

**FINAL DATA REPORT
Revision 0
GEOTECHNICAL EXPLORATION AND TESTING
SUPPLEMENT 1
DOMINION POWER
NORTH ANNA NUCLEAR POWER STATION
NORTH ANNA 3 PROJECT
MINERAL, LOUISA COUNTY, VIRGINIA**

December 10, 2009

VOLUME 1

**APPENDIX B
Geotechnical Field Data**

Prepared By:

**MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA**

MACTEC PROJECT No. 6468-09-2473

Prepared For:

**Bechtel Power Corporation
Subcontractor No. 25161-500-HC4-CY00-00001**

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**APPENDIX B.1
Geotechnical Boring Logs**



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**MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA**

MACTEC PROJECT No. 6468-09-2473




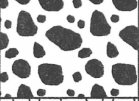




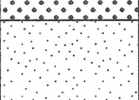
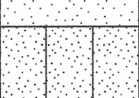
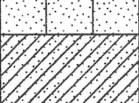

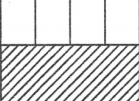
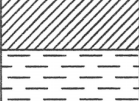



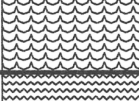
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KEY TO CLASSIFICATION AND SYMBOLS						
SOILS						
Soils classified under the Unified Soil Classification System (USCS) and in accordance with ASTM D 2488-08						
CORRELATION OF SPT RESISTANCE WITH RELATIVE DENSITY-CONSISTENCY				MOISTURE CONTENT	MODIFIERS	
GRANULAR MATERIAL		SILTS AND CLAYS		DRY-Absence of moisture	Approximate %	Modifiers
RELATIVE DENSITY	SPT N Value (blows/ft)	CONSISTENCY	SPT N Value (blows/ft)	MOIST-Damp/no visible H2O	<5%	TRACE
VERY LOOSE	0 - 4	VERY SOFT	0 - 2	WET-Visible free water	5 to 10%	FEW
LOOSE	5 - 10	SOFT	3 - 4		15 to 25%	LITTLE
MEDIUM DENSE	11 - 30	MEDIUM - STIFF	5 - 8	HCl Reaction	30 to 45%	SOME
DENSE	31 - 50	STIFF	9 - 15	NONE - No visible reaction	50 to 100%	MOSTLY
VERY DENSE	> 50	VERY STIFF	16 - 30	WEAK - Some reaction/slow	Modifiers provide an estimate of the percentages of gravel, sand, and fines (silt or clay size particles) or other material such as organics, mica, mineral components, etc.	
		HARD	> 30	STRONG - Violent reaction		
COLOR of Soil/Rock: see Munsell Soil Color Charts				SPT Sample Numbering: SS-1, SS-2, SS-3, etc.		
Particle Size Range for Sand: Fine, Medium, Coarse				Tested Rock Sample Numbering: RS-1, RS-2, etc.		
Particle Size Range for Gravel: Fine or Coarse				Example Soil Description: Silty SAND (SM), light gray (10Y7/1), medium dense, wet, fine to coarse sand, little mica, relict rock fabric		
Measurements: Horizontal measurements are rounded to nearest foot. Vertical measurements, such as SPT sample recovery or penetration, sample depths, core run depth, core run length, core recovery, core RQD, etc. are rounded to nearest tenth of a foot (0.1 ft).				Coordinate System and Datum Reference Information: Horizontal - Virginia State Plane Coordinate System, South Zone, NAD 83 (CORS96)(EPOCH 2002); Elevation - NAVD88 (Geoid03)		
 Borehole fluid level at time of drilling completion				 Borehole fluid level 24 hours after drilling completion		
ROCK						
In general, the North Anna Site is composed of moderately to strongly metamorphosed rock of granitic composition commonly described as quartz gneiss and biotite gneiss (or a combination of these); locally zones of schist and/or pegmatitic zones may be encountered.				Example Rock Core Run Description: Light gray with trace orange staining, slightly weathered, moderately close fracturing, moderately hard to hard, BIOTITE QUARTZ GNEISS with trace magnetite (2 Joints at 45°, tight with trace orange staining; 2 joints at 60°, open with clay)		
WEATHERING DESCRIPTION		FRACTURE SPACING		ROCK HARDNESS DESCRIPTION		
SEVERE	Rock except quartz discolored or stained; severe loss in strength; some fragments of strong rock remain	VERY CLOSE	< 0.15 ft (2")	VERY SOFT	Can be carved with knife; pieces >1" can be broken by finger pressure; crumbles easily	
MODERATELY SEVERE	Rock except quartz discolored or stained; crystals dull, show clay alteration; thud sound when struck by hammer	CLOSE	0.15 ft (2") to 1 foot	SOFT	Can be gouged/grooved with knife; small thin pieces broken by finger pressure	
MODERATE	Significant portions show discoloration and weathering effects; crystals dull; dull sound under hammer blows	MODERATELY CLOSE	1 to 3 feet	MEDIUM HARD	Can be gouged/grooved by knife with firm pressure; easily broken by hammer	
SLIGHT	Rock generally fresh; joints stained; discoloration extends into rock, may contain clay; some crystals dull	WIDE	>3 feet	MODERATELY HARD	Can be scratched by knife or steel pick; moderate hammer blows to break sample	
VERY SLIGHT	Rock generally fresh; joints stained, may show thin clay coatings; crystals bright; rock rings under hammer blows	JOINT DESCRIPTION	Tight-Core pieces fit tightly together; no gaps	HARD	Rock core rings when struck with a hammer; Can be scratched by knife or steel pick only with difficulty	
FRESH	Rock fresh, crystals bright, few joints may show slight staining, rock rings under hammer blows		Open-Core pieces fit loosely together; has gaps	VERY HARD	Rock core rings when struck with a hammer; Cannot be scratched by knife or steel pick	
Core Terms-Abbreviations		EXPLANATION				
DRILL RATE		Time in minutes it takes to core one foot, for each foot or partial foot of a core run. (1:32; 0:54/0.7 ft)				
CORE RUN; RUN LENGTH		Cored Interval; Total distance of core run measured to nearest 0.1 ft. Core runs are not to exceed 5 feet.				
CORE RECOVERY (REC.)		Total length of recovered core, measured to nearest 0.1 ft, divided by the core run length, and expressed as a percentage.				
CORE RQD (RQD)		Rock Quality Designation. Sum of intact core pieces greater than 4 inches in length, measured to the nearest 0.1 ft, divided by the core run length, and expressed as a percentage.				

Legend-NORTH ANNA 3, Rev 0

SOIL AND ROCK SYMBOLS AND DESCRIPTIONS

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS	
			GRAPH	LETTER		
ROCK				WR	WEATHERED ROCK	
				HR-WR	HARD ROCK - WEATHERED ROCK	
				HR	HARD ROCK	
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES	
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES	
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES	
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES	
		CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	
		CLEAN SANDS (LITTLE OR NO FINES)		SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES	
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES	
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SC	CLAYEY SANDS, SAND - CLAY MIXTURES	
	FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50			ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
					CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50				MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS	
				CH	INORGANIC CLAYS OF HIGH PLASTICITY	
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
HIGHLY ORGANIC SOILS				PT	MUCK, PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS	

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS



GEOTECHNICAL BORING LOG

Prepared By NPH Date 12/3/09
Checked By DSC Date 12-3-09

SHEET 1 OF 3

BECHTEL PROJECT NO.: 25161			MACTEC PROJECT NO.: 6468-09-2473			COUNTY: Louisa, VA			GEOLOGIST: R. Clark				
SITE DESCRIPTION: North Anna Power Station, Unit 3						DRILLER: R. Landeros			FLUID LEVEL (ft)				
BORING NO.: W-1			DRILL METHOD: Mud Rotary/Rock Core			DRILL MACHINE: CME-550X (ATL)			0 HR. NA				
GROUND ELEV.: 306.2 ft (NAVD88)			NORTHING: 3,909,853 US ft (NAD83)			EASTING: 11,685,959 US ft (NAD83)			24 HR. 37.3				
TOTAL DEPTH: 154.0 ft		SAMPLE METHODS: ASTM D 1586-08a; 2488-09a; 2113-08; 6032-08				ROD TYPE: AWJ		HAMMER (ID): 140-lb. Auto (MEC-05)					
DATE STARTED: 10/19/09		COMPLETED: 10/21/09		HOLE DIA.: 3"		CASING DEPTH: 74.0 ft		CORE SIZE: NQ3		BITS USED: 2-7/8" 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	MOI		
306.2					Ground Surface							306.2	0.0
													No sampling from 0.0 to 9.3 feet due to soft dig utility clearance by Dominion Personnel
296.9	9.3	2	2	3						SS-1		296.9	9.3
294.0	12.2	5	5	5						SS-2			RESIDUAL SOIL: Silty SAND (SM), reddish yellow (7.5Y 6/6), moist, loose, mostly fine to medium grained sand, relict rock fabric
291.3	14.9	8	9	15						SS-3			12.2 ft: Very pale brown (10YR 7/4)
287.9	18.3	12	17	18						SS-4			14.9 ft: Pale yellow (2.5Y 7/3), medium dense, fine to coarse grained sand and angular quartz rock fragments
282.9	23.3	39	61/0.3							SS-5		284.2	22.0
277.9	28.3	50/0.1								SS-6			WEATHERED ROCK: Severely weathered BIOTITE QUARTZ GNEISS (Sampled as Silty SAND (SM), light yellowish brown (2.5Y 6/4), moist, very dense, fine to medium grained sand and rock fragments)
												277.2	29.0
													WEATHERED ROCK - HARD ROCK: Light gray with reddish yellow staining, severely to moderately weathered, moderately close fracturing, medium hard BIOTITE QUARTZ GNEISS
												272.2	34.0
													WEATHERED ROCK: No recovery - Severely weathered BIOTITE QUARTZ GNEISS
262.2	44.0	50/0.0								SS-7		257.2	49.0
													HARD ROCK: Light yellowish gray, moderately weathered, close to moderately close fracturing, medium to moderately hard, QUARTZ GNEISS with trace magnetite
												247.2	59.0
													WEATHERED ROCK: Light yellowish gray, severely weathered, close fracturing, medium hard, QUARTZ GNEISS; also sampled as Silty SAND (SM), brownish yellow (10YR 6/6), wet, very dense, fine to coarse grained sand and rock fragments
237.2	69.0	50/0.4								SS-8			
232.2	74.0									SS-9			

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



SHEET 2 OF 3

BECHTEL PROJECT NO.: 25161			MACTEC PROJECT NO.: 6468-09-2473			COUNTY: Louisa, VA			GEOLOGIST: R. Clark		
SITE DESCRIPTION: North Anna Power Station, Unit 3						DRILLER: R. Landeros			FLUID LEVEL (ft)		
BORING NO.: W-1			DRILL METHOD: Mud Rotary/Rock Core			DRILL MACHINE: CME-550X (ATL)			0 HR. NA		
GROUND ELEV.: 306.2 ft (NAVD88)			NORTHING: 3,909,853 US ft (NAD83)			EASTING: 11,685,959 US ft (NAD83)			24 HR. 37.3		
TOTAL DEPTH: 154.0 ft		SAMPLE METHODS: ASTM D 1586-08a; 2488-09a; 2113-08; 6032-08				ROD TYPE: AWJ		HAMMER (ID): 140-lb. Auto (MEC-05)			
DATE STARTED: 10/19/09		COMPLETED: 10/21/09		HOLE DIA.: 3"		CASING DEPTH: 74.0 ft		CORE SIZE: NQ3		BITS USED: 2-7/8" 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					
231.4					Continued from previous page										
		50/0.0													
													229.4	76.8	HARD ROCK: Light pinkish gray to light gray with some reddish yellow and yellow staining, slightly weathered, very close to moderately close fracturing, hard to very hard, QUARTZ GNEISS with trace magnetite
													207.2	99.0	96.0 - 96.6 ft: Possible shear zone characterized by soft, yellow-brown clay and rock fragments, oriented approximately 60° to core axis. HARD ROCK: Light gray with pink and yellow staining, fresh, moderately close to wide fracturing, very hard, BIOTITE QUARTZ GNEISS

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



SHEET 3 OF 3

BECHTEL PROJECT NO.: 25161			MACTEC PROJECT NO.: 6468-09-2473			COUNTY: Louisa, VA			GEOLOGIST: R. Clark		
SITE DESCRIPTION: North Anna Power Station, Unit 3						DRILLER: R. Landeros			FLUID LEVEL (ft)		
BORING NO.: W-1			DRILL METHOD: Mud Rotary/Rock Core			DRILL MACHINE: CME-550X (ATL)			0 HR. NA		
GROUND ELEV.: 306.2 ft (NAVD88)			NORTHING: 3,909,853 US ft (NAD83)			EASTING: 11,685,959 US ft (NAD83)			24 HR. 37.3		
TOTAL DEPTH: 154.0 ft		SAMPLE METHODS: ASTM D 1586-08a; 2488-09a; 2113-08; 6032-08				ROD TYPE: AWJ		HAMMER (ID): 140-lb. Auto (MEC-05)			
DATE STARTED: 10/19/09		COMPLETED: 10/21/09		HOLE DIA.: 3"		CASING DEPTH: 74.0 ft		CORE SIZE: NQ3		BITS USED: 2-7/8" 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			
156.6					Continued from previous page								
													<div style="display: flex; justify-content: space-between;"> 152.2 154.0 </div> <p>Boring and coring terminated at 154.0 feet.</p> <p>Boring closed by tremie method with cement-bentonite grout.</p> <p>24 hour water level measured on 10/21/2009 prior to drilling. Borehole was at a depth of 104.0 feet.</p>

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 Power Station, Unit 3								DRILLER: R. Landeros		FLUID LEVEL (ft) 0 HR. NA 24 HR. 37.3		
BORING NO.: W-1				DRILL METHOD: Mud Rotary/Rock Core				DRILL MACHINE: CME-550X (ATL)				
GROUND ELEV.: 306.2 ft (NAVD88)				NORTHING: 3,909,853 US ft (NAD83)				EASTING: 11,685,959 US ft (NAD83)				
TOTAL DEPTH: 154.0 ft				SAMPLE METHODS: ASTM D 1586-08a; 2488-09a; 2113-08; 6032-08						HAMMER (ID): 140-lb. Auto (MEC-05)		
DATE STARTED: 10/19/09				COMPLETED: 10/21/09		CASING DEPTH: 74.0 ft		CORE BARREL TYPE: Wireline NQ3 Triple Tube, series 6 bit				
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 @ 29.0 ft		
277.2	29.0	5.0	1:24 1:04 1:30 1:38 1:42	(2.3) 46%	(1.2) 24%	RUN 1	(2.3) 46%	(1.2) 24%		277.2	WEATHERED ROCK - HARD ROCK: Light gray with reddish yellow staining, severely to moderately weathered, moderately close fracturing, medium hard BIOTITE QUARTZ GNEISS (1 joint at 0-10°, tight with iron staining; 1 joint at 80-90°, tight with iron staining)	29.0
272.2	34.0	5.0	1:25 1:35 1:33 1:31 0:35	(0.0) 0%	(0.0) 0%	RUN 2	(0.0) 0%	(0.0) 0%		272.2	WEATHERED ROCK: No recovery - Severely weathered BIOTITE QUARTZ GNEISS	34.0
267.2	39.0	5.0	0:48 0:56 0:48 0:46 0:52	(0.0) 0%	(0.0) 0%	RUN 3						
262.2	44.0	5.0	N=50/0.0 1:01 0:45 1:05 1:47 4:28	(0.0) 0%	(0.0) 0%	RUN 4						
257.2	49.0	5.0	1:03 1:05 0:59 1:03 1:01	(4.2) 84%	(2.2) 44%	RUN 5	(9.1) 91%	(6.1) 61%		257.2	HARD ROCK: Light yellowish gray, moderately weathered, close to moderately close fracturing, medium to moderately hard, QUARTZ GNEISS with trace magnetite (1 joint at 65°, tight with iron staining; 2 joints at 80-90°, tight with iron staining)	49.0
252.2	54.0	5.0	1:12 2:10 1:41 1:21 1:06	(4.9) 98%	(3.9) 78%	RUN 6					(6 joints at 10-20°, tight with iron staining; 2 joints at 40-60°, tight with iron staining)	
247.2	59.0	5.0	0:32 0:35 0:38 0:41 0:43	(0.3) 6%	(0.0) 0%	RUN 7	(0.3) 2%	(0.0) 0%		247.2	WEATHERED ROCK: Light yellowish gray, severely weathered, close fracturing, medium hard, QUARTZ GNEISS; also sampled as Silty SAND (SM), brownish yellow (10YR 6/6), wet, very dense, fine to coarse grained sand and rock fragments	59.0
242.2	64.0	5.0	1:05 1:03 1:02 1:01 1:18	(0.0) 0%	(0.0) 0%	RUN 8						
237.2	69.0	5.0	N=50/0.4 0:59/0.6 1:02 1:05 4:25 5:23	(0.0) 0%	(0.0) 0%	SS-8 RUN 9					Note: Outer core barrel broke during RUN 9. Able to retrieve broken core barrel from hole and continue boring with replacement core barrel.	
236.8	69.4	4.6										
232.2	74.0	5.0	N=50/0.0 3:54 2:25 2:31 4:24 3:48	(2.2) 44%	(0.0) 0%	RUN 10					(12 joints at 0-10°, tight)	
227.2	79.0	5.0	3:45 7:26 2:24 3:26 4:16	(5.0) 100%	(4.0) 80%	RUN 11	(20.4) 92%	(8.5) 38%		229.4	HARD ROCK: Light pinkish gray to light gray with some reddish yellow and yellow staining, slightly weathered, very close to moderately close fracturing, hard to very hard, QUARTZ GNEISS with trace magnetite (2 joints at 0-10°, tight; 1 joint at 45°, tight; 2 joints at 60°, tight)	76.8
222.2	84.0	5.0	2:25 5:24 6:11 6:23 6:38	(4.6) 92%	(1.5) 30%	RUN 12					(5 joints at 10-20°, tight with iron staining and trace clay; 2 joints at 45°, tight with iron staining and trace clay; 1 joint at 80-90°, tight)	
217.2	89.0	5.0	2:45 2:52 2:58 3:02 3:01	(3.6) 72%	(1.1) 22%	RUN 13					(3 joints at 0-10°, tight with iron staining; 3 joints at 45°, open with severe weathering and loss of recovery; 1 joint at 80-90°, tight)	
212.2	94.0	1.0	4:37	(1.0) 100%	(0.0) 0%	RUN 14					(horizontal and vertical joints) (3 joints at 60-70°, tight to open with clay)	
211.2	95.0	4.0	4:24 4:21 3:49 2:45	(4.0) 100%	(1.9) 48%	RUN 15					96.0 - 96.6 ft: Possible shear zone characterized by soft, yellow-brown clay and rock fragments, oriented approximately 60° to core axis.	
207.2	99.0	5.0	4:11 5:38 2:45 3:02 3:41	(4.9) 98%	(3.8) 76%	RUN 16	(54.5) 99%	(39.6) 72%		207.2	HARD ROCK: Light gray with pink and yellow staining, fresh, moderately close to wide fracturing, very hard, BIOTITE QUARTZ GNEISS (1 joint at 0-10°, tight; 4 joints at 30°, tight with iron staining and trace chlorite/clay; 1 joint at 60°, tight)	99.0

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



SHEET 2 OF 2

BECHTEL PROJECT NO.: 25161			MACTEC PROJECT NO.: 6468-09-2473			COUNTY: Louisa, VA		GEOLOGIST: R. Clark		
SITE DESCRIPTION: North Anna Power Station, Unit 3						DRILLER: R. Landeros			FLUID LEVEL (ft) 0 HR. NA 24 HR. 37.3	
BORING NO.: W-1			DRILL METHOD: Mud Rotary/Rock Core			DRILL MACHINE: CME-550X (ATL)				
GROUND ELEV.: 306.2 ft (NAVD88)			NORTHING: 3,909,853 US ft (NAD83)			EASTING: 11,685,959 US ft (NAD83)				
TOTAL DEPTH: 154.0 ft		SAMPLE METHODS: ASTM D 1586-08a; 2488-09a; 2113-08; 6032-08						HAMMER (ID): 140-lb. Auto (MEC-05)		
DATE STARTED: 10/19/09		COMPLETED: 10/21/09		CASING DEPTH: 74.0 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		L O G	DESCRIPTION AND REMARKS
				REC. (ft) %	RQD (ft) %		REC. (ft) %	RQD (ft) %		
										Continued from previous page
202.2	104.0	5.0	5:32 8:15 4:50 7:47 4:41	(4.9) 98%	(4.2) 84%	RUN 17				HARD ROCK: Light gray with pink and yellow staining, fresh, moderately close to wide fracturing, very hard, BIOTITE QUARTZ GNEISS (<i>continued</i>) (3 joints at 0-10°, tight; 4 joints at 60-70°, tight)
197.2	109.0	5.0	3:49 3:41 3:32 4:02 5:31	(4.9) 98%	(4.5) 90%	RUN 18				(2 joints at 30°, tight; 1 joint at 45°, tight; 1 joint at 65°, tight)
192.2	114.0	5.0	5:33 4:38 5:21 5:24 6:25	(5.0) 100%	(4.0) 80%	RUN 19				(4 joints at 10-20°, tight; 2 joints at 30°, tight)
187.2	119.0	5.0	1:58 1:52 2:05 2:11 2:14	(5.0) 100%	(5.0) 100%	RUN 20				(1 joint at 20°, tight)
182.2	124.0	5.0	2:25 2:33 2:42 2:45 2:51	(4.8) 96%	(4.7) 94%	RUN 21				(2 joints at 20°, tight; 2 joints at 45°, tight)
177.2	129.0	5.0	4:03 3:25 4:05 2:32 1:32	(5.0) 100%	(4.0) 80%	RUN 22				(4 joints at 10-20°, tight; 2 joints at 45°, tight; 0.1 ft thick quartz vein)
172.2	134.0	5.0	3:28 2:29 2:33 1:25 1:22	(5.0) 100%	(3.2) 64%	RUN 23				(3 joints at 10-20°, tight; 2 joints at 45°, tight; 3 joints at 60°, tight)
167.2	139.0	5.0	2:28 2:33 3:05 2:31 4:28	(5.0) 100%	(3.1) 62%	RUN 24				(8 joints at 30-45°, tight; 3 quartz veins 0.1 to 0.3 feet thick at 30-45°)
162.2	144.0	5.0	3:25 3:28 3:45 4:02 4:21	(5.0) 100%	(1.7) 34%	RUN 25				(13 joints at 10-20°, tight; 2 joints at 45°, tight; 2 joints at 60°, tight)
157.2	149.0	5.0	3:45 3:49 4:05 3:52 3:29	(5.0) 100%	(1.4) 28%	RUN 26				(13 joints at 10-20°, tight)
152.2	154.0									152.2 154.0 Boring and coring terminated at 154.0 feet. Boring closed by tremie method with cement-bentonite grout. 24 hour water level measured on 10/21/2009 prior to drilling. Borehole was at a depth of 104.0 feet.

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



W-1- Box 1



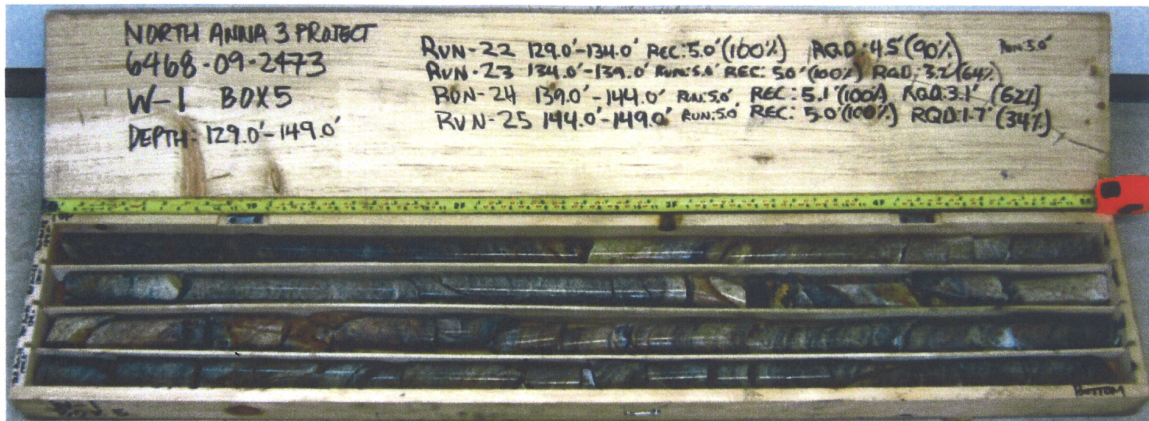
W-1- Box 2



W-1- Box 3



W-1- Box 4



W-1 - Box 5



W-1 - Box 6