

MP-415 – Boxes 13 and 14



MP-415 – Boxes 15 and 16



MP-415 – Boxes 17 and 18



MP-415 – Boxes 19 and 20



MP-415 – Box 21





GEOTECHNICAL BORING LOG

Prepared By: MBL Date: 3/5/14

Checked By: JCM Date: 3/5/14

SHEET 1 OF 2

BECHTEL NO.: 25847		AMEC PROJECT NO.: 6468-13-1072			COUNTY: Roane, TN		GEOLOGIST: J. Howard											
SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee					DRILLER: A. Martin/D. Rhodes			Boring Orientation										
BORING NO.: MP-416		DRILL METHOD: Mud Rotary/Core			DRILL MACHINE: CME-55 (C)			Inclination: Vertical										
GROUND ELEV.: 809.6 ft (NAVD88)		NORTHING: 569,978		US ft (NAD83)		EASTING: 2,447,520		US ft (NAD83)										
Azimuth: NA		TOTAL DEPTH: 321.7 ft		SAMPLE METHODS: ASTM D 1586-11; 2488-09a; 2113-08; 6032-08			ROD TYPE: AWJ	HAMMER (ID): 140-lb Auto (163745)										
DATE STARTED: 6/6/13		COMPLETED: 6/23/13	HOLE DIA.: 4"	CASING DEPTH: 65.8 ft		CORE SIZE: HQ3	BITS USED: 4" Roller Cone											
ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL DESCRIPTION AND REMARKS						
		0.5ft	0.5ft	0.5ft	0	20	40	60	80				100					
809.6					Ground Surface													
809.6	0.0	6	17	27									809.6	0.0				
805.9	3.7	9	14	15														
803.5	6.1	7	10	16														
801.4	8.2	25	53	19														
798.8	10.8	10	8	18														
796.3	13.3	8	9	9														
793.8	15.8	8	9	15														
791.4	18.2	21	30	32														
786.5	23.1	10	15	22														
781.6	28.0	7	9	8														
776.4	33.2	10	12	10														
771.4	38.2	14	20	19														
766.4	43.2	12	56	44/0.3														
761.5	48.1																	

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



BECHTEL NO.: 25847		AMEC PROJECT NO.: 6468-13-1072			COUNTY: Roane, TN		GEOLOGIST: J. Howard							
SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee					DRILLER: A. Martin/D. Rhodes		Boring Orientation							
BORING NO.: MP-416		DRILL METHOD: Mud Rotary/Core			DRILL MACHINE: CME-55 (C)		Inclination: Vertical							
GROUND ELEV.: 809.6 ft (NAVD88)		NORTHING: 569,978		US ft (NAD83)		EASTING: 2,447,520		US ft (NAD83)						
Azimuth: NA		TOTAL DEPTH: 321.7 ft		SAMPLE METHODS: ASTM D 1586-11; 2488-09a; 2113-08; 6032-08		ROD TYPE: AWJ	HAMMER (ID): 140-lb Auto (163745)							
DATE STARTED: 6/6/13		COMPLETED: 6/23/13	HOLE DIA.: 4"	CASING DEPTH: 65.8 ft		CORE SIZE: HQ3	BITS USED: 4" Roller Cone							
ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL DESCRIPTION AND REMARKS		
		0.5ft	0.5ft	0.5ft	0	20	40	60	80				100	
761.0					Continued from previous page									
756.5	53.1	9	10	13								23 21 12 30 50/0.3	758.6 51.0 (continued) SS-15 753.6 56.0 SS-16 748.6 61.0 SS-17 744.6 65.0 SS-18 743.8 65.8	FILL: SILTY SAND with gravel (SM), grayish brown (10YR 5/2), medium dense, moist, fine to coarse sand, some fine to coarse gravel sized limestone rock fragments, little non-plastic to low plasticity fines, strong HCl reaction RESIDUAL SOIL: Sandy SILT with gravel (ML), reddish yellow (7.5YR 6/6), very stiff, moist, low plasticity fines, little fine to medium sand, little fine to coarse gravel sized limestone rock fragments, weak HCl reaction RESIDUAL SOIL: FAT CLAY (CH), strong brown (7.5YR 5/6), stiff, moist, high plasticity fines, trace fine sand, no HCl reaction RESIDUAL SOIL: Sandy LEAN CLAY (CL), reddish yellow (7.5YR 6/6), very stiff, moist, moderately plastic fines, little fine to coarse sand, few fine gravel sized limestone rock fragments, no to strong HCl reaction WEATHERED ROCK: LIMESTONE, sampled as SILTY SAND (SM), gray (5YR 5/1), very dense, moist, fine to coarse sand, little low plasticity fines, strong HCl reaction Soil drilling halted. Log continues on geotechnical coring log
												Observed water levels: 10.0 ft bgs, AM 6/7/13 4.6 ft bgs, AM 6/8/13 20.3 ft bgs, AM 6/9/13 Dry, AM 6/10/13 67.7 ft bgs, AM 6/11/13 67.9 ft bgs, AM 6/12/13 67.7 ft bgs, AM 6/13/13 67.9 ft bgs, AM 6/18/13 67.8 ft bgs, AM 6/19/13 67.7 ft bgs, AM 6/23/13		

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



GEOTECHNICAL CORING LOG

Prepared By: MBL Date: 3/5/14

Checked By: JCM Date: 3/5/14

SHEET 1 OF 6

BECHTEL PROJECT NO.: 25847		AMEC PROJECT NO.: 6468-13-1072		COUNTY: Roane, TN		GEOLOGIST: J. Howard	
SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee				DRILLER: A. Martin/D. Rhodes		Boring Orientation	
BORING NO.: MP-416		DRILL METHOD: Mud Rotary/Core		DRILL MACHINE: CME-55 (C)		Inclination: Vertical	
GROUND ELEV.: 809.6 ft (NAVD88)		NORTHING: 569,978 US ft (NAD83)		EASTING: 2,447,520 US ft (NAD83)		Azimuth: NA	
TOTAL DEPTH: 321.7 ft		SAMPLE METHODS: ASTM D 1586-11; 2488-09a; 2113-08; 6032-08				HAMMER (ID): 140-lb Auto (163745)	
DATE STARTED: 6/6/13		COMPLETED: 6/23/13		CASING DEPTH: 65.8 ft		CORE BARREL TYPE: HQ3/Diamond Impregnated core bits	

ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	LOG	ROCK DESCRIPTION AND REMARKS
				REC. (ft) %	RQD (ft) %			
								Begin Coring @ 65.8 ft
743.8	65.8	0.7	4:15/0.7	(0.7)	(0.0)	Run 1		743.8 Limestone (micrite), dark greenish gray (10Y 4/1), medium strong, very thinly to moderately bedded, moderately to slightly weathered, with trace to few laminated, wispy and diffuse calcareous siltstone interbeds, very dark gray (5Y 3/1) to black (N 2.5) and trace very thinly bedded chert (dark gray to black); trace calcite filled pits, strong HCl reaction (Rockdell Formation-Unit D)
743.1	66.5	5.0	6:15	100%	0%	Run 2		742.0
			4:15	(1.1)	(0.4)			
			4:15	22%	8%			
			5:30					
			4:30					
738.1	71.5	5.0	5:00	(4.4)	(3.4)	Run 3		737.5 WEATHERED ROCK: LIMESTONE-No Recovery
			3:30	88%	68%			
			4:15					
			5:00					
			4:00					
733.1	76.5	5.0	2:30	(4.0)	(2.9)	Run 4		72.1
			3:45	80%	58%			
			4:15					
			3:00					
			3:45					
728.1	81.5	5.0	5:15	(5.0)	(3.5)	Run 5		
			3:00	100%	70%			
			2:45					
			3:15					
			3:45					
723.1	86.5	5.0	3:15	(5.0)	(4.1)	Run 6		
			3:00	100%	82%			
			3:15					
			3:30					
			3:30					
718.1	91.5	5.0	3:25	(5.0)	(4.9)	Run 7		
			3:30	100%	98%			
			3:30					
			3:30					
			3:45					
713.1	96.5	5.0	5:15	(5.0)	(3.0)	Run 8	713.1	
			6:45	100%	60%			
			5:30					
			4:45					
			6:00					
708.1	101.5	5.0	4:30	(5.0)	(4.0)	Run 9		
			5:00	100%	80%			
			4:30					
			5:30					
			5:45					
703.1	106.5	5.0	8:00	(5.0)	(3.9)	Run 10		
			8:15	100%	78%			
			8:15					
			9:15					
			7:15					
698.1	111.5	2.3	6:00	(1.6)	(0.5)	Run 11		
			6:15	70%	22%			
			9:45/0.3	(2.2)	(1.4)	Run 12		
695.8	113.8	2.7						

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. Howard	
SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee				DRILLER: A. Martin/D. Rhodes		Boring Orientation	
BORING NO.: MP-416		DRILL METHOD: Mud Rotary/Core		DRILL MACHINE: CME-55 (C)		Inclination: Vertical	
GROUND ELEV.: 809.6 ft (NAVD88)		NORTHING: 569,978 US ft (NAD83)		EASTING: 2,447,520 US ft (NAD83)		Azimuth: NA	
TOTAL DEPTH: 321.7 ft		SAMPLE METHODS: ASTM D 1586-11; 2488-09a; 2113-08; 6032-08				HAMMER (ID): 140-lb Auto (163745)	
DATE STARTED: 6/6/13		COMPLETED: 6/23/13		CASING DEPTH: 65.8 ft		CORE BARREL TYPE: HQ3/Diamond Impregnated core bits	

ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	LOG	ROCK DESCRIPTION AND REMARKS
				REC. (ft) %	RQD (ft) %			
Continued from previous page								
693.1	116.5		7:45/0.7 9:00 5:45	81%	52%			LIMESTONE (MICRITE), gray to dark gray (2.5Y 5/1-4/1), strong, very thinly to moderately bedded, fresh, interbedded with few to little, laminated to thin, locally diffuse, Calcareous SILTSTONE, very dark gray (2.5Y 3/1), and few to little very thin to moderate chert beds, lenses, and nodules (dark gray to black, with calcite filled tensional fractures orthogonal to bedding); trace stylolites and sparry calcite "bird eyes", trace calcite filled pits, strong HCl reaction (continued)
		5.0	5:15 5:30 3:45 4:00 3:30	(5.0) 100%	(3.6) 72%	Run 13		113.8-114.3ft: FZ, 0.5' Mechanical loss of core (new core bit) 114.6ft: J, 10° US, T-PO, C, III 114.8,115.0,115.5,115.9,116.9,117.1,117.4,117.7,118.0,118.4ft: SH, 30-40°, PL, T-PO, B-C, I-III
688.1	121.5		3:30 4:00 3:45 3:30 3:45	(5.0) 100%	(5.0) 100%	Run 14		118.6,119.6ft: J, 60-70°, UR, T, B, II-III 119.1ft: SH, 60°, PL, T, B, II 120.5ft: BJ, 40°, PR, O, F, IV 122.7,123.5,124.1,125.6ft: SH, 20-30°, PL, T, B-C, II-III
683.1	126.5		3:15 3:15 2:45 3:00 3:15	(5.0) 100%	(3.9) 78%	Run 15		127.7,128.5,129.0ft: SH, 30°, PL, T, B, II 129.5,129.6,129.8,130.3,130.6ft: SH, 30-35°, PL, T-PO, B-D, II-III 130.8-131.3ft: FZ, 40°, PR, O, F, IV
678.1	131.5		4:00 4:00 4:30 7:15 8:45	(5.0) 100%	(2.5) 50%	Run 16		131.5-138.0ft: As above, with few thin to moderately bedded Calcareous SILTSTONE and LIMESTONE (WACKESTONE) interbeds 131.7,132.4,132.5,132.8,134.2,134.6,134.9,135.1,135.2,135.3ft: SH, 40°, PL, T-PO, B-C, II-III 133.2ft: SH, 20°, PL, PO, C, III 135.7,136.1,136.3,136.4ft: BJ, 40°, PS/US-UR, T-PO, B-C, III-IV
673.1	136.5		7:15 6:00 4:15 4:00 4:45	(5.0) 100%	(4.6) 92%	Run 17 L3-67		136.5,136.6,136.8,136.9,137.0ft: BJ, 30°, UR-PR, T-PO, B-C, II-III
668.1	141.5		9:15 6:15 5:00 5:00 4:45	(4.9) 98%	(4.3) 86%	Run 18		CALCAREOUS SILTSTONE, greenish black (10Y 2.5/1), strong, laminated to very thin bedded, fresh, interbedded with trace to some, laminated to very thin LIMESTONE (MICRITE), dark gray (N 4/), and trace very thin chert beds, lenses, and nodules (dark gray to black); strong HCl reaction; Limestone interbeds increase with depth (Rockdell Formation-Unit C) 138.1,138.2ft: SH, 30°, PL, T, C, II 141.6,141.7,141.9,142.0ft: J, 20-30°, UR-PR, PO-O, B-C, II 143.3,144.4ft: BJ, 20-30°, PR, T, B-C, II
663.1	146.5		4:00 4:00 4:30 4:30 4:30	(5.0) 100%	(5.0) 100%	Run 19		
658.1	151.5		4:00 5:45 5:15 6:00 5:00 4:15	(5.0) 100%	(5.0) 100%	Run 20		LIMESTONE (MICRITE), dark gray (N 4/), strong, laminated to thinly bedded, irregular to locally nodular, fresh, interbedded with some laminated to very thin, locally diffuse Calcareous SILTSTONE, greenish black (10Y 2.5/1), and trace very thin chert lenses and nodules (black); trace pyrite along laminations, strong HCl reaction 153.9ft: BJ, 30°, PR, PO, B, II
653.1	156.5		4:45 4:00 4:30 6:00 5:30	(5.0) 100%	(5.0) 100%	Run 21		161.0ft: BJ, 30°, PS, PO, B, II
648.1	161.5		4:45 4:00	(5.0) 100%	(5.0) 100%	Run 22		

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. Howard	
SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee				DRILLER: A. Martin/D. Rhodes		Boring Orientation	
BORING NO.: MP-416		DRILL METHOD: Mud Rotary/Core		DRILL MACHINE: CME-55 (C)		Inclination: Vertical	
GROUND ELEV.: 809.6 ft (NAVD88)		NORTHING: 569,978 US ft (NAD83)		EASTING: 2,447,520 US ft (NAD83)		Azimuth: NA	
TOTAL DEPTH: 321.7 ft		SAMPLE METHODS: ASTM D 1586-11; 2488-09a; 2113-08; 6032-08				HAMMER (ID): 140-lb Auto (163745)	
DATE STARTED: 6/6/13		COMPLETED: 6/23/13		CASING DEPTH: 65.8 ft		CORE BARREL TYPE: HQ3/Diamond Impregnated core bits	

ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	LOG	ROCK DESCRIPTION AND REMARKS
				REC. (ft) %	RQD (ft) %			
								Continued from previous page
643.1	166.5	5.0	4:00 4:00 4:00	(5.0) 100%	(5.0) 100%	Run 23 L3-68		LIMESTONE (MICRITE), dark gray (N 4/), strong, laminated to thinly bedded, irregular to locally nodular, fresh, interbedded with some laminated to very thin, locally diffuse Calcareous SILTSTONE, greenish black (10Y 2.5/1), and trace very thin chert lenses and nodules (black); trace pyrite along laminations, strong HCl reaction (continued) 170.4,170.5ft: SH, 30°, PL, VT-T, A-C, I-II, with calcite
638.1	171.5	5.0	4:30 3:45 3:45 3:15	(5.0) 100%	(4.5) 90%	Run 24	639.4	LIMESTONE (WACKESTONE/MICRITE), gray (N 6/-N 5/), strong, very thinly to moderately bedded, locally with trace fossiliferous LIMESTONE (PACKSTONE) beds, and with little to some, laminated to moderate, wavy and irregular Calcareous SILTSTONE interbeds, greenish black (10Y 2.5/1); trace calcite filled pits, trace stylolites, strong HCl reaction 172.3,172.4,172.5,172.8,173.6,176.2ft: BJ, 30-35°, PR-UR/PS, T-PO, B-C, II
633.1	176.5	5.0	5:45 4:30 3:30 3:45 3:45	(4.9) 98%	(4.2) 84%	Run 25 L3-69		176.8-177.0ft: FZ, Mechanically broken, 0.1' Core loss 177.0,178.9,180.6ft: BJ, 30-40°, UR/PR/PS, T-PO, B-C, II 178.5,178.8ft: J, 70°, VT, A, I, with calcite (intact)
628.1	181.5	5.0	3:45 3:15 3:00 2:45 2:45	(5.0) 100%	(4.6) 92%	Run 26		181.8-182.3ft: Healed fractures, 60-70°, VT, A, I, with calcite; spaced 0.1' 182.2,183.3,183.7,185.3,185.7ft: BJ, 30-40°, PS/PR/UR, VT-PO, A-C, I-II 184.5ft: J, 70°, PR, T-PO, B, II 186.0-186.2ft: FZ, 30-40°, PR, PO, D, IV
623.1	186.5	5.0	3:15 2:45 2:30 2:45 3:15	(5.0) 100%	(5.0) 100%	Run 27		187.7,188.1,190.7ft: BJ, 30-40°, US-UR/PR, T-PO, B-C, II 189.6ft: J, 50°, UR, T, C, II
618.1	191.5	5.0	3:15 3:15 3:00 3:15 3:30	(5.0) 100%	(5.0) 100%	Run 28		193.6ft: SH, 30°, VT, A, I, with pink calcite (intact) 194.5ft: SH, 40°, PL, T, C, II
613.1	196.5	5.0	3:30 3:00 3:00 3:00 3:00	(5.0) 100%	(5.0) 100%	Run 29		197.0,198.3ft: J, 55°, PR, VT-PO, C, IV, with calcite mineralization 198.8ft: BJ, 40°, PR, T-PO, B, II
608.1	201.5	5.0	2:45 2:45 2:30 2:30 2:45	(5.0) 100%	(5.0) 100%	Run 30		
603.1	206.5	1.9	4:15 4:30/0.9	(1.9) 100%	(0.7) 37%	Run 31		206.6ft: J, 10°, UR, PO, B, II 207.0ft: SH, 35°, PL, O, C, II
601.2	208.4	3.1	1:45/0.1 3:15 3:00 2:30	(3.1) 100%	(2.5) 81%	Run 32		207.1,207.4,208.1ft: J, 10-20°, O, B, II-III 209.3,210.9,211.1ft: BJ, 30-35°, UR, T-PO, C, II
598.1	211.5							

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. Howard	
SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee				DRILLER: A. Martin/D. Rhodes		Boring Orientation	
BORING NO.: MP-416		DRILL METHOD: Mud Rotary/Core		DRILL MACHINE: CME-55 (C)		Inclination: Vertical	
GROUND ELEV.: 809.6 ft (NAVD88)		NORTHING: 569,978 US ft (NAD83)		EASTING: 2,447,520 US ft (NAD83)		Azimuth: NA	
TOTAL DEPTH: 321.7 ft		SAMPLE METHODS: ASTM D 1586-11; 2488-09a; 2113-08; 6032-08				HAMMER (ID): 140-lb Auto (163745)	
DATE STARTED: 6/6/13		COMPLETED: 6/23/13		CASING DEPTH: 65.8 ft		CORE BARREL TYPE: HQ3/Diamond Impregnated core bits	

ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	LOG	ROCK DESCRIPTION AND REMARKS
				REC. (ft) %	RQD (ft) %			
Continued from previous page								
593.1	216.5	5.0	4:15 3:30 3:30 3:15 3:30	(5.0) 100%	(4.9) 98%	Run 33 L3-70		LIMESTONE (WACKESTONE/MICRITE), gray (N 6/-N 5/), strong, very thinly to moderately bedded, locally with trace fossiliferous LIMESTONE (PACKSTONE) beds, and with little to some, laminated to moderate, wavy and irregular Calcareous SILTSTONE interbeds, greenish black (10Y 2.5/1); trace calcite filled pits, trace stylolites, strong HCl reaction (continued)
588.1	221.5	5.0	4:00 3:00 3:00 2:45 3:15	(5.0) 100%	(5.0) 100%	Run 34		211.6ft: J, 10°, PR, PO, C, II (likely mechanical break) 215.3,216.0ft: BJ, 30°, US, T-PO, B, II 217.9ft: BJ, 30°, PR, T-PO, B, II
583.1	226.5	5.0	3:30 2:30 3:15 3:45 3:45	(5.0) 100%	(5.0) 100%	Run 35		
578.1	231.5	5.0	2:45 3:00 3:15 3:15	(5.0) 100%	(5.0) 100%	Run 36		
573.1	236.5	5.0	4:15 3:45 3:15 2:45 3:00	(5.0) 100%	(4.4) 88%	Run 37	578.2	LIMESTONE (MICRITE/WACKESTONE), gray to dark gray (N 5/-N 4/), strong, very thinly to thinly bedded, nodular, fresh, with few to little, laminated to thin, wavy and irregular, Calcareous SILTSTONE interbeds, black (N 2.5/) to greenish black (10Y 2.5/1); locally fossiliferous in LIMESTONE (WACKESTONE) beds, trace irregular calcite filled fractures, strong HCl reaction 233.4,234.1,235.6ft: BJ, 30-40°, UR-PS, T-O, B-F, II-IV 233.6,234.8ft: J, 40°, PR-PS, T-PO, B-C, II-III 235.9-236.2ft: FZ, 15-30°, SR, MO, K, IV 240.6ft: BJ, 35°, PS, T-PO, B, II
568.1	241.5	5.0	3:30 3:00 3:15 3:15 3:30	(5.0) 100%	(5.0) 100%	Run 38		
562.9	246.7	5.2	3:00 3:45 3:00 3:00 3:00/1.2	(5.2) 100%	(4.7) 90%	Run 39	564.1	242.3-242.8ft: FZ, 30-50°, SR, PO-O, K, IV 245.2ft: SH, 40°, PL, T, C, II
557.9	251.7	5.0	3:00 2:00 2:00 2:00	(4.8) 96%	(4.8) 96%	Run 40		CALCAREOUS SILTSTONE, greenish black (10Y 2.5/1) to dark gray and very dark gray (N 4/-N 3/), weak to strong, laminated to very thinly bedded, fresh, with little to some, laminated to thin LIMESTONE (MICRITE) interbeds, gray (N 5/); strong HCl reaction (Lincolnshire Formation-Fleanor Member-Unit B) 247.2-247.4ft: J, 10°, PR, PO, K, III, 0.2' Core loss (mechanical break/blocked off)
557.1	252.5	0.8	4:30/0.8	(0.6) 75%	(0.0) 0%	Run 41		251.7-252.8ft: FZ, 10-20°, PR-SR, PO-O, B-C, III (Mostly mechanical breaks)
552.9	256.7	4.2	1:00/0.2 5:30 2:45 2:00 3:00	(4.2) 100%	(3.8) 90%	Run 42 L3-71	555.4	253.3ft: 30°, PS, T, B, II 254.1ft: J, 50°, PR, PO, B, II, with calcite mineralization
552.1	257.5	0.8	2:30/0.8	(0.7) 88%	(0.4) 50%	Run 43		CALCAREOUS SILTSTONE, dusky red (2.5YR 3/2) and very dusky red (2.5YR 2.5/2) to reddish black (2.5YR 2.5/1) and locally dark greenish gray (5GY 4/1) to greenish black (5GY 2.5/1-10Y 2.5/1), weak to medium strong and strong, laminated to very thinly bedded, locally with thickly bedded appearance, fresh, with few to little laminated to thin LIMESTONE (MICRITE) interbeds, dark gray (N 4/) to dark greenish gray (10Y 4/1); slightly to strongly bioturbated with vertical and horizontal burrows, trace calcite filled pits and burrows, strong HCl reaction
		4.2	1:15/0.2 3:45 2:45 2:30	(4.2) 100%	(4.2) 100%	Run 44		257.0ft: J, 20°, SR, PO, B, II, 0.1' Core loss; likely mechanical break

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. Howard
SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee				DRILLER: A. Martin/D. Rhodes	
BORING NO.: MP-416		DRILL METHOD: Mud Rotary/Core		DRILL MACHINE: CME-55 (C)	
GROUND ELEV.: 809.6 ft (NAVD88)		NORTHING: 569,978 US ft (NAD83)		EASTING: 2,447,520 US ft (NAD83)	
TOTAL DEPTH: 321.7 ft		SAMPLE METHODS: ASTM D 1586-11; 2488-09a; 2113-08; 6032-08			HAMMER (ID): 140-lb Auto (163745)
DATE STARTED: 6/6/13		COMPLETED: 6/23/13		CASING DEPTH: 65.8 ft	
CORE BARREL TYPE: HQ3/Diamond Impregnated core bits					

ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	LOG	ROCK DESCRIPTION AND REMARKS
				REC. (ft) %	RQD (ft) %			
								Continued from previous page
547.9	261.7	5.0	2:15 2:45 2:30 2:45 3:00	(5.0) 100%	(5.0) 100%	Run 45		254.7,257.3ft: BJ, 30-40°, PS/PR, T, B, II 256.6ft: SH, 40°, PL, VT, C, II CALCAREOUS SILTSTONE, dusky red (2.5YR 3/2) and very dusky red (2.5YR 2.5/2) to reddish black (2.5YR 2.5/1) and locally dark greenish gray (5GY 4/1) to greenish black (5GY 2.5/1-10Y 2.5/1), weak to medium strong and strong, laminated to very thinly bedded, locally with thickly bedded appearance, fresh, with few to little laminated to thin LIMESTONE (MICRITE) interbeds, dark gray (N 4/) to dark greenish gray (10Y 4/1); slightly to strongly bioturbated with vertical and horizontal burrows, trace calcite filled pits and burrows, strong HCl reaction (continued)
542.9	266.7	5.0	2:15 2:15 2:30 2:30 3:00	(5.0) 100%	(5.0) 100%	Run 46		
537.9	271.7	5.0	3:00 2:45 3:00 3:15 3:45	(5.0) 100%	(5.0) 100%	Run 47		
532.9	276.7	0.7	2:15/0.7	(0.7)	(0.0)	Run 48		
532.2	277.4	4.3	1:15/0.3 3:45 3:15 3:00 3:15	100% (4.3) 100%	0% (3.7) 86%	Run 49		
527.9	281.7	5.0	5:15 4:00 3:45 3:15 4:00	(5.0) 100%	(5.0) 100%	Run 50		
522.9	286.7	5.0	4:15 2:30 2:15 2:30 3:15	(5.0) 100%	(5.0) 100%	Run 51		
517.9	291.7	5.0	3:15 2:15 2:15 2:30 2:45	(5.0) 100%	(5.0) 100%	Run 52		
512.9	296.7	5.0	3:30 2:45 2:45 2:30 3:00	(5.0) 100%	(4.9) 98%	Run 53		
507.9	301.7	5.0	3:00 2:30 2:30 2:45 3:00	(5.0) 100%	(5.0) 100%	Run 54		
502.9	306.7	5.0	3:15 3:15	(5.0) 100%	(4.8) 96%	Run 55		

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. Howard	
SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee				DRILLER: A. Martin/D. Rhodes		Boring Orientation	
BORING NO.: MP-416		DRILL METHOD: Mud Rotary/Core		DRILL MACHINE: CME-55 (C)		Inclination: Vertical	
GROUND ELEV.: 809.6 ft (NAVD88)		NORTHING: 569,978 US ft (NAD83)		EASTING: 2,447,520 US ft (NAD83)		Azimuth: NA	
TOTAL DEPTH: 321.7 ft		SAMPLE METHODS: ASTM D 1586-11; 2488-09a; 2113-08; 6032-08				HAMMER (ID): 140-lb Auto (163745)	
DATE STARTED: 6/6/13		COMPLETED: 6/23/13		CASING DEPTH: 65.8 ft		CORE BARREL TYPE: HQ3/Diamond Impregnated core bits	

ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	LOG	ROCK DESCRIPTION AND REMARKS
				REC. (ft) %	RQD (ft) %			
								Continued from previous page
497.9	311.7	5.0	3:00 3:15 4:00	(5.0) 100%	(4.8) 96%	Run 56		CALCAREOUS SILTSTONE, dusky red (2.5YR 3/2) and very dusky red (2.5YR 2.5/2) to reddish black (2.5YR 2.5/1) and locally dark greenish gray (5GY 4/1) to greenish black (5GY 2.5/1-10Y 2.5/1), weak to medium strong and strong, laminated to very thinly bedded, locally with thickly bedded appearance, fresh, with few to little laminated to thin LIMESTONE (MICRITE) interbeds, dark gray (N 4/) to dark greenish gray (10Y 4/1); slightly to strongly bioturbated with vertical and horizontal burrows, trace calcite filled pits and burrows, strong HCl reaction (continued) 312.3ft: J, 50°, PR, T-PO, C, III, with calcite mineralization 312.3,312.4,312.5ft: BJ, 30°, T, C, II
492.9	316.7	5.0	3:45 2:30 3:00 3:00 3:30	(4.6) 92%	(4.1) 82%	Run 57		316.8-317.0ft: FZ, 10°, PR, PO, K, II (mechanical break) 317.0ft: J, 60°, PR, VT-PO, A, I 319.8,320.4ft: J, 45-50°, PR, T-PO, B, II 319.8,320.4,320.5ft: BJ, 30°, PR, T, B, II 321.1ft: SH, 30°, PL, T, C, II
487.9	321.7		2:45				487.9	321.7 Boring and coring terminated at 321.7 feet.

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