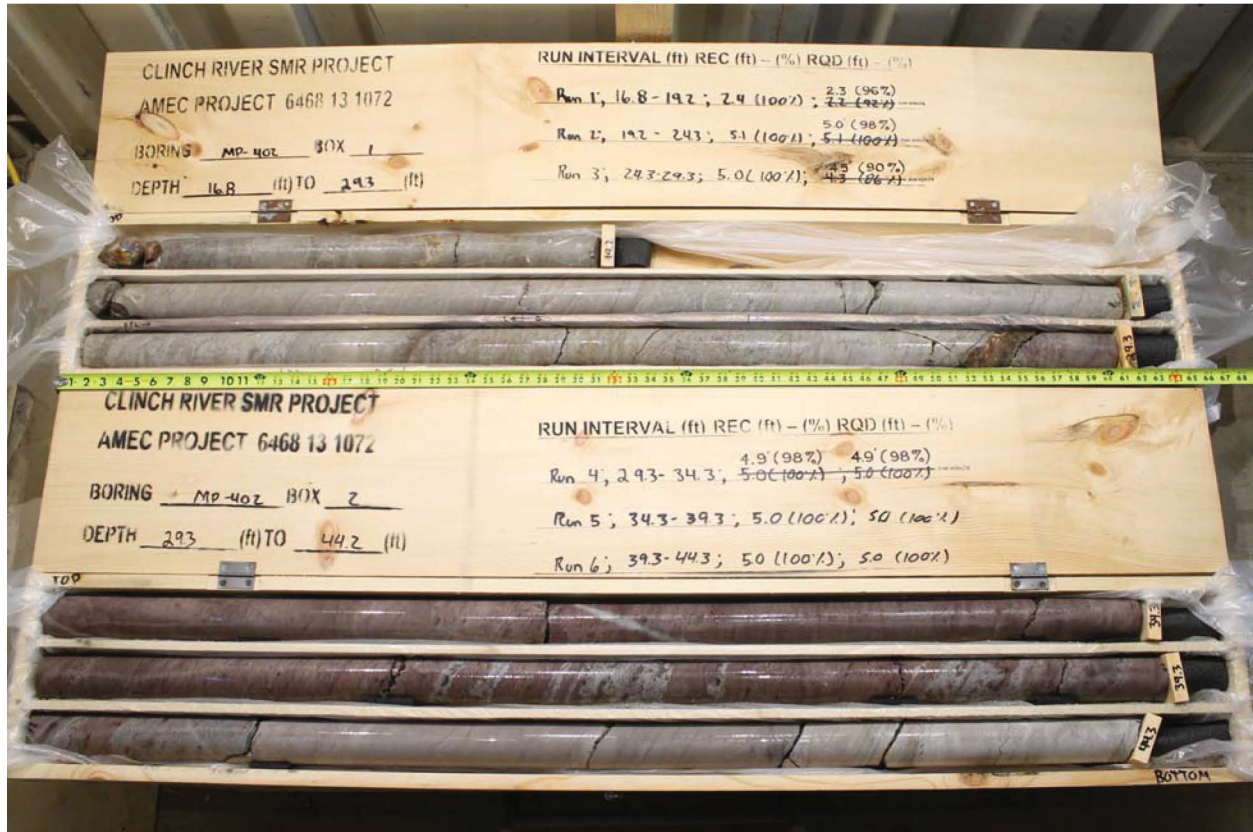
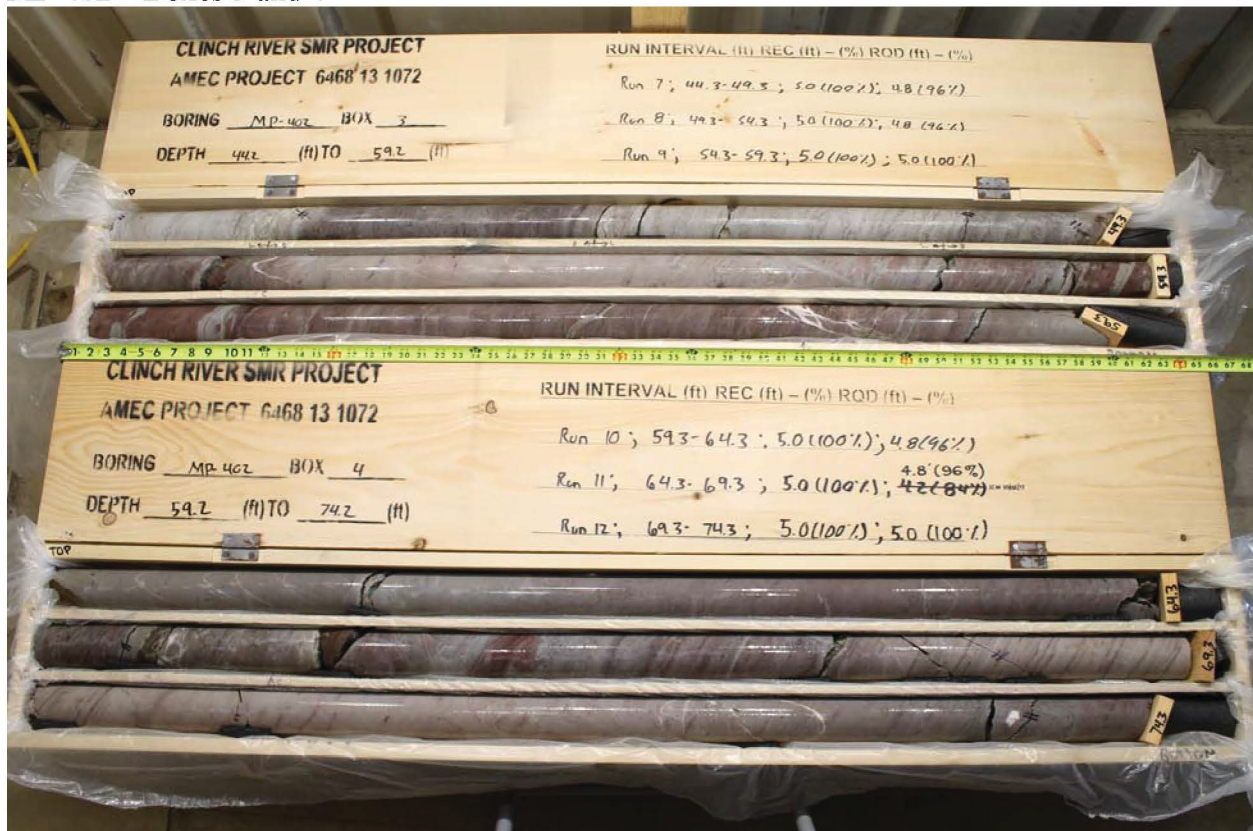


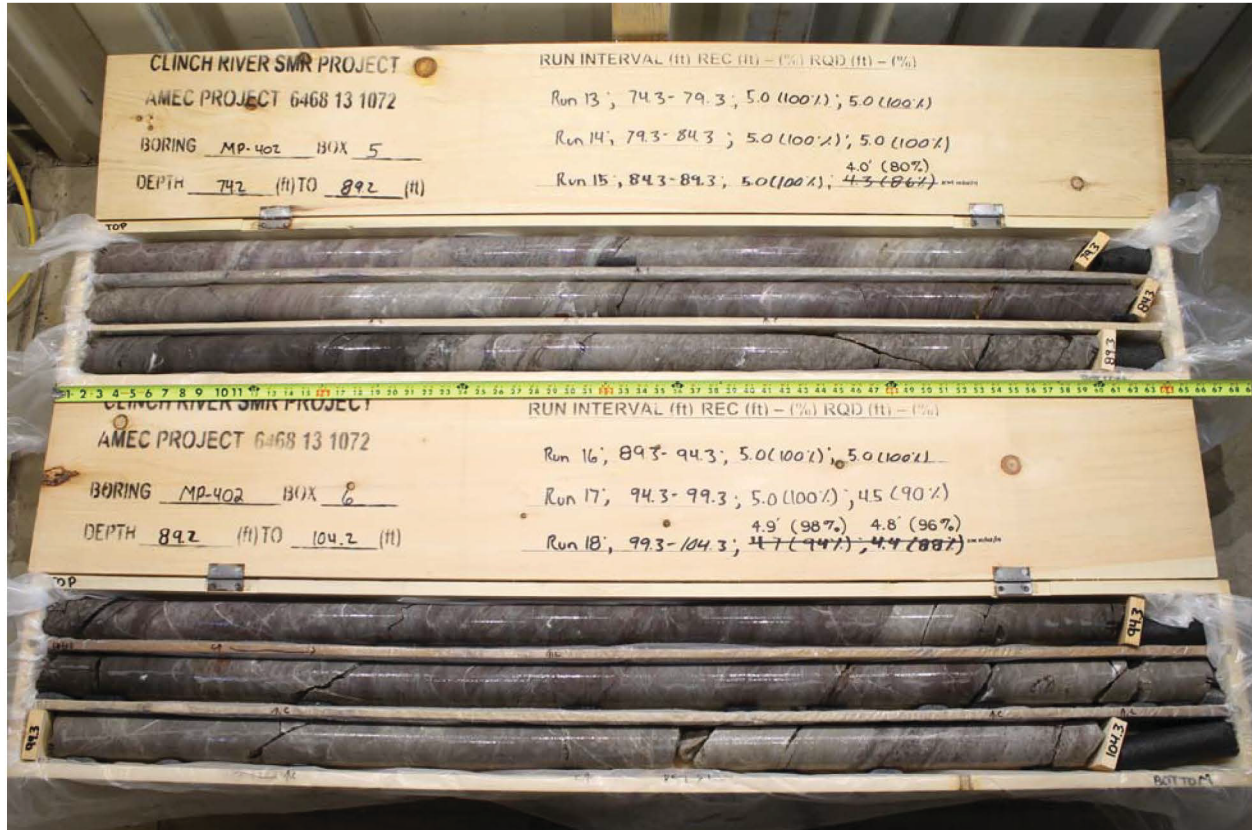
MP-402 – Boxes 1 and 2



MP-402 – Boxes 3 and 4



MP-402 – Boxes 5 and 6



MP-402 – Boxes 7 and 8



MP-402 – Boxes 9 and 10



MP-402 – Boxes 11 and 12



MP-402 – Box 13





GEOTECHNICAL BORING LOG

Prepared By: MBL Date: 3/5/14Checked By: JCM Date: 3/5/14

SHEET 1 OF 1

BECHTEL NO.: 25847		AMEC PROJECT NO.: 6468-13-1072		COUNTY: Roane, TN		GEOLOGIST: J. Terry				
SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee				DRILLER: G. Akins/K. Amburn		Boring Orientation				
BORING NO.: MP-403		DRILL METHOD: Mud Rotary/Core		DRILL MACHINE: D-120 (MW-2)		Inclination: Vertical				
GROUND ELEV.: 836.2 ft (NAVD88)		NORTHING: 571,646 US ft (NAD83)		EASTING: 2,447,608 US ft (NAD83)		Azimuth: NA				
TOTAL DEPTH: 199.2 ft		SAMPLE METHODS: ASTM D 1586-11; 2488-09a; 2113-08; 6032-08		ROD TYPE: AWJ		HAMMER (ID): 140-lb Auto (R308)				
DATE STARTED: 7/30/13		COMPLETED: 8/3/13		HOLE DIA.: 4"		CASING DEPTH: 12.5 ft				
CORE SIZE: HQ3		BITS USED: 3" Roller Cone								
ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5ft 0.5ft 0.5ft			BLOWS PER FOOT 0 20 40 60 80 100			SAMP. NO.	L O G	SOIL DESCRIPTION AND REMARKS
836.2					Ground Surface					836.2 0.0
836.2	0.0	9	9	20	● 29			SS-1		FILL: Sandy LEAN CLAY (CL), brown (7.5YR 4/4) to gray (7.5YR 6/1), very stiff, dry, non-plastic to low plasticity fines, some fine to medium sand, trace to few fine to coarse gravel, strong HCl reaction
833.7	2.5	50/0.3			50/0.3			SS-2		834.2 2.0
831.2	5.0	50/0.2			50/0.2			SS-3		WEATHERED ROCK: LIMESTONE, sampled as SILTY SAND (SM), gray (10YR 6/1), very dense, moist, fine to coarse sand, little low plasticity fines, trace to few fine to coarse gravel, strong HCl reaction
828.6	7.6	50/0.1			50/0.1			SS-4		5.0ft: As above, sampled as SILTY GRAVEL (GM), dark gray (10YR 4/1), very dense, moist, fine to coarse gravel, little to some non-plastic to low plasticity fines, strong HCl reaction
										7.6ft: As above, No recovery; advance casing to 9.0 feet and begin rock coring
										827.2 9.0
										Soil drilling halted. Log continues on geotechnical coring log
										Observed water levels:
										19.0 ft bgs, AM 7/31/13
										29.4 ft bgs, AM 8/1/13
										25.2 ft bgs, AM 8/2/13
										26.6 ft bgs, AM 8/3/13

CLINCH RIVER SMR BORE FINAL CLINCH FINAL LOGS.GPJ CLINCH BORING DATA TEMPLATE.GDT 3/5/14



GEOTECHNICAL CORING LOG

Prepared By: MBL Date: 3/5/14Checked By: JCM Date: 3/5/14

SHEET 1 OF 4

BECHTEL PROJECT NO.: 25847				AMEC PROJECT NO.: 6468-13-1072				COUNTY: Roane, TN		GEOLOGIST: J. Terry				
SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee								DRILLER: G. Akins/K. Amburn			Boring Orientation			
BORING NO.: MP-403				DRILL METHOD: Mud Rotary/Core				DRILL MACHINE: D-120 (MW-2)			Inclination: Vertical			
GROUND ELEV.: 836.2 ft (NAVD88)				NORTHING: 571,646 US ft (NAD83)				EASTING: 2,447,608 US ft (NAD83)			Azimuth: NA			
TOTAL DEPTH: 199.2 ft			SAMPLE METHODS: ASTM D 1586-11; 2488-09a; 2113-08; 6032-08						HAMMER (ID): 140-lb Auto (R308)					
DATE STARTED: 7/30/13			COMPLETED: 8/3/13		CASING DEPTH: 12.5 ft		CORE BARREL TYPE: HQ3/Diamond Impregnated core bits							
ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %		RQD (ft) %	SAMP. NO.	L O G	ROCK DESCRIPTION AND REMARKS					
									Begin Coring @ 9.0 ft					
827.2	9.0	1.7	2:01	(1.7)	(0.6)	Run 1		827.2	LIMESTONE (MICRITE), gray (10YR 5/1), weak to medium strong, laminated to thickly bedded, slightly weathered to fresh, argillaceous, interbedded with little to some, laminated Calcareous SILTSTONE, dark gray (10Y 4/1), planar to wispy/diffuse bedding, and few to little, very thin to moderate chert beds and nodules (jasperoidal, dark reddish brown to dark reddish gray, with calcite filled tensional fractures orthogonal to bedding); becoming fenestral with trace calcite filled pits and sparry calcite "bird eyes", strong HCl reaction (Lower Blackford Formation-Unit A) 9.1,9.8ft: BJ, 30°, PR, T-PO, B, II 10.8,10.9,11.2,11.5,11.6,11.9,12.0,12.3,12.5,12.8,13.0,13.1ft: BJ, 30°, PS, T-PO, B, II-III 14.4,14.5,15.2,15.9,16.3,16.7,17.5,17.8,18.7,18.9ft: BJ, 30°, SR-PR, T-PO, B-D, II-III 18.0ft: J, 0-20°, SR, VT-T, B, II 18.6ft: J, 55°, PR, T, D, III 19.2ft: BJ, 30°, PS, T, B, III 19.4,19.6ft: J, 20-30°, PL-PR, T-PO, B, III 19.7ft: J, 50°, SR, PO, B, III 20.0ft: J, 10°, PR, PO, B, II					9.0
825.5	10.7	3.5	3:38/0.7	100%	35%									
			2:23/0.3	(2.9)	(0.3)	Run 2								
			4:26	83%	9%									
822.0	14.2	5.0	3:57											
			6:00/1.2											
			4:08	(5.0)	(4.0)	Run 3								
			2:12	100%	80%									
			1:57											
817.0	19.2	5.0	2:14											
			2:53											
			3:09	(5.0)	(4.2)	Run 4		815.7	LIMESTONE (MICRITE), gray (5Y 6/1, 10YR 5/1) to dark gray (10Y 4/1) and very dark gray (5Y 3/1), weak to medium strong, laminated to very thinly bedded into moderate to thick, fining upward repeating beds, fresh, argillaceous, with few to little, laminated clayey Calcareous SILTSTONE, wispy/wavy and diffuse bedding, and trace chert nodules; fenestral with calcite filled pits and sparry calcite "bird eyes", locally nodular/disturbed with possible soft sediment deformation, strong HCl reaction					20.5
			3:15	100%	84%									
			1:41											
812.0	24.2	5.0	2:38			L7-14								
			2:05	(5.0)	(4.8)	Run 5			20.6,21.3,21.6,22.1ft: BJ, 30-35°, PR, T, B, II 25.5,25.6,25.7ft: BJ, 30°, PR, PO-O, B, II-III 26.4ft: J, 50°, PR, T, B, II					
			2:28	100%	96%									
			2:10											
807.0	29.2	5.0	2:09											
			2:28											
			2:03	(5.0)	(3.7)	Run 6			29.4ft: J, 55°, PR, PO, B, III 30.6,30.9ft: BJ, 30°, PR, T-PO, B, II-III 31.2,31.5ft: J, 40°, PR, T-PO, B, II-III 32.6,33.5ft: J, 50-65°, PR, T-PO, B, II					
			1:53	100%	74%									
			2:39											
802.0	34.2	5.0	2:30											
			2:39											
			2:42	(5.0)	(5.0)	Run 7								
			2:17	100%	100%									
			2:55											
797.0	39.2	5.0	1:37					799.2	LIMESTONE (MICRITE), olive gray (5Y 5/2) to grayish olive (10Y 5/2), and dark bluish gray (5PB 4/1), strong to very strong, very thinly to moderately bedded, fresh, amorphous, slightly dolomitic, with trace angular chert fragments; fenestral with calcite filled pits and sparry calcite "bird eyes", strong HCl reaction					37.0
			2:23											
			5:06	(5.0)	(4.7)	Run 8			38.8ft: J, 50°, PR, T-PO, B, II					
			2:26	100%	94%									
			2:06					794.6	DOLOMITIC LIMESTONE (MICRITE), grayish olive (10Y 5/2), dark gray to very dark gray (N 4-N 3/), dark bluish gray (5PB 4/1), and dark greenish gray (10GY 4/1), strong to very strong, thinly to moderately and thickly bedded, amorphous, fresh, with trace to few angular chert fragments and dolomite clasts through-out; few stylolites, trace calcite filled pits, weak HCl reaction					41.6
792.0	44.2	5.0	1:56											
			2:16											
			1:46	(5.0)	(4.9)	Run 9			42.5ft: J, 45°, UR, PO, D-E, III 45.1ft: BJ, 35°, UR, PO-O, C, III 47.7-48.6ft: J, 80-90°, UR, PO-O, C-D, III					
			1:47	100%	98%									
			2:46											
787.0	49.2	5.0	1:57											
			3:43											
			2:21	(4.9)	(4.7)	Run 10			49.7ft: BJ, 40°, PR, PO, D, II 50.2ft: BJ, 40°, PS, PO, D, II-III 53.3ft: BJ, 40°, US, PO, D, II Core loss of 0.1' from end of core Run 10 49.7-50.2ft: As above with CALCAREOUS SILTSTONE, dark greenish gray (5G 4/1), weak, laminated, slightly weathered					
			2:40	98%	94%									
			1:47											
782.0	54.2	5.0	1:28											
			1:49											
			2:17	(5.0)	(4.8)	Run 11			55.9-56.5ft: CHERT and silicified CRYSTALLINE DOLOMITE, grayish brown (2.5Y 5/2), fragmental, with secondary dolomite mineralization/recrystalline in DOLOMITIC LIMESTONE (MICRITE), dark greenish gray (10GY 4/1), matrix (as above)					56.5
			2:22	100%	96%									
			3:40					779.7	54.7,56.2ft: BJ, 40-45°, UR/SR, PO, D, II					

CLINCH RIVER SMR CORE FINAL CLINCH FINAL LOGS.GPJ CLINCH BORING DATA TEMPLATE.GDT 3/5/14

BECHTEL PROJECT NO.: 25847				AMEC PROJECT NO.: 6468-13-1072				COUNTY: Roane, TN		GEOLOGIST: J. Terry	
SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee								DRILLER: G. Akins/K. Amburn		Boring Orientation	
BORING NO.: MP-403				DRILL METHOD: Mud Rotary/Core				DRILL MACHINE: D-120 (MW-2)		Inclination: Vertical	
GROUND ELEV.: 836.2 ft		(NAVD88)		NORTHING: 571,646		US ft (NAD83)		EASTING: 2,447,608		US ft (NAD83)	
TOTAL DEPTH: 199.2 ft		SAMPLE METHODS: ASTM D 1586-11; 2488-09a; 2113-08; 6032-08						HAMMER (ID): 140-lb Auto (R308)			
DATE STARTED: 7/30/13		COMPLETED: 8/3/13		CASING DEPTH: 12.5 ft		CORE BARREL TYPE: HQ3/Diamond Impregnated core bits					
ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %		RQD (ft) %	SAMP. NO.	L O G	ROCK DESCRIPTION AND REMARKS		
									Continued from previous page		
777.0	59.2	5.0	3:21 3:57				Run 12		CRYSTALLINE DOLOMITE, fine grained, dark gray (2.5Y 4/1) to gray (2.5Y 6/1-5/1), locally with reddish brown (2.5YR 4/3) mottling, and trace grayish green (5G 5/2), strong, moderately to thickly bedded, fresh, stylolitic; healed fractures through-out with dolomite/calcite, weak/delayed to no HCl reaction (Knox Group-Newala Formation)		
			4:48	(5.0) 100%	(5.0) 100%				(continued)		
			3:47						56.8ft: BJ, 25°, UL, PO, B, II		
			3:19						58.2ft: BJ, 50°, UR, PO-O, C, II		
			3:11						59.7,59.9,60.3,60.5ft: J, 55-60°, PS, VT, A-E, I, with calcite		
772.0	64.2	5.0	2:56	(5.0) 100%	(4.9) 98%	Run 13			60.7ft: BJ, 30°, SR, T-PO, C, II		
			2:52						61.5ft: BJ, 40°, SR, PO, D-E, II, stylolite		
			3:22						62.0ft: J, 60°, PR, PO, D, III		
			3:02						67.7ft: BJ, 30°, SR, T-PO, C, II		
			3:42						68.3ft: BJ, 20-25° SR, B, II		
767.0	69.2	5.0	3:12	(4.9) 98%	(4.4) 88%	Run 14			68.4ft: BJ, 30°, PR, T-PO, B, III		
			3:06			L7-15			CRYSTALLINE DOLOMITE, fine grained, gray (5YR 5/1, 2.5Y 6/1) and gray to very dark gray (10YR 5/1-4/1-3/1) to dark reddish gray (2.5YR 4/1) and gray to very dark gray (7.5YR 5/1-3/1), locally with dusky red (10R 3/3) to weak red (10R 4/2) mottling, strong, thin to moderately bedded, fresh, stylolitic; healed fractures with dolomite/calcite through-out, locally slightly silicified, trace calcite and dolomite filled pits and vugs (separate/non-touching, few open), weak/delayed to no HCl reaction		
			3:21								
			3:50								
762.0	74.2	5.0	4:04	(5.0) 100%	(4.5) 90%	Run 15			71.1,71.9,73.0ft: BJ, 35°, PR, T-PO, B, II		
			2:35						71.8ft: J, 35°, PS, T-PO, B, II		
			2:58						73.1ft: J, 55°, PS, T-PO, B, II		
			4:02						73.3-73.4ft: Core loss of 0.1', mechanically reduced to rubble		
			4:17						76.6,76.9,77.1ft: J, 30°, PR-SR, T-PO, B, II		
757.0	79.2	5.0	2:45	(5.0) 100%	(4.5) 90%	Run 16			77.7,78.0,78.8ft: BJ, 30°, PR, T-PO, B, II		
			2:09						79.8,79.9ft: BJ, 25°, PR, T-PO, D, II		
			2:27						81.0ft: J, 50°, PR, T-PO, C, II, with calcite		
			2:56						82.2ft: BJ, 25°, SR, T, B, II		
			3:19						82.7ft: J, 50°, PR, T, B, II		
752.0	84.2	5.0	3:37	(5.0) 100%	(5.0) 100%	Run 17			82.9-83.1ft: As above, with dark reddish brown (2.5YR 2.5/3), indurated clayey-silty mineralization/fracture filling		
			2:51						84.6ft: BJ, 15°, UR, PO, C, II		
			3:17						86.2ft: BJ, 30°, UR, T-PO, C, II		
			2:55						87.8ft: BJ, 45°, SR, PO, D, II		
			5:11								
747.0	89.2	5.0	3:45	(5.0) 100%	(5.0) 100%	Run 18			CHERT CEMENTED SANDSTONE, dolomitic, mostly fine to coarse grained rounded quartz sand and chert nodules, very strong, moderately bedded, fresh; no HCl reaction		
			3:25						CRYSTALLINE DOLOMITE, fine grained, gray (2.5Y 5/1) to dark gray and very dark gray (10YR 4/1-3/1) and gray (10YR 5/1), with trace greenish gray (10GY 5/1), strong, very thinly to thinly bedded, fresh, stylolitic; few healed fractures with dolomite/calcite, trace to few calcite and dolomite filled pits, weak/delayed to no HCl reaction		
			3:28						89.2,90.0ft: BJ, 30°, SR, T-PO, C, II		
			3:17						95.0-95.2ft: SZ, 15-20°, SR, T-PO, D, II		
			2:58						95.5-95.6ft: SZ, 45°, US, VT, A, I		
742.0	94.2	5.0	3:32	(5.0) 100%	(4.5) 90%	Run 19			96.0ft: J, 40-45°, PS, T-PO, C, II		
			3:05								
			2:08								
			2:14								
737.0	99.2	5.0	5:58	(5.0) 100%	(4.5) 90%	Run 20			CRYSTALLINE DOLOMITE, fine to medium grained, gray to very dark gray (10YR 6/1-3/1, 2.5Y 5/1-4/1), light brownish gray to dark grayish brown (2.5Y 6/2-4/2), locally with trace dusky red (10R 3/3) to dark reddish gray (2.5YR 4/1-3/1) mottling, and weak red (2.5YR 4/2) to gray (7.5YR 5/1), strong to very strong, laminated to thickly bedded, fresh, stylolitic, locally with trace scattered quartz sand grains and coarse dolomite crystals along bedding; few healed fractures with dolomite/calcite, locally slightly silicified, trace to few calcite and dolomite filled pits and vugs (separate/non-touching, few open), weak/delayed to no HCl reaction		
			2:30						97.9-98.1ft: BJ, 10-20°, SR-SL, PO, C, II		
			4:20						98.5ft: BJ/J, 45°, T-PO, B, II		
			3:43						98.6ft: BJ, 30-35°, SR, T-PO, D-E, II		
			5:25						100.9-101.2ft: As above, with dark reddish brown (2.5YR 2.5/3) and greenish gray (5G 5/2), indurated clayey-silty mineralization/fracture filling		
732.0	104.2	5.0	4:09	(5.0) 100%	(4.6) 92%	Run 21			100.4ft: BJ, 45°, SL, T, D, II		
			3:53						100.5,100.8ft: J, 0-20°, SR, T-PO, B, II		

CLINCH RIVER SMR CORE FINAL CLINCH FINAL LOGS.GPJ CLINCH BORING DATA TEMPLATE.GDT 3/5/14



BECHTEL PROJECT NO.: 25847			AMEC PROJECT NO.: 6468-13-1072			COUNTY: Roane, TN		GEOLOGIST: J. Terry	
SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee						DRILLER: G. Akins/K. Amburn		Boring Orientation	
BORING NO.: MP-403			DRILL METHOD: Mud Rotary/Core			DRILL MACHINE: D-120 (MW-2)		Inclination: Vertical	
GROUND ELEV.: 836.2 ft		(NAVD88)	NORTHING: 571,646		US ft (NAD83)	EASTING: 2,447,608		US ft (NAD83)	Azimuth: NA
TOTAL DEPTH: 199.2 ft		SAMPLE METHODS: ASTM D 1586-11; 2488-09a; 2113-08; 6032-08					HAMMER (ID): 140-lb Auto (R308)		
DATE STARTED: 7/30/13		COMPLETED: 8/3/13		CASING DEPTH: 12.5 ft		CORE BARREL TYPE: HQ3/Diamond Impregnated core bits			
ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	REC. (ft) %	RQD (ft) %	SAMP. NO.	L O G	ROCK DESCRIPTION AND REMARKS	
								Continued from previous page	
727.0	109.2	5.0	4:23 3:32 3:52			Run 22		CRYSTALLINE DOLOMITE, fine to medium grained, gray to very dark gray (10YR 6/1-3/1, 2.5Y 5/1-4/1), light brownish gray to dark grayish brown (2.5Y 6/2-4/2), locally with trace dusky red (10R 3/3) to dark reddish gray (2.5YR 4/1-3/1) mottling, and weak red (2.5YR 4/2) to gray (7.5YR 5/1), strong to very strong, laminated to thickly bedded, fresh, stylolitic, locally with trace scattered quartz sand grains and coarse dolomite crystals along bedding; few healed fractures with dolomite/calcite, locally slightly silicified, trace to few calcite and dolomite filled pits and vugs (separate/non-touching, few open), weak/delayed to no HCl reaction (continued)	
722.0	114.2	5.0	3:47 3:55 3:38 5:52 3:42	(5.0) 100%	(4.4) 88%	Run 23 L7-16		101.2ft: BJ, 40°, SR, T-PO, C, II 101.8ft: J, 45°, PR, T, B, II 102.1ft: J, 60°, SR, PO, B, II 103.4ft: J, 60°, SR, T, B, II 106.1-106.2ft: BJ, 30°, SR, PO, C, II, mechanically broken 107.5, 107.9ft: BJ, 30°, SR, T-PO, D, II 109.4, 110.2ft: BJ, 30°, PS-SL, T-PO, C, II 110.6, 111.8, 112.3, 112.4, 112.5ft: BJ, 30-35°, UR-UL, T-PO, C, II 113.0ft: BJ, 45°, PL, T, C, II 113.4ft: J, 55°, UR, T, B, II 113.5ft: BJ, 35°, SR, T-PO, B, II 113.6ft: BJ, 30°, PR-UR, T, B, II 115.5ft: BJ, 35°, SR, T-PO, D, II 117.1, 118.1ft: J, 45°, US, T-PO, D-E, II 115.4-115.5ft: As above, with dark reddish brown (2.5YR 2.5/3), indurated clayey-silty mineralization/fracture filling 122.6ft: BJ, 35-40°, SR, T-PO, D-E, II	
717.0	119.2	5.0	3:42 4:01 3:21 2:24 2:19	(5.0) 100%	(4.9) 98%	Run 24			
712.0	124.2	5.0	1:50 2:02 2:15 2:27 2:59	(5.0) 100%	(4.6) 92%	Run 25		126.3, 127.9ft: BJ, 30°, PR, T, B, II	
707.0	129.2	5.0	2:01 1:49 2:02 2:11 3:16	(5.0) 100%	(5.0) 100%	Run 26			
702.0	134.2	5.0	1:58 2:42 2:01 1:39 1:46	(5.0) 100%	(4.7) 94%	Run 27		130.1ft: BJ, 25°, SR-SL, T-PO, D-E, II 131.4, 131.9ft: BJ, 35°, SR-SL, T-PO, D-E, II 134.0ft: BJ, 35°, SR, T-PO, D-E, II	
697.0	139.2	5.0	1:57 1:41 1:49 3:13 2:40	(5.0) 100%	(4.5) 90%	Run 28		CRYSTALLINE DOLOMITE, fine grained, reddish gray (2.5YR 6/1-5/1), dusky red (2.5YR 3/2, 10R 3/3), weak red (10R 5/2-4/2), and reddish gray (10R 6/1-5/1), with gray (10YR 6/1), mottled, strong, laminated to moderately bedded, fresh, with little, very thin to laminated dolomitic quartz sand lenses and scattered grains; few healed fractures with dolomite/calcite, trace calcite and dolomite filled pits, trace stylolites, weak/delayed to no HCl reaction	
692.0	144.2	5.0	2:44 2:33 2:29 2:32 3:37	(5.0) 100%	(5.0) 100%	Run 29		135.4, 136.7ft: BJ, 35°, PR, T-PO, B, II 136.6ft: J, 55°, PR, T, B, II 138.8ft: J, 60°, SR, T, B, II 143.4ft: SH, 45°, US, T, K, II	
687.0	149.2	5.0	3:13 2:57 2:34 3:23 3:06	(4.9) 98%	(4.8) 96%	Run 30		144.6, 145.4, 145.7, 146.9, 147.8ft: BJ, 20-30°, UR-SR, T-PO, G, II 147.8-147.9ft: core loss of 0.1', mechanical	
682.0	154.2	5.0	2:07 2:03 2:44 2:58 2:49	(4.9) 98%	(4.7) 94%	Run 31		147.8-148.2ft: CHERT, moderately bedded, black to brown (7.5YR 2.5/1-5/3), trace to few dolomite crystals and fine sand sized quartz grains in chert matrix; calcite filled fractures, weak to no HCl reaction 151.3ft: BJ, 30°, SR-SS, PO-O, C, II 153.0-153.1ft: J, 20-35°, SR-SS, D-E, II; 0.1' Core loss	
		5.0	2:12	(5.0)	(4.9)	Run 31		155.5ft: J, 50°. PS, T, B, II	

CLINCH RIVER SMR CORE FINAL CLINCH BORING DATA TEMPLATE.GDT 3/5/14



BECHTEL PROJECT NO.: 25847				AMEC PROJECT NO.: 6468-13-1072				COUNTY: Roane, TN		GEOLOGIST: J. Terry			
SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee								DRILLER: G. Akins/K. Amburn		Boring Orientation			
BORING NO.: MP-403				DRILL METHOD: Mud Rotary/Core				DRILL MACHINE: D-120 (MW-2)		Inclination: Vertical			
GROUND ELEV.: 836.2 ft		(NAVD88)		NORTHING: 571,646		US ft (NAD83)		EASTING: 2,447,608		US ft (NAD83)			
TOTAL DEPTH: 199.2 ft		SAMPLE METHODS: ASTM D 1586-11; 2488-09a; 2113-08; 6032-08						HAMMER (ID): 140-lb Auto (R308)					
DATE STARTED: 7/30/13		COMPLETED: 8/3/13		CASING DEPTH: 12.5 ft		CORE BARREL TYPE: HQ3/Diamond Impregnated core bits							
ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %		ROD (ft) %	SAMP. NO.	L O G	ROCK DESCRIPTION AND REMARKS				
									Continued from previous page				
677.0	159.2	5.0	2:10 2:31 2:12 2:39	100%	98%								
			1:45 1:47 2:23 3:28 4:13	(5.0) 100%	(4.3) 86%	Run 32			CRYSTALLINE DOLOMITE, fine grained, reddish gray (2.5YR 6/1-5/1), dusky red (2.5YR 3/2, 10R 3/3), weak red (10R 5/2-4/2), and reddish gray (10R 6/1-5/1), with gray (10YR 6/1), mottled, strong, laminated to moderately bedded, fresh, with little, very thin to laminated dolomitic quartz sand lenses and scattered grains; few healed fractures with dolomite/calcite, trace calcite and dolomite filled pits, trace stylolites, weak/delayed to no HCl reaction (continued)				
672.0	164.2	5.0	2:36 2:01 2:08 2:25 2:48	(5.0) 100%	(4.9) 98%	Run 33			156.1ft: BJ, 40°, UR, PO, C, II 157.5ft: J, 60°, SR, T, C, II 158.3ft: BJ, 25°, SR, T-PO, D, II 161.3ft: BJ, 50°, US, T-PO, G, II 161.9ft: BJ, 35°, SR, PO, D, II 162.1ft: J, 65°, PS, T, C, II 162.6ft: J, 75°, SS, VT-T, B, II 163.6ft: J, 55°, SS, VT-T, B, II 163.9ft: BJ, 30°, PR, T, C, II 166.5ft: BJ, 35°, UR-US, T-PO, G, II 167.9ft: BJ, 30°, PS, T-PO, G, II				
667.0	169.2	5.0	2:17 2:07 2:20 2:24 2:52	(5.0) 100%	(4.9) 98%	Run 34			CRYSTALLINE DOLOMITE, fine grained, dark reddish gray (10R 4/1-3/1) to reddish gray (10R 5/1), dusky red (10R 2.5/2-3/2) and gray (5YR 5/1, 10YR 6/1), locally mottled, strong, laminated to thinly bedded, fresh, locally with scattered quartz sand grains and few very thin to thin, dolomite cemented quartz sand lenses; few healed fractures with dolomite/calcite through-out, trace to few calcite and dolomite filled pits and vugs (separate/non-touching), weak/delayed to no HCl reaction				
662.0	174.2	5.0	2:12 2:21 2:54 3:18 3:35	(5.0) 100%	(5.0) 100%	Run 35			169.6ft: J, 60°, SR, T, D, II, partially healed 170.2ft: BJ, 35°, SS-SL, T, D, II 170.8ft: J, 30°, SR-SL, T-PO, D, II 173.5, 173.6ft: BJ, 30°, PR, T-PO, K, II 177.3ft: J, 55°, PR, T, B, II				
657.0	179.2	5.0	3:10 3:26 3:51 2:59 2:52	(5.0) 100%	(5.0) 100%	Run 36			176.3-176.4ft: As above with irregular white chert and quartz, silicified				
652.0	184.2	5.0	2:19 2:50 2:47 2:19 2:39	(5.0) 100%	(4.8) 96%	Run 37			CRYSTALLINE DOLOMITE, fine grained, gray (2.5Y 4/1) with dark grayish olive (10Y 4/2), very dark gray (N 3/), and very dark grayish brown (2.5Y 3/2), to light brownish gray to gray (10YR 6/2-5/1), with trace dusky red (10R 3/3) and weak red (10R 4/2) with reddish gray (10R 5/1), locally mottled, strong, very thinly to moderately bedded, fresh, locally with scattered quartz sand grains; few healed fractures with dolomite/calcite, trace to few calcite and dolomite filled pits, trace stylolites, weak/delayed to no HCl reaction				
647.0	189.2	5.0	2:10 1:53 2:04 1:53 2:10	(5.0) 100%	(5.0) 100%	Run 38			181.1ft: BJ, 25°, UR, PO, D, II 182.5ft: BJ, 35°, PR, T-PO, C, II 182.9-184.3ft: SZ/FZ, multiple angles and tightly healed 185.0ft: BJ, 35-40°, UR-UL, T-PO, G, II 185.1ft: BJ, 30°, UR, VT, G, I, with clay 186.8ft: J, 60°, PR, T, B, II 187.9ft: BJ, 35°, SR, T-PO, D, II 188.6ft: J, 0°, UR, PO-O, D-E, II 188.7ft: J, 60°, PR, VT, C, I, with calcite and clay 191.5, 192.5ft: BJ, 35°, PR, T-D, II 192.9ft: J, 50°, SR, T, B, II				
642.0	194.2	5.0	3:41 3:48 2:35 2:08 2:14	(5.0) 100%	(5.0) 100%	Run 39			CRYSTALLINE DOLOMITE, fine grained, dark gray to gray (7.5YR 4/1-5/1) mottled with weak red (10R 4/2), strong, thinly to moderately bedded, fresh, stylolitic; trace calcite and dolomite filled pits, weak/delayed to no HCl reaction				
637.0	199.2								196.8ft: BJ, 30°, UR-SL, VT-T, A-B, II				
									Boring and coring terminated at 199.2 feet.				

CLINCH RIVER SMR CORE FINAL CLINCH FINAL LOGS.GPJ CLINCH BORING DATA TEMPLATE.GDT 3/5/14