



MACTEC PROJECT NO.: 6468-06-1472				COUNTY Louisa, VA				GEOLOGIST S. Lehman				
SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)		
BORING NO. B-907		DRILL METHOD: Mud Rotary/Core				SAMPLE METHODS: SPT/CORE				0 HR. 28.1		
COLLAR ELEV. 322.7 ft (NAVD88)		NORTHING 3,909,608		US ft (NAD83)		EASTING 11,685,938		US ft (NAD83)		24 HR. 28.4		
TOTAL DEPTH 200.5 ft		DRILL MACHINE CME 45 Trailer				DRILLER: F. Cox				HAMMER TYPE 140 lbs Auto		
DATE STARTED 8/1/06		COMPLETED 8/9/06				CORE BARREL TYPE: HQ split inner barrel						
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			
322.7					Ground Surface							322.7 0.0
321.2	1.5											CLAY (CL) sandy, silty, strong brown (7.5YR 5/6) dry to moist, stiff (Residual Soil)
319.2	3.5	2	4	7						907-1		320.2 2.5
317.2	5.5	7	6	8						907-2		Silty, fine to coarse SAND (SM), strong brown (7.5YR 5/6), dry, medium dense (Residual Soil)
314.2	8.5	3	5	5						907-3		
311.7	11.0	4	5	6						907-4		
309.2	13.5	2	3	5						907-5		Silty, fine to coarse SAND (SM), light yellowish brown (2.5Y 6/4), moist, loose to medium dense (Residual Soil)
305.2	17.5	6	10	11						907-6		306.7 16.0
300.2	22.5	7	9	9						907-7		Silty, fine to coarse SAND (SM) light yellowish brown (2.5Y 6/4), dry to moist, medium dense (Residual Soil)
295.2	27.5	3	4	5						907-8		301.7 21.0
290.2	32.5	3	8	9						907-9		Silty SAND (SM) yellowish brown (10YR 5/6), moist, loose to dense, micaceous, saprolitic (Residual Soil)
285.2	37.5	6	11	21						907-10		286.7 36.0
280.2	42.5	41	50/0.3							907-11		Weathered Rock: Dark yellowish brown (10YR 4/6) and light olive brown (2.5Y 5/3), moist, very dense, severely weathered, QUARTZ-BIOTITE GNEISS
		50/0.1								907-12		280.1 42.6
												Hard Rock: Light to dark gray with orange Fe staining, moderately severe to moderately weathered, close to moderately close fracturing, medium to moderately hard, QUARTZ-BIOTITE GNEISS
												252.2 70.5

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









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TOTAL DEPTH 200.5 ft		DRILL MACHINE CME 45 Trailer				DRILLER: F. Cox			HAMMER TYPE 140 lbs Auto			
DATE STARTED 8/1/06			COMPLETED 8/9/06			CORE BARREL TYPE: HQ split inner barrel						
CORE SIZE HQ			TOTAL RUN 157.4 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) %				
Begin Coring @ 42.5 ft												
280.2	42.5	3.0	N=50/0.1 2:00	(2.7)	(1.4)	1	0.0	0.0		280.1	Weathered Rock: Dark yellowish brown (10YR 4/6) and light olive brown (2.5Y 5/3), moist, very dense, severely weathered, QUARTZ-BIOTITE GNEISS	
277.2	45.5		2:26	90%	47%						(continued)	
		5.0	2:12	(4.9)	(4.4)	2					(1 joint at 35° with clay, Fe stain; 1 joint at 10° with Fe stain)	
			2:03	98%	88%						Hard Rock: Light to dark gray with orange Fe staining, moderately severe to moderately weathered, close to moderately close fracturing, medium to moderately hard, QUARTZ-BIOTITE GNEISS	
272.2	50.5	5.0	2:19	(4.5)	(3.9)	UC-51.9'					(2 joints at 35°, 2 joints at 10-20°, 1 joint at 80-90°)	
			2:35	90%	78%						(1 joint at 30°, 1 joint at 0-5°)	
		5.0	2:32	(5.0)	(4.1)	4					(1 joint at 35°, 2 joints at 0-5°)	
			2:26	100%	82%						(4 joints at 0-5°)	
267.2	55.5	5.0	2:04	(3.3)	(2.1)	5					(3 joints at 65° with trace clay)	
			1:26	66%	42%							
		5.0	1:21	(4.7)	(4.1)	6					(3 joints at 65° with trace clay)	
			1:05	94%	82%							
		5.0	1:26	(0.2)	(0.0)	7					Hard Rock-Weathered Rock: Light to dark gray with orange Fe staining, severely to slightly weathered, very close to close fracturing, soft to moderately hard, QUARTZ-BIOTITE GNEISS	
			1:32	6%	0%						(1 joint at 70° with Fe stain)	
257.2	65.5	3.3	1:44	(0.0)	(0.0)	8				252.2	-No Recovery	
			1:30	0%	0%	907-13					-No Recovery	
		1.7	0:46/0.3	(0.0)	(0.0)	9						
248.9	73.8	4.6	0:49/0.7	0%	0%	10					(2 joints at 55° with trace clay and Fe stain)	
			0:52	0%	0%	907-14						
247.2	75.5	1.7	N=50/0.4	(0.6)	(0.0)	11					(3 joints at 45° and 2 joints at 65° with Fe stain)	
			0:56	32%	0%							
		4.6	0:53	(1.4)	(0.0)	11					(3 joints at 45° and 2 joints at 65° with Fe stain)	
			1:34	48%	0%							
		1.9	1:42	(3.5)	(2.3)	UC-90.0'					(4 joints at 10° with Fe stain; 2 joints at 65° with trace clay and Fe stain)	
			1:14/0.6	70%	46%							
		2.9	N=50/0.2	(0.0)	(0.0)	13					-No Recovery	
			4:15	0%	0%						(4 joints at 10° with Fe stain)	
		5.0	4:04/0.9	(3.3)	(0.9)	14					(4 joints at 10° with Fe stain)	
			2:16/0.9	89%	24%							
			2:04	(1.4)	(0.5)	15					(3 joints at 35° with Fe stain)	
			1:19	88%	31%							
		1.3	3:08/0.6	(2.1)	(0.6)	16					(2 joints at 25°, 1 joint at 75°)	
			3:34/0.4	62%	18%							
		3.4	4:16	(0.4)	(0.0)	17						
			1:45	40%	0%							
		1.0	3:19	(1.0)	(0.0)	18						
			3:31	33%	0%							
		3.0	5:43	(0.4)	(0.4)	19						
			1:45	40%	40%							
		1.0	3:42	(0.0)	(0.0)	20					-No Recovery	
			4:34	0%	0%							
		3.3	6:10	(0.0)	(0.0)	21						
			4:31	0%	0%							
		1.7	1:00	(0.6)	(0.0)	22						
			0:18/0.3	35%	0%							
		1.3	3:26/0.7	(0.0)	(0.0)	23						
			6:58	0%	0%							
		3.7	6:17	(0.0)	(0.0)	22						
			3:40/0.3	0%	0%							
			3:30/0.7	(3.3)	(1.7)	23						
			3:28	89%	46%							
		5.0	3:10	(5.0)	(4.0)	UC-116.8'				207.2	(5 joints at 35-45° and 1 joint at 55° with Fe stain)	
			4:19								115.5	


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



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TOTAL DEPTH 200.5 ft		DRILL MACHINE CME 45 Trailer				DRILLER: F. Cox				HAMMER TYPE 140 lbs Auto	
DATE STARTED 8/1/06				COMPLETED 8/9/06				CORE BARREL TYPE: HQ split inner barrel			
CORE SIZE HQ				TOTAL RUN 157.4 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											
202.2	120.5		3:27 2:54 2:58 2:47 3:22	100%	80%					Hard Rock: Light gray to dark gray and light pink, slightly weathered to fresh, close to wide fracturing, hard to very hard, QUARTZ-BIOTITE GNEISS (continued) (4 joints at 40°)	
		5.0	3:59 3:46 3:34 3:37 3:21	100%	90%	25					
197.2	125.5		3:35 2:45 2:33 2:19 1:52	98%	92%	26				(1 joint at 40°; 1 joint at 20° moderately weathered, Fe stain)	
192.2	130.5		2:09 2:09 2:18 2:19 2:26	98%	80%	UC-131.8'				(1 joint at 60°, 1 joint at 40°, 1 joint at 20°)	
187.2	135.5		2:15 2:16 2:26 2:35 2:48	100%	80%	28				(4 joints at 60°, trace clay)	
182.2	140.5		2:32 2:04 2:07 2:42 2:40	100%	86%	29				(4 joints at 50° with clay to trace clay; 1 joint at 20° with trace clay)	
177.2	145.5		2:35 2:22 3:24 4:07 4:25	98%	92%	30				(3 joints at 45° with trace clay; 2 joints at 20°)	
172.2	150.5		5:09 5:19 5:15 5:07 4:40	100%	96%	31				(2 joints at 45° with weathering; 1 joint at 20° with trace clay)	
167.2	155.5		3:23 2:47 3:19 3:54 3:50	100%	94%	32				(1 joint at 20° with moderate Fe staining)	
162.2	160.5		3:39 3:12 2:46 3:39 4:06	98%	98%	JCS-160.8'				(3 joints at 45° with Fe stain; 1 joint at 70° with trace clay and Fe stain)	
157.2	165.5		4:45 5:06 4:39 4:58 5:53	102%	102%	34				(2 joints at 45° with trace clay, slightly weathered; 1 joint at 10° weathered)	
152.2	170.5		6:47 4:11 7:44 7:10 6:43	100%	84%	35				(2 joints at 45° slightly weathered with Fe stain; quartz vein at 60° from 171.4-171.8 ft)	
147.2	175.5		7:20 8:15 9:27 11:09 14:50	96%	96%	36				(1 joint at 70° slightly weathered with Fe stain)	
142.2	180.5		13:24 14:35 4:35 4:12 4:52	104%	60%	37				(5 joints at 65° slightly weathered with Fe stain)	
137.2	185.5		3:12 2:43 3:31 3:46 3:22	100%	100%	38				(1 joint at 45° moderately weathered with Fe stain)	
132.2	190.5		2:55	100%	100%	39				-No Joints	

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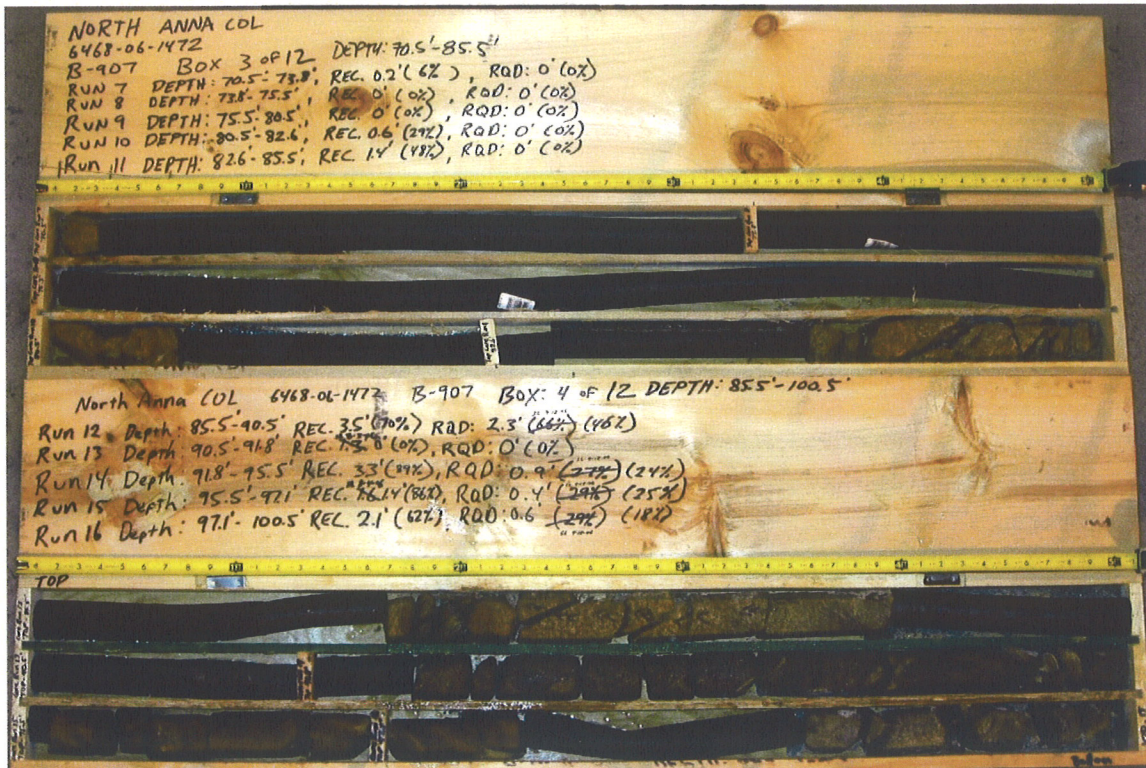
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SITE DESCRIPTION NORTH ANNA COL										GROUND WATER (ft)	
BORING NO. B-907			DRILL METHOD: Mud Rotary/Core				SAMPLE METHODS: SPT/CORE				0 HR. 28.1
COLLAR ELEV. 322.7 ft (NAVD88)			NORTHING 3,909,608		US ft (NAD83)		EASTING 11,685,938		US ft (NAD83)		24 HR. 28.4
TOTAL DEPTH 200.5 ft			DRILL MACHINE CME 45 Trailer				DRILLER: F. Cox			HAMMER TYPE 140 lbs Auto	
DATE STARTED 8/1/06				COMPLETED 8/9/06				CORE BARREL TYPE: HQ split inner barrel			
CORE SIZE HQ				TOTAL RUN 157.4 ft							
ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS	
				REC. (ft) %	ROD (ft) %		REC. (ft) %	ROD (ft) %			
			2:54 3:02 2:20 2:05	100%	100%					Continued from previous page	
127.2	195.5									 Hard Rock: Light gray to dark gray and light pink, slightly weathered to fresh, close to wide fracturing, hard to very hard, QUARTZ-BIOTITE GNEISS (continued) -No Joints	
		5.0	3:01 2:02 2:34 2:40 2:52	(5.0) 100%	(5.0) 100%	UC-200.0'					
122.2	200.5									122.2 <span style="float: right;">200.5</span>	
Coring terminated at 200.5 ft in Hard Rock: Very hard, QUARTZ-BIOTITE GNEISS											

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



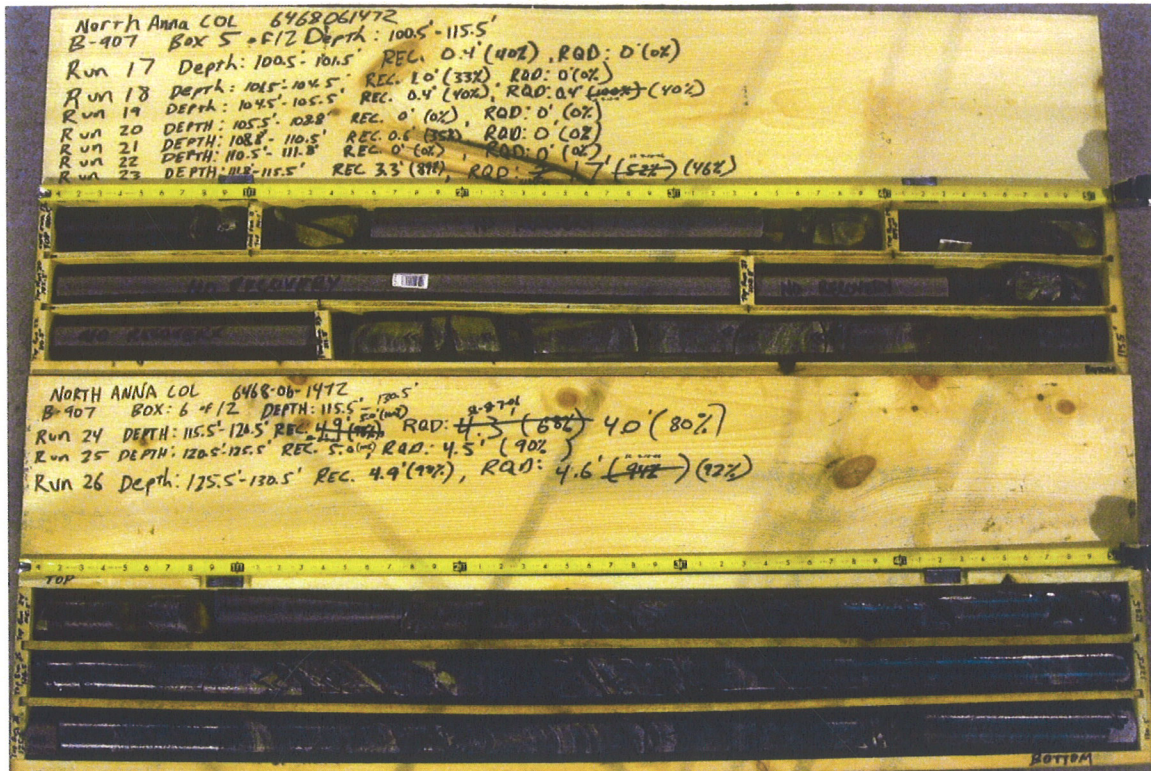


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B-907 - Box 2



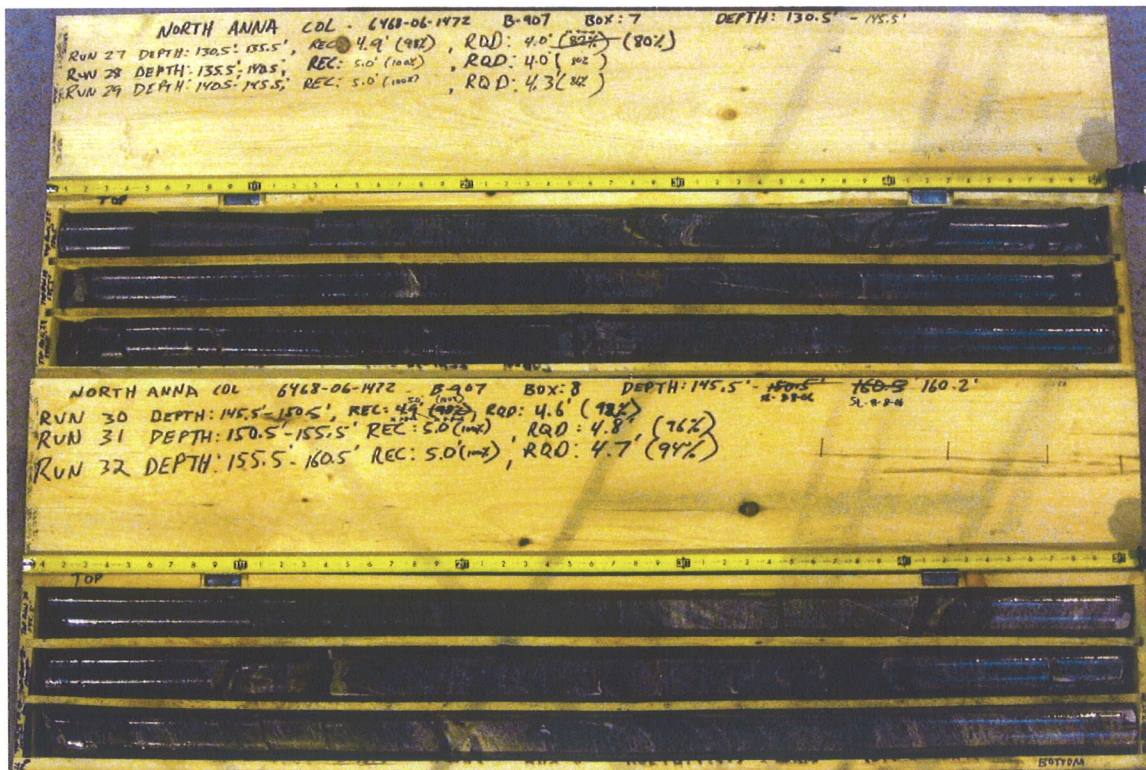
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B-907 - Box 5

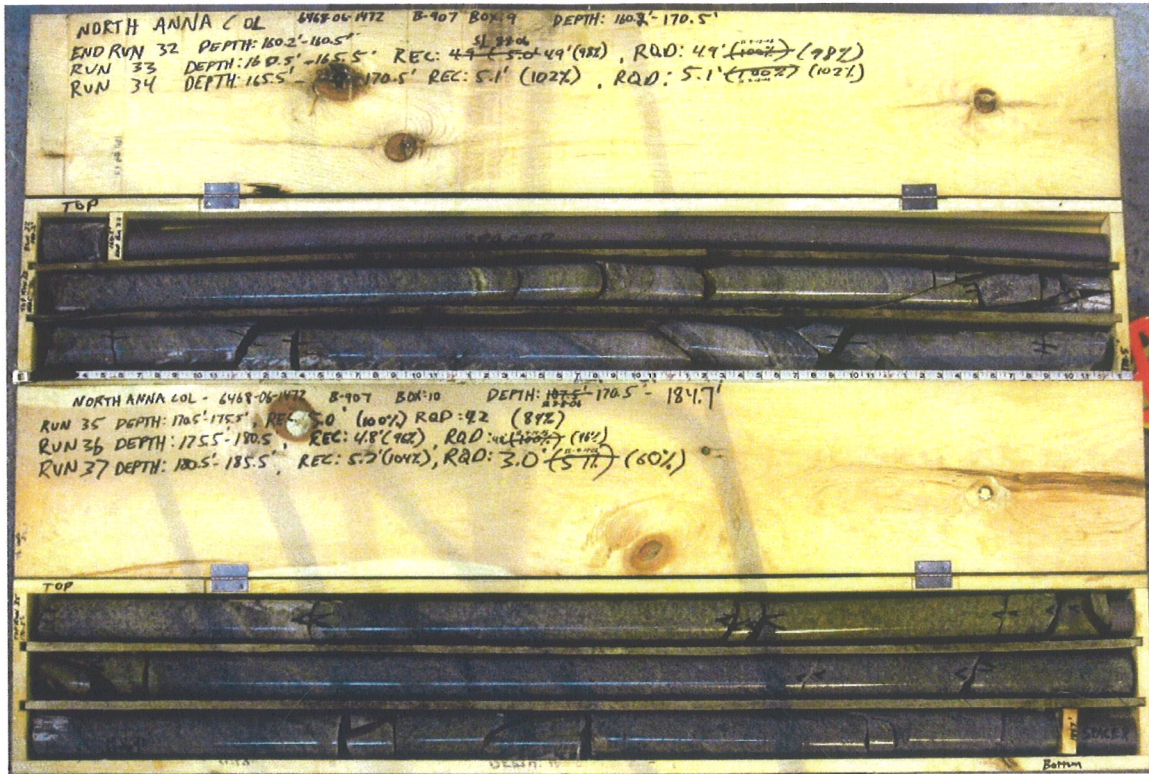
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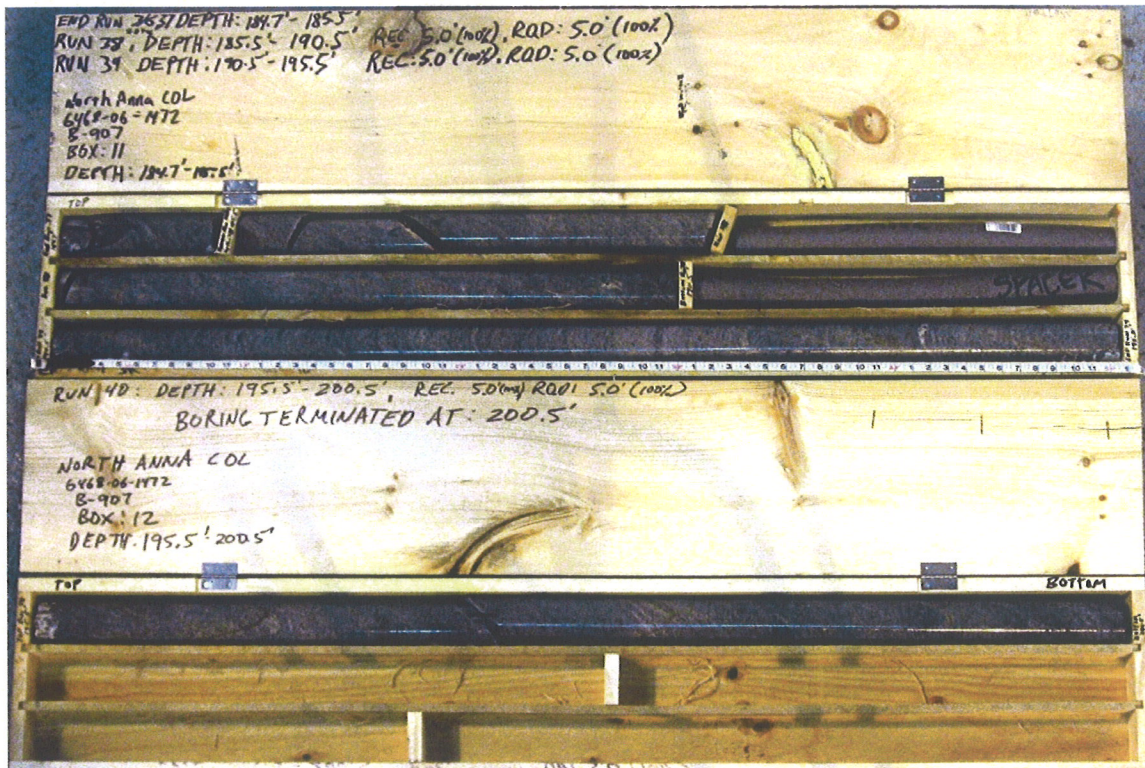
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B-907 - Box 8





B-907 - Box 9  
B-907 - Box 10



B-907 - Box 11  
B-907 - Box 12