock: Light gray, moderately to slightly weathered, very close to close fracturing, medium hard to very hard, BIOTITE-QUARTZ GNEISS (5 joints at 10-20° with Fe staining; 2 joints at 60-70° with little clay and Fe staining) (3 joints at 60-70° with Fe stain; 2 joints at 20° with little Fe stain)
215.7	65.8	5.1	1:44 1:57 2:27 2:04 1:53/1.1	(5.0) 98%	(1.6) 31%	3				
210.6	70.9	5.0	1:54 2:15 2:25 2:05 2:03	(5.0) 100%	(4.8) 96%	4				210.6 — 70.9 Hard Rock: Light gray, slightly weathered to fresh, very close to wide fracturing, very hard, BIOTITE-QUARTZ GNEISS (2 joints at 70° with Fe and Mn stain)
205.6	75.9	4.9	4:52 4:53 5:22 6:23 5:47/0.9	(4.9) 100%	(4.9) 100%	5				-No Joints
200.7	80.8	5.0	5:36 5:17 3:49 4:33 6:03	(5.0) 100%	(5.0) 100%	6				-No Joints
195.7	85.8	4.5	6:05 6:02 5:58 8:26 6:28/0.5	(4.5) 100%	(4.5) 100%	7				(1 joint at 15°, 1 joint at 25°)
191.2	90.3	5.5	2:50 3:55 3:04 4:14 4:54 2:57/0.5	(5.5) 100%	(5.5) 100%	8				-No Joints
185.7	95.8	4.8	3:57 4:04 3:19 3:39 5:33/0.8	(3.8) 79%	(3.8) 79%	9				-Unable to retrieve bottom 1 ft of run
180.9	100.6									180.9 — 100.6 Coring terminated at 100.6 ft in Hard Rock: Very hard, BIOTITE-QUARTZ GNEISS



B-945 – Box 2
B-945 – Box 1



B-945 – Box 3
B-945 – Box 4