



MACTEC PROJECT NO.: 6468-06-1472				COUNTY Louisa, VA				GEOLOGIST S. Lehman							
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)					
BORING NO. B-909		DRILL METHOD: Rotary Wash/Core				SAMPLE METHODS: SPT/CORE				0 HR. 11.6					
COLLAR ELEV. 304.9 ft (NAVD88)		NORTHING 3,909,695		US ft (NAD83)		EASTING 11,686,107		US ft (NAD83)		24 HR. 12.5					
TOTAL DEPTH 201.9 ft		DRILL MACHINE CME 55LC Track				DRILLER: D. White				HAMMER TYPE 140 lbs Auto					
DATE STARTED 8/17/06		COMPLETED 8/24/06				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		
304.9					Ground Surface							304.9	0.0		
303.4	1.5														
301.4	3.5	4	3	2							909-1				
298.9	6.0	2	2	3							909-2				
296.4	8.5	2	2	4							909-3				
293.9	11.0	2	2	3							909-4				
291.4	13.5	2	2	2							909-5				
286.4	18.5	1	2	2							909-6				
281.4	23.5	3	5	6							909-7				
276.4	28.5	6	6	6							909-8				
271.4	33.5	24	50/0.5								909-9				
268.0	36.9		50/0.2								909-10				
263.0	41.9		50/0.4								909-11				
258.0	46.9	18	20	26							909-12				
254.4	50.5		50/0.3								909-13				
253.0	51.9														
248.0	56.9		50/0.2								909-14				
244.9	60.0														
238.0	66.9		50/0.3								909-15				

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

304.9

Silty SAND (SM) light olive brown (2.5Y 5/4), dark greenish gray (GLE1 4/10Y), yellowish brown (10YR 4/4), dark greenish gray (10YR 5/6), very dark grayish brown (10YR 3/2), pale yellow (2.5Y 7/3), and yellowish brown (10YR 5/6&5/8), moist to wet, loose to medium dense (Residual Soil)

275.9

Weathered Rock: Light grayish brown to white, severely weathered, QUARTZ-BIOTITE GNEISS

266.4

Silty SAND (SM), olive (5Y 4/3), moist, dense (Residual Soil)

259.9

Weathered Rock: Olive green, severely weathered, QUARTZ-BIOTITE GNEISS

254.4

50.5

253.0

51.9

Hard Rock: Dark gray, moderate severely weathered, closely fractured, moderately hard, QUARTZ-BIOTITE GNEISS

Weathered Rock: Dark greenish gray, severely weathered, soft, BIOTITE GNEISS with quartz

244.9

60.0

Hard Rock-Weathered Rock: Light to dark gray, very severely to moderately weathered, close fracturing, soft to medium hard, QUARTZ-BIOTITE GNEISS



MACTEC PROJECT NO.: 6468-06-1472				COUNTY Louisa, VA				GEOLOGIST S.Lehman								
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)						
BORING NO. B-909		DRILL METHOD: Rotary Wash/Core				SAMPLE METHODS: SPT/CORE				0 HR. 11.6						
COLLAR ELEV. 304.9 ft (NAVD88)		NORTHING 3,909,695		US ft (NAD83)		EASTING 11,686,107		US ft (NAD83)		24 HR. 12.5						
TOTAL DEPTH 201.9 ft		DRILL MACHINE CME 55LC Track				DRILLER: D. White				HAMMER TYPE 140 lbs Auto						
DATE STARTED 8/17/06				COMPLETED 8/24/06				CORE BARREL TYPE: HQ 3 triple tube-wireline								
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						
230.1					Continued from previous page											
														Hard Rock-Weathered Rock: Light to dark gray, very severely to moderately weathered, close fracturing, soft to medium hard, QUARTZ-BIOTITE GNEISS (continued)		
														223.0	81.9	Hard Rock: Light to dark gray, fresh, close to wide fracturing, hard, QUARTZ-BIOTITE GNEISS

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



MACTEC PROJECT NO.: 6468-06-1472				COUNTY Louisa, VA				GEOLOGIST S. Lehman					
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)			
BORING NO. B-909			DRILL METHOD: Rotary Wash/Core				SAMPLE METHODS: SPT/CORE				0 HR. 11.6		
COLLAR ELEV. 304.9 ft (NAVD88)			NORTHING 3,909,695		US ft (NAD83)		EASTING 11,686,107		US ft (NAD83)		24 HR. 12.5		
TOTAL DEPTH 201.9 ft		DRILL MACHINE CME 55LC Track				DRILLER: D. White			HAMMER TYPE 140 lbs Auto				
DATE STARTED 8/17/06			COMPLETED 8/24/06			CORE BARREL TYPE: HQ 3 triple tube-wireline							
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			
155.3					Continued from previous page								
													<p>Hard Rock: Light to dark gray, fresh, close to wide fracturing, hard, QUARTZ-BIOTITE GNEISS (<i>continued</i>)</p>
													<p>Boring and coring terminated at 201.9 ft in Hard Rock: Hard QUARTZ-BIOTITE GNEISS</p>

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



MACTEC PROJECT NO.: 6468-06-1472							COUNTY Louisa, VA			GEOLOGIST S. Lehman		
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)		
BORING NO. B-909			DRILL METHOD: Rotary Wash/Core			SAMPLE METHODS: SPT/CORE				0 HR. 11.6		
COLLAR ELEV. 304.9 ft (NAVD88)			NORTHING 3,909,695		US ft (NAD83)		EASTING 11,686,107		US ft (NAD83)		24 HR. 12.5	
TOTAL DEPTH 201.9 ft			DRILL MACHINE CME 55LC Track			DRILLER: D. White			HAMMER TYPE 140 lbs Auto			
DATE STARTED 8/17/06			COMPLETED 8/24/06			CORE BARREL TYPE: HQ 3 triple tube-wireline						
CORE SIZE HQ3			TOTAL RUN 165.5 ft									
ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN (ft) %		SAMP. NO.	STRATA (ft) %		LOG	DESCRIPTION AND REMARKS		
Begin Coring @ 33.7 ft												
271.2	33.7	3.2	0:59 1:03 0:58/1.2	(0.0) 0%	(0.0) 0%	1						Weathered Rock: Light grayish brown to white, severely weathered, QUARTZ-BIOTITE GNEISS (continued)
268.0	36.9											-No Recovery
267.6	37.3	4.6	N=50/0.4 0:57 1:10 0:49 0:55	(0.0) 0%	(0.0) 0%	909-11 2				266.4		-No Recovery Silty SAND (SM), olive (5Y 4/3), moist, dense (Residual Soil)
263.0	41.9		1:31/0.6 N=46			909-12						
261.5	43.4	3.5	1:23/0.5 1:21 1:27 1:29	(0.0) 0%	(0.0) 0%	3				259.9		-No Recovery Weathered Rock: Olive green, severely weathered, QUARTZ-BIOTITE GNEISS
258.0	46.9											
257.7	47.2	4.7	N=50/0.3 1:36/0.7 2:12 2:16 1:43 1:38	(1.4) 30%	(0.9) 19%	909-13 4				254.4		
253.0	51.9									253.0		Hard Rock: Dark gray, moderate severely weathered, closely fractured, moderately hard, QUARTZ-BIOTITE GNEISS
		5.0	2:03 2:44 1:45 1:16 1:24	(0.0) 0%	(0.0) 0%	5						Weathered Rock: Dark greenish gray, severely weathered, soft, BIOTITE GNEISS with quartz -No Recovery
248.0	56.9											
247.8	57.1	4.8	N=50/0.2 2:29/0.8 2:42 2:14 1:51 2:29	(1.9) 40%	(0.4) 8%	909-14 6				244.9		Hard Rock-Weathered Rock: Light to dark gray, very severely to moderately weathered, close fracturing, soft to medium hard, QUARTZ-BIOTITE GNEISS
243.0	61.9											
		5.0	2:45 2:42 2:26 2:36 1:38	(0.9) 18%	(0.0) 0%	7						
238.0	66.9											
237.7	67.2	4.7	N=50/0.3 1:21/0.7 1:40 2:06 2:40 2:27	(3.2) 68%	(0.9) 19%	909-15 8						(4 joints at 20° weathered with trace clay)
		5.0	1:46 2:39 2:01 2:31 1:54	(3.3) 66%	(0.0) 0%	9						(4 joints at 45°, 1 joint at 70°, and 3 joints at 20°-all with Fe stain and clay)
228.0	76.9											
		5.0	1:50 1:37 1:45 2:10 2:08	(2.9) 58%	(1.1) 22%	10						(1 joint at 20° and 1 joint at 70° both severely weathered)
223.0	81.9									223.0		
		5.0	1:56 1:51 2:11 2:10 2:24	(4.9) 98%	(4.9) 98%	UCS-82.4'						Hard Rock: Light to dark gray, fresh, close to wide fracturing, hard, QUARTZ-BIOTITE GNEISS -No Joints
218.0	86.9											
		1.8	2:27 2:30/0.8	(1.8) 100%	(1.8) 100%	12						-No Joints
216.2	88.7											
		3.2	0:39/0.2 1:52 2:05	(3.2) 100%	(3.2) 100%	13						-No Joints
213.0	91.9											
		5.0	1:47 2:26 2:08 2:07 2:03 1:46	(4.9) 98%	(4.9) 98%	UC-96.5'						-No Joints
208.0	96.9											
		5.0	1:58 2:00 2:20 3:47 2:59	(5.1) 102%	(3.5) 70%	15						(6 joints at 30° weathered with Fe stain; 1 joint at 70° with clay)
203.0	101.9											
		5.0	2:45 2:47 3:32 3:10 2:42	(4.8) 96%	(4.7) 94%	16						(4 joints at 45° with trace clay; 1 joint at 30° with clay)
198.0	106.9											
		5.0	2:46	(5.1)	(4.9)	UC-107.4'						(3 joints at 30° with trace clay)

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



MACTEC PROJECT NO.: 6468-06-1472							COUNTY Louisa, VA			GEOLOGIST S. Lehman		
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)		
BORING NO. B-909			DRILL METHOD: Rotary Wash/Core				SAMPLE METHODS: SPT/CORE				0 HR. 11.6	
COLLAR ELEV. 304.9 ft (NAVD88)			NORTHING 3,909,695		US ft (NAD83)		EASTING 11,686,107		US ft (NAD83)		24 HR. 12.5	
TOTAL DEPTH 201.9 ft			DRILL MACHINE CME 55LC Track				DRILLER: D. White			HAMMER TYPE 140 lbs Auto		
DATE STARTED 8/17/06				COMPLETED 8/24/06				CORE BARREL TYPE: HQ 3 triple tube-wireline				
CORE SIZE HQ3				TOTAL RUN 165.5 ft								
ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS		
				REC. (%)	RQD (%)		REC. (%)	RQD (%)				
			2:28 2:40 2:06 3:05	102%	98%					Continued from previous page		
193.0	111.9	5.0	2:43 2:30 2:30 2:43 2:36	(4.9) 98%	(4.9) 98%	18				Hard Rock: Light to dark gray, fresh, close to wide fracturing, hard, QUARTZ-BIOTITE GNEISS (continued) (1 joint at 30° moderately weathered)		
188.0	116.9	5.0	2:26 2:25 2:28 2:24 1:59	(5.0) 100%	(5.0) 100%	19				(1 joint at 70° and 2 joints at 30° slightly to moderately weathered)		
183.0	121.9	5.0	2:35 2:33 2:45 3:11 2:38	(5.0) 100%	(5.0) 100%	20				-No Joints		
178.0	126.9	5.0	2:38 3:09 3:08 2:41 2:03	(5.0) 100%	(5.0) 100%	UC-127.4'				(1 joint at 80-90°)		
173.0	131.9	5.0	2:43 2:28 2:18 2:25 2:14	(5.0) 100%	(5.0) 100%	22				-No Joints		
168.0	136.9	5.0	2:48 2:25 2:46 3:12 3:09	(5.0) 100%	(5.0) 100%	23				(2 joints at 45°)		
163.0	141.9	5.0	4:27 5:07 5:15 5:25 6:20	(5.0) 100%	(5.0) 100%	24				-No Joints		
158.0	146.9	5.0	4:57 5:44 4:48 5:03 4:30	(4.8) 96%	(4.6) 92%	25				(2 joints at 20° weathered with clay)		
153.0	151.9	5.0	5:28 5:04 4:42 5:57 5:53	(5.0) 100%	(5.0) 100%	UCS-152.3'				(1 joint at 80° trace clay)		
148.0	156.9	5.0	6:40 7:40 4:54 2:54 3:26	(5.0) 100%	(5.0) 100%	27				-No Joints		
143.0	161.9	5.0	4:16 4:37 5:01 4:47 4:38	(5.1) 102%	(5.1) 102%	28				-No Joints		
138.0	166.9	5.0	3:55 3:50 3:20 3:17 4:58	(5.0) 100%	(5.0) 100%	29				(3 joints at 20° weathered with trace clay)		
133.0	171.9	5.0	8:03 6:14 5:25 5:39 5:28	(5.0) 100%	(4.9) 98%	30				-No Joints		
128.0	176.9	5.0	5:51 5:50 5:06 2:05 2:30	(5.0) 100%	(4.9) 98%	31				-No Joints		
123.0	181.9	5.0	2:45	(5.0)	(5.0)	32				-No Joints		

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

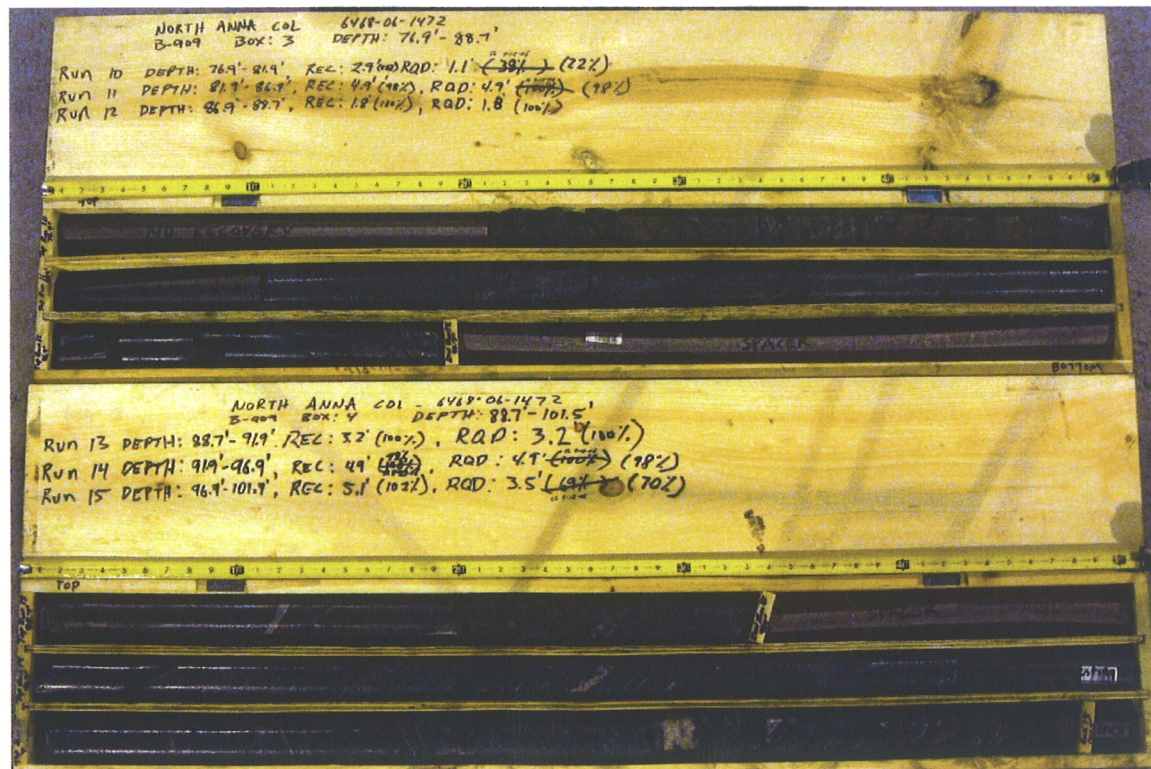


MACTEC PROJECT NO.: 6468-06-1472				COUNTY Louisa, VA				GEOLOGIST S.Lehman			
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)	
BORING NO. B-909			DRILL METHOD: Rotary Wash/Core				SAMPLE METHODS: SPT/CORE				0 HR. 11.6
COLLAR ELEV. 304.9 ft (NAVD88)			NORTHING 3,909,695		US ft (NAD83)		EASTING 11,686,107		US ft (NAD83)		24 HR. 12.5
TOTAL DEPTH 201.9 ft		DRILL MACHINE CME 55LC Track				DRILLER: D. White			HAMMER TYPE 140 lbs Auto		
DATE STARTED 8/17/06			COMPLETED 8/24/06			CORE BARREL TYPE: HQ 3 triple tube-wireline					
CORE SIZE HQ3			TOTAL RUN 165.5 ft								
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) %			
										Continued from previous page	
118.0	186.9		2:13 1:38 2:16 2:28	100%	100%					Hard Rock: Light to dark gray, fresh, close to wide fracturing, hard, QUARTZ-BIOTITE GNEISS (continued)	
		5.0	2:20 2:36 2:39 3:36 3:56	(5.0) 100%	(5.0) 100%	UC-187.3'				-No Joints	
113.0	191.9										
		5.0	2:50 4:02 3:52 3:36 3:25	(5.0) 100%	(5.0) 100%	34				-No Joints	
108.0	196.9										
		5.0	4:08 4:16 4:31 3:47 3:16	(4.8) 96%	(4.8) 96%	35				-No Joints	
103.0	201.9									103.0 201.9	
Coring terminated at 201.9 ft in Hard Rock: Hard QUARTZ-BIOTITE GNEISS											

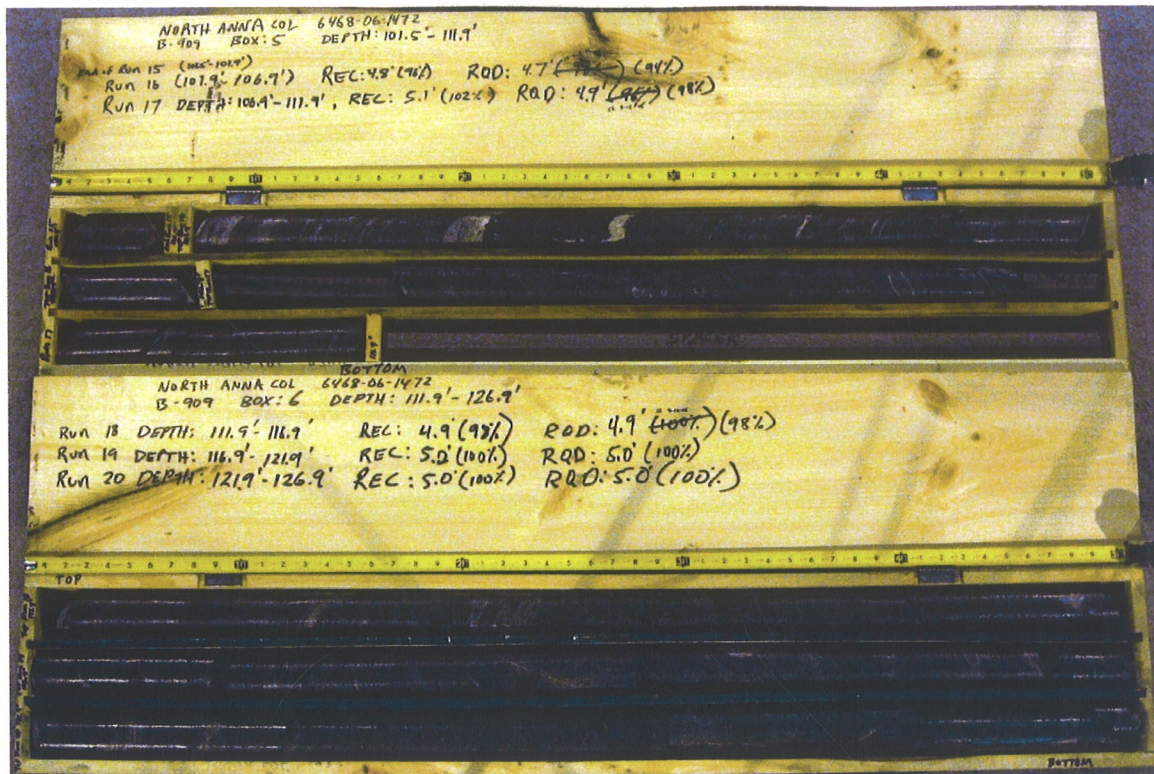
NORTH ANNA COL. CORE NORTH ANNA COL DATA REPORT REV.0.GPJ NORTH ANNA COL.GDT 1/19/07



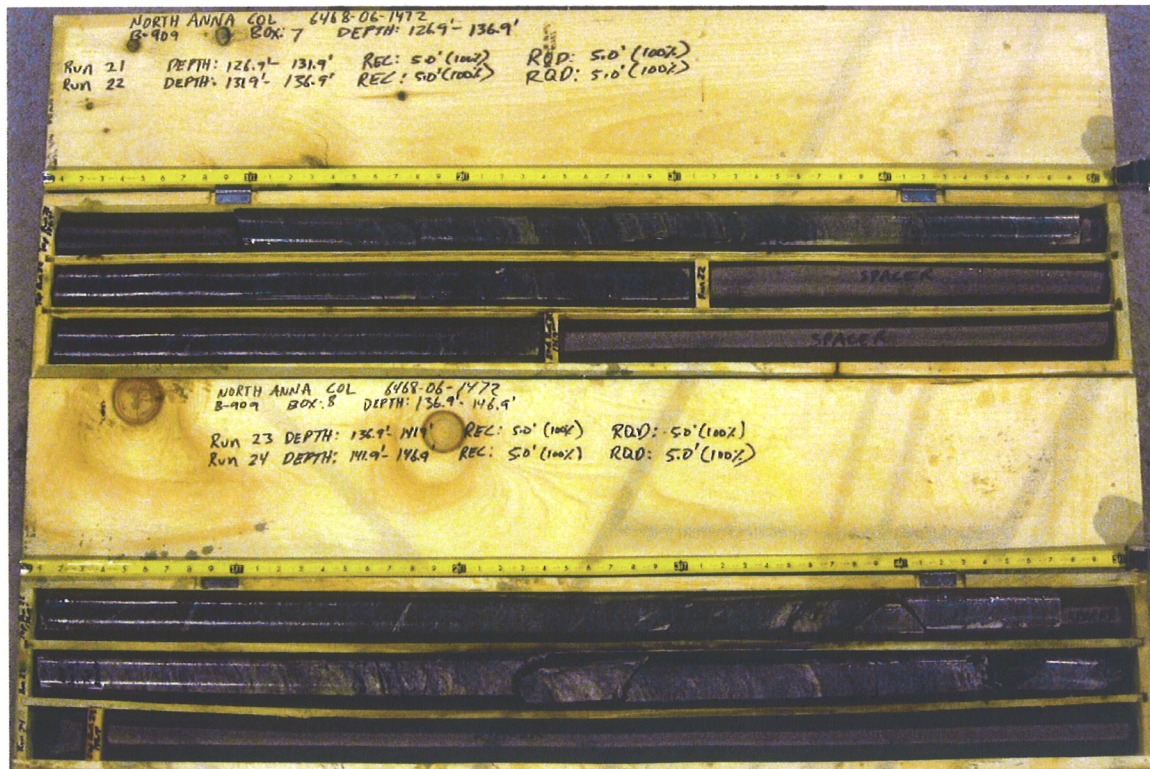
B-909 - Box 1
B-909 - Box 2



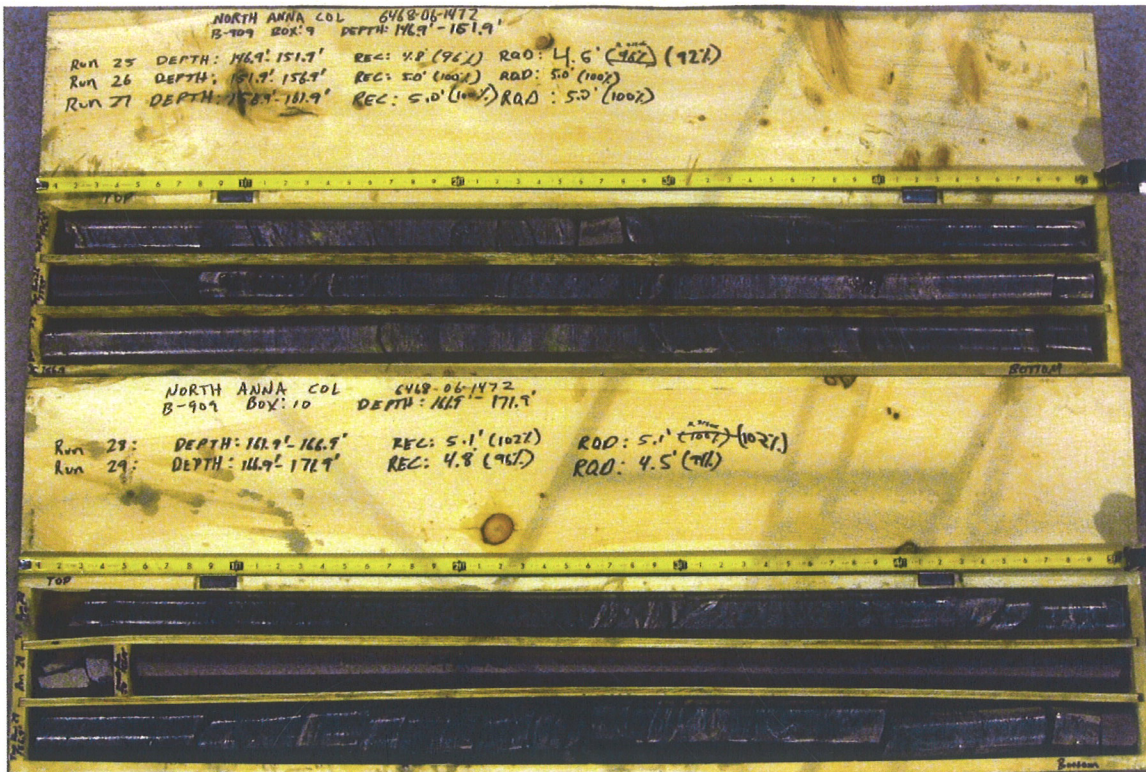
B-909 - Box 3
B-909 - Box 4



B-909 - Box 5
B-909 - Box 6

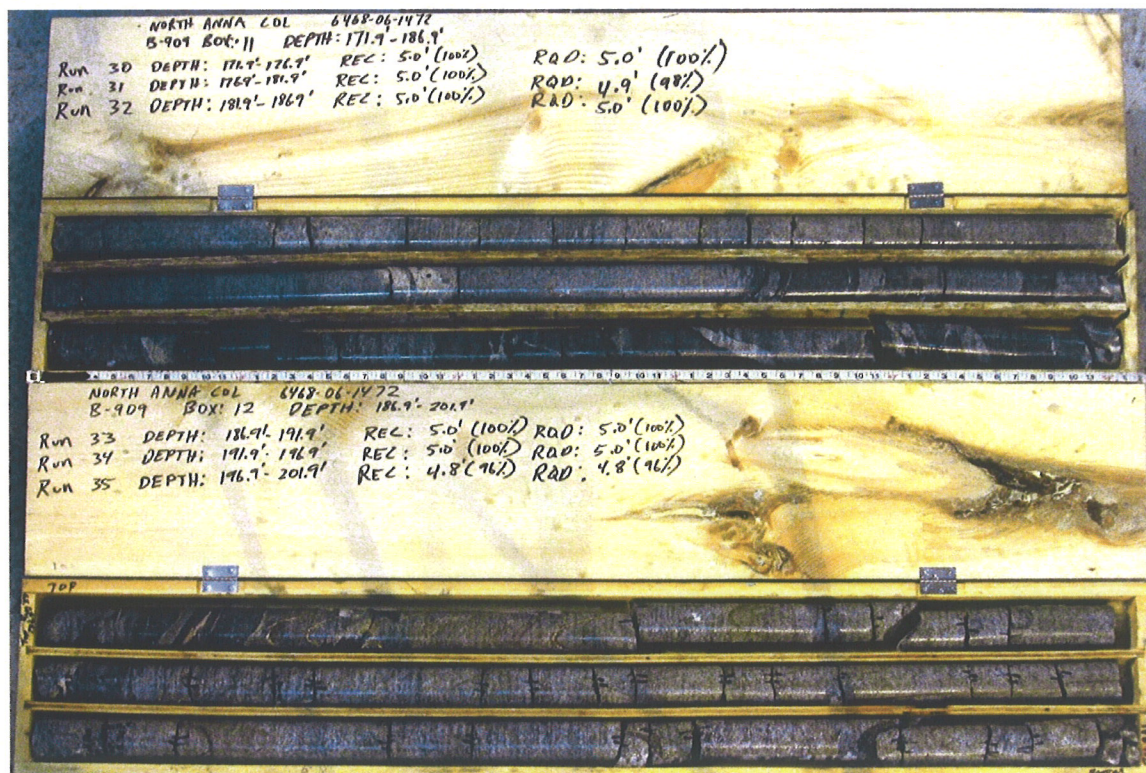


B-909 - Box 7
B-909 - Box 8



B-909 – Box 9

B-909 – Box 10



B-909 – Box 11

B-909 – Box 12