



BECHTEL PROJECT NO.: 25161		MACTEC PROJECT NO.: 6468-09-2473		COUNTY: Louisa, VA		GEOLOGIST: R. Clark								
SITE DESCRIPTION: North Anna 3 Project Supplement 2				DRILLER: T. Hahn/R. Hall		FLUID LEVEL (ft)								
BORING NO.: M-31		DRILL METHOD: Mud Rotary/Rock Core		DRILL MACHINE: CME-55 Track (RAL)		0 HR. NA								
GROUND ELEV.: 306.9 ft (NAVD88)		NORTHING: 3,909,799 US ft (NAD83)		EASTING: 11,685,460 US ft (NAD83)		24 HR. 27.8								
TOTAL DEPTH: 151.5 ft		SAMPLE METHODS: ASTM D 1586-08a; 2488-09a; 2113-08; 6032-08		ROD TYPE: AWJ		HAMMER (ID): 140-lb. Auto (MEC-21)								
DATE STARTED: 9/10/09		COMPLETED: 9/16/09		HOLE DIA.: 4"		CASING DEPTH: 59.0 ft								
				CORE SIZE: HQ3		BITS USED: 3-7/8" Tri-Cone								
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	
306.9					Ground Surface							306.9 0.0		
													No sampling from 0.0 to 9.1 feet due to soft dig utility clearance by Dominion Personnel	
297.8	9.1	7	7	7									297.8 9.1	RESIDUAL SOIL: Silty SAND (SM), brownish yellow (10YR 6/6), medium dense, moist, fine grained sand, little mica, relict rock fabric
295.3	11.6	4	3	4									295.3 11.6	11.6 ft: Loose
293.0	13.9	7	6	6									293.0 13.9	13.9 ft: Brownish yellow (10YR 6/8), medium dense
288.0	18.9	6	5	6									288.0 18.9	
283.0	23.9	50/0.4											283.0 23.9	WEATHERED ROCK: Severely weathered BIOTITE QUARTZ GNEISS (Sampled as Silty SAND (SM), brownish yellow (10YR 6/6), very dense, moist, fine to medium grained sand, little mica)
277.9	29.0	10	10	11									277.9 29.0	RESIDUAL SOIL: Silty SAND (SM), pale yellow (2.5Y 7/4), medium dense, moist, fine to medium grained sand, little mica, relict rock fabric
272.9	34.0	12	11	11									272.9 34.0	34.0 ft: Fine to coarse grained sand
267.9	39.0	7	8	10									267.9 39.0	39.0 ft: Yellow (10YR 7/6)
262.9	44.0	19	22	24									262.9 44.0	44.0 ft: Dense, moist to wet
257.9	49.0	43	50/0.3										257.9 49.0	WEATHERED ROCK: Severely weathered BIOTITE QUARTZ GNEISS (Sampled as Silty SAND (SM), pale yellow (2.5Y 7/3), very dense, moist to wet, fine to coarse grained sand)
252.9	54.0	20	19	18									252.9 54.0	RESIDUAL SOIL: Silty SAND (SM), pale yellow (2.5Y 7/3), dense, wet, fine to coarse grained sand, relict rock fabric
247.9	59.0	50/0.0											247.9 59.0	58.7 ft: Very hard drilling 59.0 ft: SPT Refusal with no penetration HARD ROCK: Light gray with orange staining, slightly to very slightly weathered, moderately close fracturing, moderately hard to hard, BIOTITE QUARTZ GNEISS
													240.4 66.5	HARD ROCK: Light gray with trace pink and dark gray, fresh, close to wide fracturing, hard to very hard, BIOTITE QUARTZ GNEISS with trace magnetite

NORTH ANNA 3 BORE NORTH ANNA 3 PROJECT.GPJ NORTH ANNA 3.GDT 12/4/09



BECHTEL PROJECT NO.: 25161		MACTEC PROJECT NO.: 6468-09-2473		COUNTY: Louisa, VA		GEOLOGIST: R. Clark						
SITE DESCRIPTION: North Anna 3 Project Supplement 2				DRILLER: T. Hahn/R. Hall		FLUID LEVEL (ft)						
BORING NO.: M-31		DRILL METHOD: Mud Rotary/Rock Core		DRILL MACHINE: CME-55 Track (RAL)		0 HR. NA						
GROUND ELEV.: 306.9 ft (NAVD88)		NORTHING: 3,909,799 US ft (NAD83)		EASTING: 11,685,460 US ft (NAD83)		24 HR. 27.8						
TOTAL DEPTH: 151.5 ft		SAMPLE METHODS: ASTM D 1586-08a; 2488-09a; 2113-08; 6032-08		ROD TYPE: AWJ		HAMMER (ID): 140-lb. Auto (MEC-21)						
DATE STARTED: 9/10/09		COMPLETED: 9/16/09		HOLE DIA.: 4"		CASING DEPTH: 59.0 ft						
				CORE SIZE: HQ3		BITS USED: 3-7/8" Tri-Cone						
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			
232.1					Continued from previous page							
												HARD ROCK: Light gray with trace pink and dark gray, fresh, close to wide fracturing, hard to very hard, BIOTITE QUARTZ GNEISS with trace magnetite (continued)

NORTH ANNA 3 BORE NORTH ANNA 3 PROJECT.GPJ NORTH ANNA 3.GDT 12/4/09





BECHTEL PROJECT NO.: 25161			MACTEC PROJECT NO.: 6468-09-2473			COUNTY: Louisa, VA			GEOLOGIST: R. Clark					
SITE DESCRIPTION: North Anna 3 Project Supplement 2						DRILLER: T. Hahn/R. Hall			FLUID LEVEL (ft)					
BORING NO.: M-31			DRILL METHOD: Mud Rotary/Rock Core			DRILL MACHINE: CME-55 Track (RAL)			0 HR. NA					
GROUND ELEV.: 306.9 ft (NAVD88)			NORTHING: 3,909,799 US ft (NAD83)			EASTING: 11,685,460 US ft (NAD83)			24 HR. 27.8					
TOTAL DEPTH: 151.5 ft		SAMPLE METHODS: ASTM D 1586-08a; 2488-09a; 2113-08; 6032-08				ROD TYPE: AWJ		HAMMER (ID): 140-lb. Auto (MEC-21)						
DATE STARTED: 9/10/09		COMPLETED: 9/16/09		HOLE DIA.: 4"		CASING DEPTH: 59.0 ft		CORE SIZE: HQ3		BITS USED: 3-7/8" Tri-Cone				
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	
157.3					Continued from previous page									
												155.4	151.5	Boring and coring terminated at 151.5 feet.  Boring closed by tremie method with cement-bentonite grout.  24 hour water level measured on 9/16/2009 prior to drilling. Borehole was at a depth of 141.5 feet.

NORTH ANNA 3 BORE NORTH ANNA 3 PROJECT.GPJ NORTH ANNA 3.GDT 12/4/09



BECHTEL PROJECT NO.: 25161		MACTEC PROJECT NO.: 6468-09-2473		COUNTY: Louisa, VA		GEOLOGIST: R. Clark	
SITE DESCRIPTION: North Anna 3 Project Supplement 2				DRILLER: T. Hahn/R. Hall		FLUID LEVEL (ft)	
BORING NO.: M-31		DRILL METHOD: Mud Rotary/Rock Core		DRILL MACHINE: CME-55 Track (RAL)		0 HR. NA	
GROUND ELEV.: 306.9 ft (NAVD88)		NORTHING: 3,909,799 US ft (NAD83)		EASTING: 11,685,460 US ft (NAD83)		24 HR. 27.8	
TOTAL DEPTH: 151.5 ft		SAMPLE METHODS: ASTM D 1586-08a; 2488-09a; 2113-08; 6032-08				HAMMER (ID): 140-lb. Auto (MEC-21)	
DATE STARTED: 9/10/09		COMPLETED: 9/16/09		CASING DEPTH: 59.0 ft		CORE BARREL TYPE: Wireline HQ3 Triple Tube, series 6 & 10 bits	

ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS
				REC. (%)	RQD (%)		REC. (%)	RQD (%)		
										Begin Coring @ 59.0 ft
247.9	59.0	2.5	N=50/0.0 3:01 3:21	(2.5) 100%	(1.3) 52%	RUN 1	(7.5) 100%	(6.3) 84%	240.4	HARD ROCK: Light gray with orange staining, slightly to very slightly weathered, moderately close fracturing, moderately hard to hard, BIOTITE QUARTZ GNEISS (continued) (3 joints at 10°, tight with iron staining; 2 joints at 80°, tight) (2 joints at 0°, tight to open with iron staining; 1 joint at 45°, tight)
245.4	61.5	5.0	1:51/0.5 3:02 3:05 4:09 2:23 2:54	(5.0) 100%	(5.0) 100%	RUN 2				
240.4	66.5	2.3	3:49 8:32 421/0.3	(2.3) 100%	(2.3) 100%	RUN 3	(84.6) 100%	(83.0) 98%		HARD ROCK: Light gray with trace pink and dark gray, fresh, close to wide fracturing, hard to very hard, BIOTITE QUARTZ GNEISS with trace magnetite (No Joints) (No Joints)
238.1	68.8	2.7	3:08/0.7 3:35 3:42	(2.7) 100%	(2.7) 100%	RUN 4				(1 joint at 15°, tight with trace iron staining)
235.4	71.5	5.0	3:21 3:33 3:28 3:33 2:45	(5.0) 100%	(5.0) 100%	RUN 5				(No Joints)
230.4	76.5	3.0	3:38 4:14 5:05	(3.0) 100%	(3.0) 100%	RUN 6				(No Joints)
227.4	79.5	2.0	3:58 4:54	(1.7) 85%	(1.7) 85%	RUN 7				(2 joints at 30°, tight top open with iron staining)
225.4	81.5	5.0	4:45 5:15 4:15 3:05 4:01	(5.0) 100%	(3.7) 74%	RUN 8				(2 joints at 0°, tight with iron staining; 2 joints at 90°, tight)
220.4	86.5	5.0	4:17 3:33 3:33 3:41 4:05	(5.0) 100%	(4.7) 94%	RUN 9				(1 joint at 30°, tight; 1 joint at 45°, open with iron staining; 1 joint at 75°, open with iron staining)
215.4	91.5	5.0	6:12 6:51 3:05 3:11 3:18	(5.0) 100%	(5.0) 100%	RUN 10				(1 joint at 0°, open)
210.4	96.5	5.0	2:45 3:04 2:55 3:59 4:01	(5.0) 100%	(5.0) 100%	RUN 11				(1 joint at 90°, tight)
205.4	101.5	5.0	3:04 3:55 3:56 4:27 4:55	(5.0) 100%	(5.0) 100%	RUN 12				(No Joints)
200.4	106.5	5.0	5:46 7:12 3:52 3:12 3:24	(5.0) 100%	(5.0) 100%	RUN 13				(Pegmatitic quartz + feldspar vein at 108.5 ft)
195.4	111.5	5.0	2:29 2:33 2:45 3:01 3:08	(5.0) 100%	(5.0) 100%	RUN 14				(No Joints)
190.4	116.5	5.0	3:05 3:33 4:04 4:18 4:22	(5.0) 100%	(5.0) 100%	RUN 15				(3 joints at 0°, tight with iron staining and slight weathering)
185.4	121.5	5.0	4:18 4:22 2:35 2:28 2:01	(5.0) 100%	(5.0) 100%	RUN 16				(2 joints at 0°, tight; 1 joint at 20°, tight; 2 joints at 85-90°, tight with iron staining; pegmatitic quartz + feldspar vein at 30° at end of run)
180.4	126.5	5.0	2:58 3:05 2:02 2:33 2:55	(5.0) 100%	(5.0) 100%	RUN 17				(No Joints)
175.4	131.5	5.0	2:25 2:33	(5.0) 100%	(5.0) 100%	RUN 18				(No Joints)

NORTH ANNA 3 CORE NORTH ANNA 3 PROJECT.GPJ NORTH ANNA 3.GDT 12/4/09

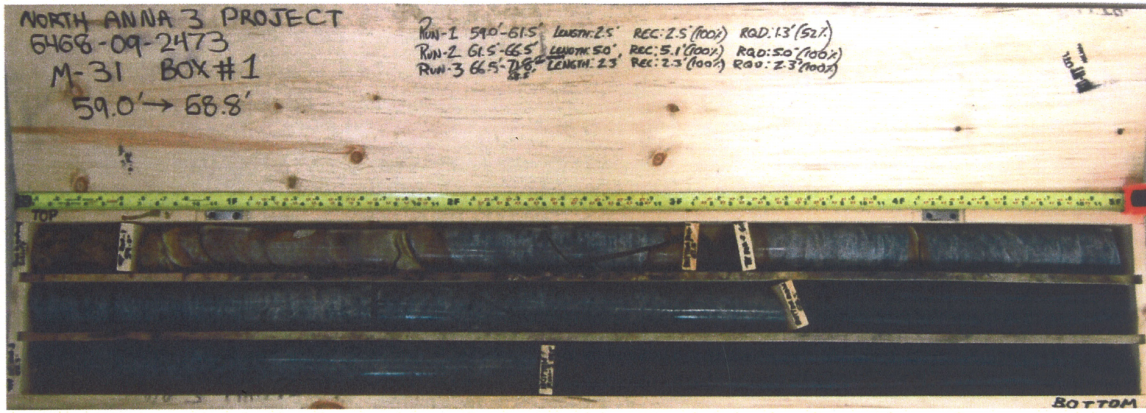


BECHTEL PROJECT NO.: 25161	MACTEC PROJECT NO.: 6468-09-2473	COUNTY: Louisa, VA	GEOLOGIST: R. Clark
SITE DESCRIPTION: North Anna 3 Project Supplement 2		DRILLER: T. Hahn/R. Hall	FLUID LEVEL (ft)
BORING NO.: M-31	DRILL METHOD: Mud Rotary/Rock Core	DRILL MACHINE: CME-55 Track (RAL)	0 HR. NA
GROUND ELEV.: 306.9 ft (NAVD88)	NORTHING: 3,909,799 US ft (NAD83)	EASTING: 11,685,460 US ft (NAD83)	24 HR. 27.8
TOTAL DEPTH: 151.5 ft	SAMPLE METHODS: ASTM D 1586-08a; 2488-09a; 2113-08; 6032-08		HAMMER (ID): 140-lb. Auto (MEC-21)
DATE STARTED: 9/10/09	COMPLETED: 9/16/09	CASING DEPTH: 59.0 ft	CORE BARREL TYPE: Wireline HQ3 Triple Tube, series 6 & 10 bits

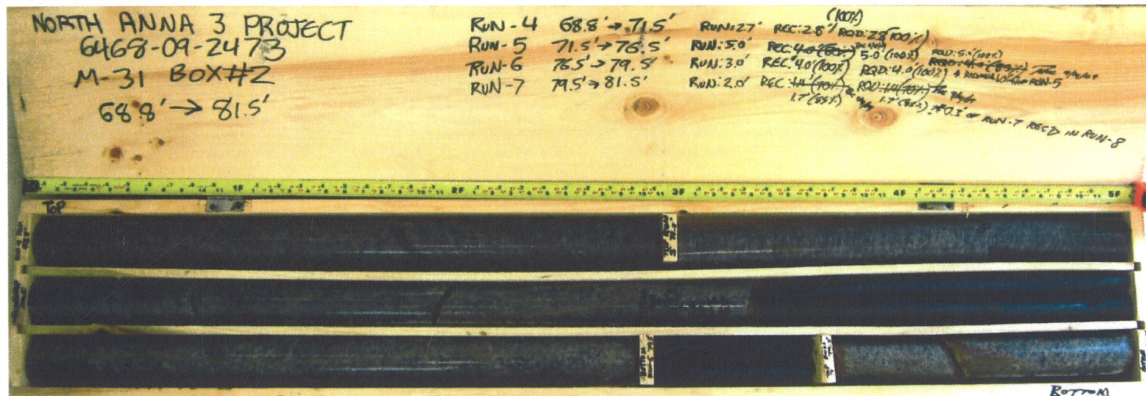
ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS
				REC. (ft) %	RQD (ft) %		REC. (ft) %	RQD (ft) %		
			3:05 3:30 3:36							Continued from previous page
170.4	136.5	5.0	4:57 2:28 2:45 2:41 2:33	(5.0) 100%	(5.0) 100%	RUN 19				HARD ROCK: Light gray with trace pink and dark gray, fresh, close to wide fracturing, hard to very hard, BIOTITE QUARTZ GNEISS with trace magnetite (continued) (Pegmatitic quartz + feldspar + calcite vein at 137.0 feet)
165.4	141.5	5.0	2:30 2:34 3:02 3:09 3:40	(4.9) 98%	(4.9) 98%	RUN 20				(Quartz vein with pyrite at 45° at top of run)
160.4	146.5	5.0	2:34 2:44 2:50 3:24 3:42	(5.0) 100%	(5.0) 100%	RUN 21				(No Joints)
155.4	151.5								155.4	151.5 Boring and coring terminated at 151.5 feet.  Boring closed by tremie method with cement-bentonite grout.  24 hour water level measured on 9/16/2009 prior to drilling. Borehole was at a depth of 141.5 feet.

NORTH ANNA 3 CORE\_NORTH ANNA 3 PROJECT.GPJ NORTH ANNA 3.GDT 12/4/09

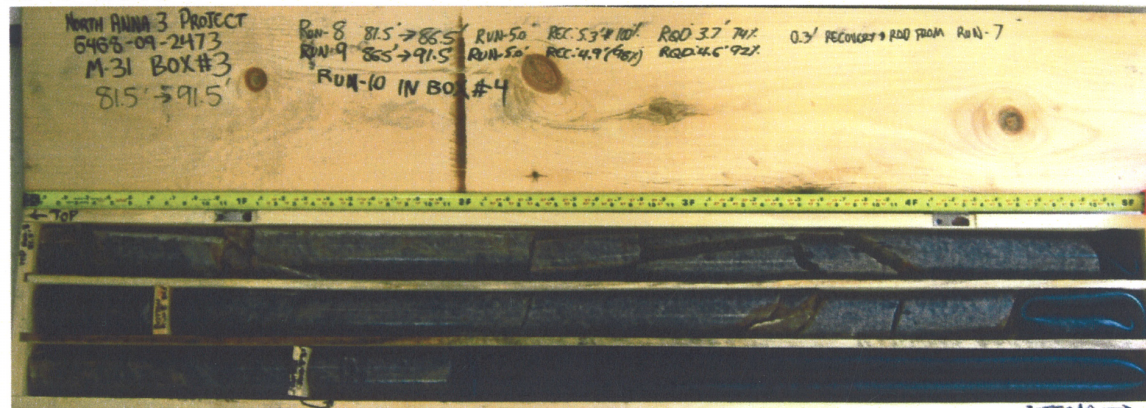




M-31 - Box 1



M-31 - Box 2

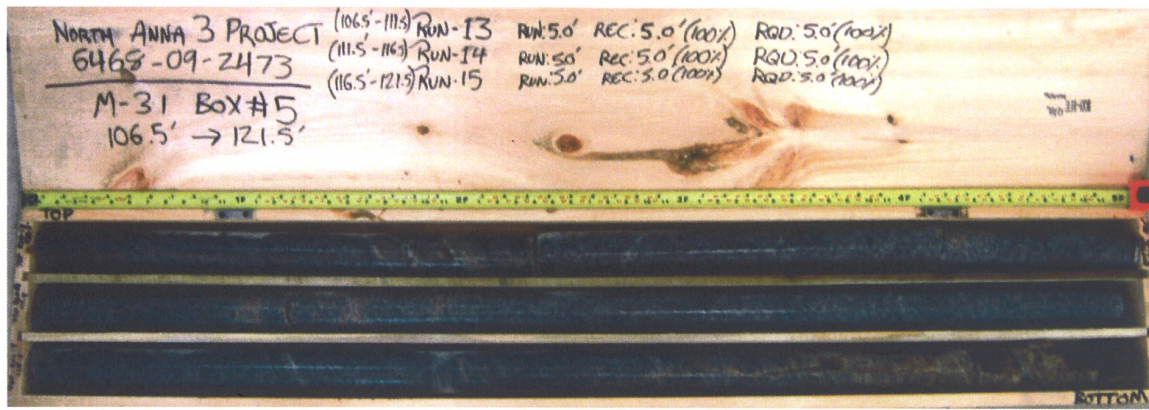


M-31 - Box 3



M-31 - Box 4

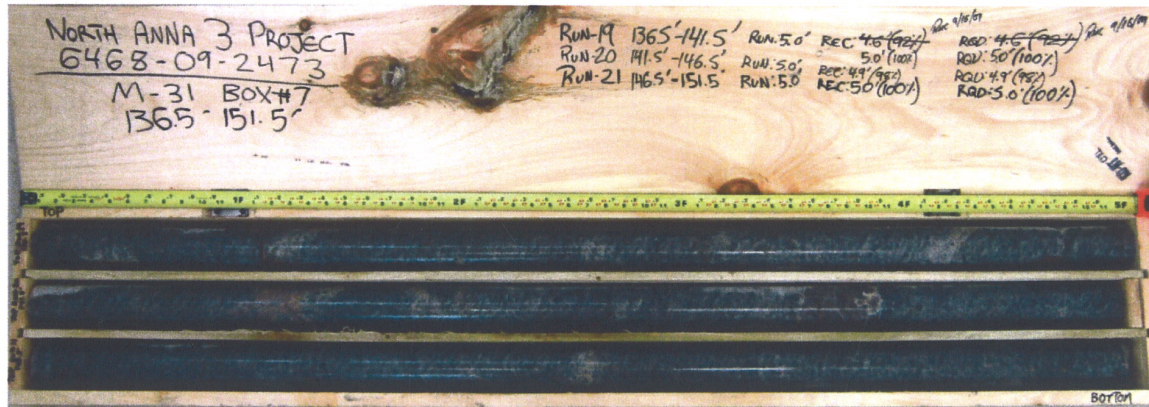




M-31 - Box 5



M-31 - Box 6



M-31 - Box 7



BECHTEL PROJECT NO.: 25161		MACTEC PROJECT NO.: 6468-09-2473		COUNTY: Louisa, VA		GEOLOGIST: R. Clark									
SITE DESCRIPTION: North Anna 3 Project Supplement 2				DRILLER: F. Cox/R. Hall		FLUID LEVEL (ft)									
BORING NO.: M-32		DRILL METHOD: Mud Rotary/Rock Core		DRILL MACHINE: CME-55 Track (RAL)		0 HR. 25.5									
GROUND ELEV.: 313.2 ft (NAVD88)		NORTHING: 3,909,876 US ft (NAD83)		EASTING: 11,685,527 US ft (NAD83)		24 HR. 32.5									
TOTAL DEPTH: 62.2 ft		SAMPLE METHODS: ASTM D 1586-08a; 2488-09a; 2113-08; 6032-08		ROD TYPE: AWJ		HAMMER (ID):140-lb. Auto (MEC-21)									
DATE STARTED: 9/28/09		COMPLETED: 9/28/09		HOLE DIA.: 4"		CASING DEPTH: 9.6 ft									
CORE SIZE: NQ3		BITS USED: 3-7/8" Tri-Cone													
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		
313.2					Ground Surface							313.2	0.0		
														No sampling from 0.0 to 9.6 feet due to soft dig utility clearance by Dominion Personnel	
303.6	9.6													9.6	RESIDUAL SOIL: Sandy SILT (ML), reddish yellow (5YR 6/6), medium stiff, moist, fine grained sand, some mica, relict rock fabric
301.2	12.0	3	3	3							SS-1				
298.8	14.4	2	2	3							SS-2				
		2	2	4							SS-3				14.4 ft: Yellowish red (5YR 5/8)
294.6	18.6	1	2	3							SS-4				
289.5	23.7	1	2	2							SS-5				23.7 ft: Yellow red (5YR 5/6), soft, few mica
284.6	28.6	2	2	4							SS-6				28.6
		2	2	3							SS-7				RESIDUAL SOIL: Silty SAND (SM), yellowish red (5YR 5/6), loose, moist, fine grained sand, some mica, relict rock fabric
279.6	33.6	2	2	3							SS-8				33.6 ft: Wet, few mica
274.6	38.6	2	4	6							SS-9				38.6 ft: Yellowish brown (10YR 5/4) with very dark gray (10YR 3/1) streaks, moist to wet, some mica
269.6	43.6	3	6	8							SS-10				43.6 ft: Olive gray (5Y 5/2), medium dense, wet
264.6	48.6	11	28	50/0.3							SS-11				264.6
		50/0.3									SS-12				WEATHERED ROCK: Severely weathered BIOTITE QUARTZ GNEISS (Sampled as Silty SAND (SM), olive gray (5Y 5/2) to olive (5Y 5/3), very dense, wet, fine to medium grained sand, some mica, few quartz fragments)
259.6	53.6														
256.0	57.2														57.2 ft: SPT Refusal with no penetration
		50/0.0													HARD ROCK: Light gray, slightly weathered to fresh, moderately close fracturing, very hard, BIOTITE QUARTZ GNEISS
															62.2
															Boring and coring terminated at 62.2 feet.
															Boring closed by tremie method with cement-bentonite grout.

NORTH ANNA 3 BORE NORTH ANNA 3 PROJECT.GPJ NORTH ANNA 3.GDT 12/3/09





BECHTEL PROJECT NO.: 25161		MACTEC PROJECT NO.: 6468-09-2473		COUNTY: Louisa, VA		GEOLOGIST: R. Clark	
SITE DESCRIPTION: North Anna 3 Project Supplement 2				DRILLER: F. Cox/R. Hall		FLUID LEVEL (ft)	
BORING NO.: M-32		DRILL METHOD: Mud Rotary/Rock Core		DRILL MACHINE: CME-55 Track (RAL)		0 HR. 25.5	
GROUND ELEV.: 313.2 ft (NAVD88)		NORTHING: 3,909,876 US ft (NAD83)		EASTING: 11,685,527 US ft (NAD83)		24 HR. 32.5	
TOTAL DEPTH: 62.2 ft		SAMPLE METHODS: ASTM D 1586-08a; 2488-09a; 2113-08; 6032-08				HAMMER (ID): 140-lb. Auto (MEC-21)	
DATE STARTED: 9/28/09		COMPLETED: 9/28/09		CASING DEPTH: 9.6 ft		CORE BARREL TYPE: Wireline NQ3 Triple Tube, series 6 bit	

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 @ 57.2 ft
256.0	57.2	5.0	N=50/0.0 1:20 2:50 3:11 2:36 3:45	(3.9) 78%	(3.7) 74%	RUN 1	(3.9) 78%	(3.7) 74%		256.0 HARD ROCK: Light gray, slightly weathered to fresh, moderately close fracturing, very hard, BIOTITE QUARTZ GNEISS (4 joints at 10°, tight with iron staining) 57.2
251.0	62.2									251.0 62.2
										Boring and coring terminated at 62.2 feet. Boring closed by tremie method with cement-bentonite grout.

NORTH ANNA 3 CORE NORTH ANNA 3 PROJECT.GPJ NORTH ANNA 3.GDT 12/3/09



M-32 - Box 1



GEOTECHNICAL BORING LOG

Prepared By JSS Date 12/16/09

Checked By MRK Date 12/16/09

SHEET 1 OF 1

BECHTEL PROJECT NO.: 25161		MACTEC PROJECT NO.: 6468-09-2473		COUNTY: Louisa, VA		GEOLOGIST: K. Lloyd	
SITE DESCRIPTION: North Anna 3 Project Supplement 2				DRILLER: D. White/O. Smith		FLUID LEVEL (ft)	
BORING NO.: M-33		DRILL METHOD: Mud Rotary		DRILL MACHINE: CME-55LC Track (RAL)		0 HR. ND	
GROUND ELEV.: 303.8 ft (NAVD88)		NORTHING: 3,909,984 US ft (NAD83)		EASTING: 11,685,615 US ft (NAD83)		24 HR. ND	
TOTAL DEPTH: 64.9 ft		SAMPLE METHODS: ASTM D 1586-08a; 2488-09a; 2113-08; 6032-08		ROD TYPE: AWJ		HAMMER (ID): 140-lb. Auto (MEC-02)	
DATE STARTED: 9/28/09		COMPLETED: 9/28/09		HOLE DIA.: 4"		CASING DEPTH: 8.7 ft	
				CORE SIZE: NA		BITS USED: 3-7/8" Tri-Cone	

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	
303.8					Ground Surface							303.8 0.0		
294.7	9.1	2	3	3								294.7 9.1	RESIDUAL SOIL: SILT with Sand (ML), yellowish red (5YR 5/8), medium stiff, moist, fine grained sand, some mica, little to some black staining, relict rock fabric	
292.3	11.5	2	2	3						SS-1		292.3 11.5		
289.7	14.1	2	3	3						SS-2		289.7 14.1		
284.6	19.2	2	3	5								284.6 19.2	RESIDUAL SOIL: Silty SAND (SM), medium dense, moist, fine grained sand, some mica, relict rock fabric	
279.7	24.1	3	5	6						SS-3		279.7 24.1		
274.7	29.1	4	5	6								274.7 29.1	RESIDUAL SOIL: SILT with Sand (ML), yellowish red (5YR 5/8), stiff, moist, fine grained sand, some mica, relict rock fabric 29.1 ft: Dark greenish gray (10GY 4/1)	
269.7	34.1	5	8	10						SS-4		269.7 34.1		
264.7	39.1	10	13	16								264.7 39.1	RESIDUAL SOIL: Sandy SILT (ML), dark greenish gray (10GY 4/1), very stiff, moist, fine grained sand, some mica, relict rock fabric 39.1 ft: Very dark greenish gray (5GY 5/1) and dark yellowish brown (10YR 4/6), fine to coarse grained sand	
259.7	44.1	28	50/0.5							SS-5		259.7 44.1		
254.7	49.1	36	50/0.3									254.7 49.1	WEATHERED ROCK: Severely weathered BIOTITE GNEISS (Sampled as Silty SAND (SM), very dark greenish gray (5GY 3/1), very dense, moist, fine to coarse grained sand, some mica, relict rock fabric)	
249.7	54.1	41	50/0.3							SS-6		249.7 54.1		
244.7	59.1	59	41/0.1									244.7 59.1	WEATHERED ROCK: Severely weathered BIOTITE GNEISS (Sampled as Sandy SILT (ML), very dark greenish gray (5GY 3/1), hard, moist, fine to coarse grained sand, some mica, relict rock fabric)	
239.7	64.1	44	50/0.3							SS-7		239.7 64.1		
													64.9	Boring terminated at 64.9 feet.
														Boring closed by tremie method with cement-bentonite grout.
														No 24 HR fluid level because boring grouted same day boring drilled.

NORTH ANNA 3 BORE NORTH ANNA 3 PROJECT.GPJ NORTH ANNA 3.GDT 12/4/09



GEOTECHNICAL BORING LOG

Prepared By JSS Date 12/16/09

Checked By MAN Date 12/16/09

SHEET 1 OF 1

BECHTEL PROJECT NO.: 25161		MACTEC PROJECT NO.: 6468-09-2473		COUNTY: Louisa, VA		GEOLOGIST: K. Lloyd						
SITE DESCRIPTION: North Anna 3 Project Supplement 2				DRILLER: D. White/O. Smith		FLUID LEVEL (ft)						
BORING NO.: M-34		DRILL METHOD: Mud Rotary		DRILL MACHINE: CME-55LC Track (RAL)		0 HR. NA						
GROUND ELEV.: 280.9 ft (NAVD88)		NORTHING: 3,910,122 US ft (NAD83)		EASTING: 11,685,736 US ft (NAD83)		24 HR. 13.0						
TOTAL DEPTH: 63.0 ft		SAMPLE METHODS: ASTM D 1586-08a; 2488-09a; 2113-08; 6032-08		ROD TYPE: AWJ		HAMMER (ID): 140-lb. Auto (MEC-02)						
DATE STARTED: 9/28/09		COMPLETED: 9/29/09		HOLE DIA.: 4"		CASING DEPTH: 8.7 ft						
				CORE SIZE: HQ3		BITS USED: 3-7/8" Tri-Cone						
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			
280.9					Ground Surface							280.9 0.0
269.8	11.1	3	4	5								269.8 11.1
267.3	13.6	2	3	4						SS-1		267.3 13.0
262.1	18.8	7	9	11						SS-2		264.9 16.0
257.1	23.8	4	6	10						SS-3		
252.1	28.8	12	25	47						SS-4		
247.1	33.8	27	50/0.5							SS-5		248.9 32.0
242.1	38.8	25	50/0.4							SS-6		
237.0	43.9	50/0.2								SS-7		237.0 43.9
										SS-8		
												227.9 53.0
												217.9 63.0
<p>Boring and coring terminated at 63.0 feet.</p> <p>Boring closed by tremie method with cement-bentonite grout.</p> <p>24 hour water level measured on 9/29/2009 prior to drilling. Borehole was at a depth of 44.0 feet.</p>												

NORTH ANNA 3 BORE, NORTH ANNA 3 PROJECT.GPJ, NORTH ANNA 3.GDT, 12/16/09

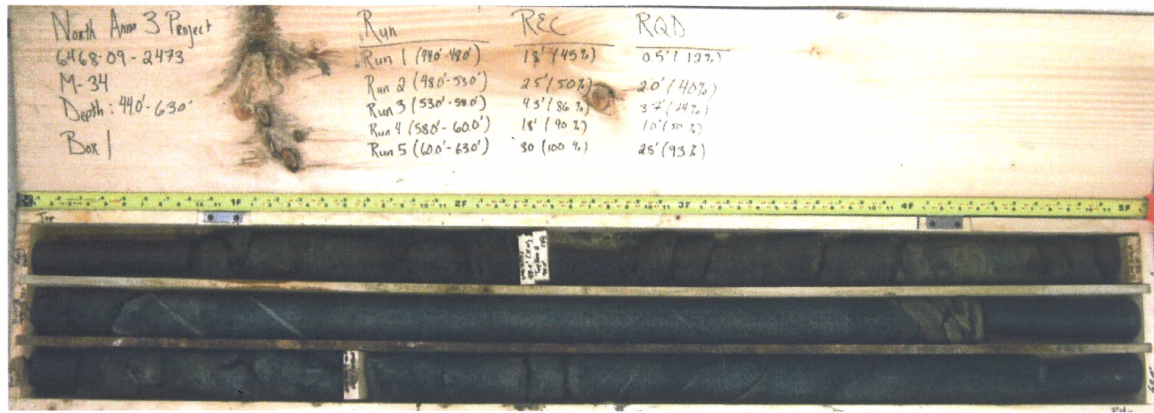




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GROUND ELEV.: 280.9 ft (NAVD88)		NORTHING: 3,910,122 US ft (NAD83)		EASTING: 11,685,736 US ft (NAD83)		24 HR. 13.0	
TOTAL DEPTH: 63.0 ft		SAMPLE METHODS: ASTM D 1586-08a; 2488-09a; 2113-08; 6032-08				HAMMER (ID): 140-lb. Auto (MEC-02)	
DATE STARTED: 9/28/09		COMPLETED: 9/29/09		CASING DEPTH: 8.7 ft		CORE BARREL TYPE: Wireline HQ3 Triple Tube, series 6 bit	

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 @ 44.0 ft	
236.9	44.0	4.0	0:26 1:30 1:54 1:46	(1.8) 45%	(0.5) 13%	RUN 1	(4.3) 48%	(2.5) 28%		HARD ROCK and WEATHERED ROCK: Black, severely to moderately severely weathered, close fracturing, soft to medium hard, BIOTITE GNEISS (continued) (Several joints at 0-10°, open) (3 joints at 0-10°, open; 1 joint at 20°, open)	
232.9	48.0	5.0	1:42 2:15 2:12 2:14 1:30	(2.5) 50%	(2.0) 40%	RUN 2				227.9	53.0
227.9	53.0	5.0	2:13 2:39 2:17 2:27 2:06	(4.3) 86%	(3.7) 74%	RUN 3	(9.1) 91%	(7.5) 75%		HARD ROCK: Black, moderately severe to slightly weathered, close to moderately close fracturing, moderately hard to hard, BIOTITE GNEISS (5 joints at 50-60°, tight to open)	
222.9	58.0	2.0	4:23 10:41	(1.8) 90%	(1.0) 50%	RUN 4				(1 joint at 60°, open)	
220.9	60.0	3.0	2:04 1:58 2:15	(3.0) 100%	(2.8) 93%	RUN 5				(2 joints at 0-10°, open; 1 joint at 70°, tight)	
217.9	63.0									217.9	63.0
Boring and coring terminated at 63.0 feet.  Boring closed by tremie method with cement-bentonite grout.  24 hour water level measured on 9/29/2009 prior to drilling. Borehole was at a depth of 44.0 feet.											

NORTH ANNA 3 CORE NORTH ANNA 3 PROJECT.GPJ NORTH ANNA 3.GDT 12/3/09



M-34 - Box 1