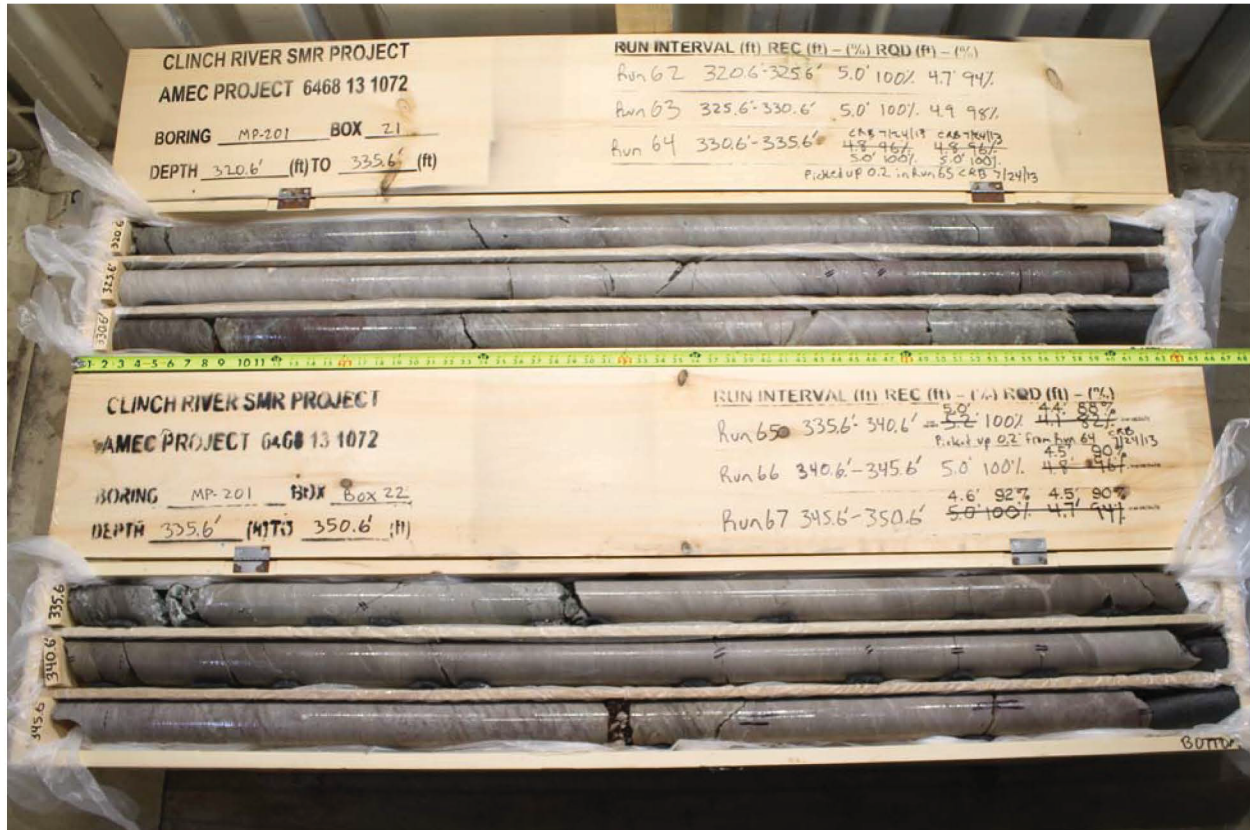


MP-201 – Boxes 21 and 22



MP-201 – Boxes 23 and 24



MP-201 – Boxes 25 and 26



MP-201 – Box 27





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: C. Baldwin/M. Lear							
SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee				DRILLER: D. White/O. Smith		Boring Orientation							
BORING NO.: MP-202		DRILL METHOD: Mud Rotary/Core		DRILL MACHINE: CME-55LC (C)		Inclination: Vertical							
GROUND ELEV.: 811.8 ft (NAVD88)		NORTHING: 570,922 US ft (NAD83)		EASTING: 2,448,050 US ft (NAD83)		Azimuth: NA							
TOTAL DEPTH: 461.0 ft		SAMPLE METHODS: ASTM D 1586-11; 2488-09a; 2113-08; 6032-08		ROD TYPE: AWJ		HAMMER (ID): 140-lb Auto (331145)							
DATE STARTED: 6/6/13		COMPLETED: 6/24/13		HOLE DIA.: 4"		CASING DEPTH: 14.2 ft							
CORE SIZE: HQ3		BITS USED: 4" Roller Cone											
ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L O G	SOIL DESCRIPTION AND REMARKS	
		0.5ft	0.5ft	0.5ft	0	20	40	60	80	100			
811.8					Ground Surface							811.8	0.0
811.8	0.0	4	4	8	12					SS-1		FILL: SILT with Gravel (ML), pale red (7.5R 6/4), stiff, dry, low plastic fines, little fine to coarse gravel, strong HCl reaction	2.0
808.3	3.5	17	37	23	60					SS-2		FILL: WELL GRADED GRAVEL with Sand (GW), reddish gray (7.5R 6/1), very dense, dry, fine to coarse gravel, few fine to medium sand, trace non-plastic fines, strong HCl reaction	5.0
805.7	6.1	50/0.5			50/0.5					SS-3		WEATHERED ROCK: CALCAREOUS SILTSTONE, sampled as Sandy SILT with gravel (ML), weak red (5R 4/4) to dark red (5R 2.5/6), hard, dry to wet, non-plastic to low plasticity fines, little fine to medium sand, little fine to coarse gravel, strong HCl reaction	9.0
803.3	8.5	50/0.1			50/0.1					SS-4		Soil drilling halted. Log continues on geotechnical coring log	
												Observed water levels:	
												7.5 ft bgs, AM 6/7/13	
												15.2 ft bgs, AM 6/8/13	
												24.4 ft bgs, AM 6/9/13	
												12.4 ft bgs, AM 6/10/13	
												12.0 ft bgs, AM 6/11/13	
												15.2 ft bgs, AM 6/12/13	
												39.5 ft bgs, AM 6/13/13	
												41.9 ft bgs, AM 6/18/13	
												24.7 ft bgs, AM 6/19/13	
												43.8 ft bgs, AM 6/20/13	
												34.5 ft bgs, AM 6/21/13	
												37.6 ft bgs, AM 6/22/13	
												36.8 ft bgs, AM 6/23/13	
												39.8 ft bgs, AM 6/24/13	

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 10

BECHTEL PROJECT NO.: 25847				AMEC PROJECT NO.: 6468-13-1072				COUNTY: Roane, TN		GEOLOGIST: C. Baldwin/M. Lear		
SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee								DRILLER: D. White/O. Smith			Boring Orientation	
BORING NO.: MP-202				DRILL METHOD: Mud Rotary/Core				DRILL MACHINE: CME-55LC (C)			Inclination: Vertical	
GROUND ELEV.: 811.8 ft (NAVD88)				NORTHING: 570,922 US ft (NAD83)				EASTING: 2,448,050 US ft (NAD83)			Azimuth: NA	
TOTAL DEPTH: 461.0 ft			SAMPLE METHODS: ASTM D 1586-11; 2488-09a; 2113-08; 6032-08						HAMMER (ID): 140-lb Auto (331145)			
DATE STARTED: 6/6/13			COMPLETED: 6/24/13		CASING DEPTH: 14.2 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.	LOG	ROCK DESCRIPTION AND REMARKS			
									Begin Coring @ 9.0 ft			
802.8	9.0	2.0	6:17	(1.8)	(0.8)	Run 1		802.8	CALCAREOUS SILTSTONE, olive gray (5Y 4/2) and weak red (7.5R 5/2) to very dusky red (2.5YR 2.5/2), medium strong, laminated to moderately bedded, moderately to slightly weathered, with trace to few laminated to thinly interbedded LIMESTONE (MICRITE), dark gray to very dark gray (10YR 4/1-3/1); bioturbated with vertical and horizontal burrows, strong HCl reaction (Lincolnshire Formation-Fleanor Member-Unit B)			
800.8	11.0		5:36	90%	40%							
		5.0	5:38	(4.9)	(2.1)	Run 2						
			4:35	98%	42%							
			2:34									
			2:17									
795.8	16.0		2:14					795.8				
		5.0	3:45	(5.0)	(4.3)	Run 3						
			3:28	100%	86%							
			2:17									
			1:57									
790.8	21.0		2:06									
		5.0	4:02	(5.0)	(4.0)	Run 4			CALCAREOUS SILTSTONE, weak red (7.5R 5/2) to very dusky red (2.5YR 2.5/2), medium strong, laminated to very thinly bedded, locally with moderately to thickly bedded appearance, fresh, with few to little laminated to thinly interbedded LIMESTONE (MICRITE), dark gray to very dark gray (10YR 4/1-3/1); bioturbated with vertical and horizontal burrows, strong HCl reaction			
			2:58	100%	80%							
			3:17									
			4:55									
785.8	26.0		3:20						16.1,16.2,16.4,18.0,20.2,20.5ft: BJ, 30°, PR, O-PO-T, D-B-A, I-II			
		5.0	3:39	(5.0)	(4.3)	Run 5			21.2ft: J, 15°, PR, MO, G, III			
			2:34	100%	86%				21.7,22.2,22.6ft: BJ, 30°, PS, T-MO, B-A, I-II			
			2:01						21.9ft: J, 60°, VT, A, I			
			2:13						23.0,23.5,25.5ft: J, 45°, UR, O-T, E-B, I-III			
780.8	31.0		2:24						25.5-25.8ft: FZ, mechanically abraded			
		5.0	3:17	(5.0)	(3.0)	Run 6			25.9ft: BJ, 30°, PR, O, C, II			
			3:00	100%	60%	L1-16			26.3ft: BJ, 30°, PR, MO, B, I			
			2:43						27.9,29.3,29.6ft: J, 45-60°, PR, MO, B, II			
			2:50									
775.8	36.0		2:16						31.3ft: J, 0°, PR, MO, B, II (possibly mechanical break)			
		5.0	6:00	(5.0)	(4.2)	Run 7			31.6,34.6,34.8,34.9,35.7ft: BJ, 30°,PR-SR, O-MO, B, II			
			3:20	100%	84%				31.7,33.9ft: J, 45-60°, PR, MO, B, II			
			3:10									
			2:16									
770.8	41.0		2:32									
		5.0	3:53	(5.0)	(4.9)	Run 8			36.0ft: J, 10°, PR, MO, C, II			
			2:57	100%	98%				38.0,38.2,39.3,39.8,40.2ft: BJ, 30°, O-T, B-A, I-II			
			2:44						39.3-39.7ft: J, 70°, UR, T-PO, B, II			
			2:38									
765.8	46.0		2:55						43.4ft: BJ, 30°, PR, MO, H, IV			
		5.0	3:23	(5.0)	(4.5)	Run 9						
			2:55	100%	90%				48.7,49.0,49.2,50.1,50.7ft: BJ, 30°, UR-PR, O-T, D-A, I-II			
			2:47									
			2:49									
760.8	51.0		3:13						48.6-49.8ft: LIMESTONE (MICRITE), gray (5Y 6/1), strong, thinly to moderately bedded, fresh, fossiliferous, with CALCAREOUS SILTSTONE, very dark gray (N 3/); trace calcite filled pits and burrows			
		5.0	2:54	(5.0)	(5.0)	Run 10						
			3:20	100%	100%							
			3:20									
			3:23									
755.8	56.0		3:18					755.8				
		5.0	3:43	(5.0)	(4.7)	Run 11						
			2:53	100%	94%							

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: C. Baldwin/M. Lear			
SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee								DRILLER: D. White/O. Smith				Boring Orientation	
BORING NO.: MP-202				DRILL METHOD: Mud Rotary/Core				DRILL MACHINE: CME-55LC (C)				Inclination: Vertical	
GROUND ELEV.: 811.8 ft (NAVD88)				NORTHING: 570,922 US ft (NAD83)				EASTING: 2,448,050 US ft (NAD83)				Azimuth: NA	
TOTAL DEPTH: 461.0 ft			SAMPLE METHODS: ASTM D 1586-11; 2488-09a; 2113-08; 6032-08						HAMMER (ID): 140-lb Auto (331145)				
DATE STARTED: 6/6/13			COMPLETED: 6/24/13		CASING DEPTH: 14.2 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				
750.8	61.0	5.0	2:31 2:43 2:14				L1-17		CALCAREOUS SILTSTONE, very dusky red (2.5YR 2.5/2) to dark reddish gray (2.5YR 4/1) grading to very dark greenish gray (10GY 3/1) and greenish black (10Y 2.5/1), weak to medium strong, laminated to thinly bedded, fresh, interbedded with little to some, laminated to thin fossiliferous LIMESTONE (MICRITE/WACKESTONE), gray (5Y 5/1), trace calcite filled pits; bioturbated, strong HCl reaction (continued) 56.1,58.6ft: BJ, 30°, PS, O-T, B-A, I 57.5,59.5,60.7ft: J, 45°, SR, O-PO-T, C-B-A, I-II 61.6,65.2ft: J, 45°, PR/SR, O, C, II				
			2:30 2:57 2:40 2:48 2:14	(5.0) 100%	(5.0) 100%	Run 12							
745.8	66.0	5.0	3:34 3:01	(5.0) 100%	(4.7) 94%	Run 13 L1-18	743.9						
740.8	71.0	5.0	4:36 2:46 2:31										
			3:20 3:02 3:08 2:45 3:03	(5.0) 100%	(5.0) 100%	Run 14							
735.8	76.0	5.0	3:12 2:37 3:06 3:16 3:15	(5.0) 100%	(3.7) 74%	Run 15 L6-2		CALCAREOUS SILTSTONE, dusky red (7.5R 3/3) with trace very dark greenish gray (5G 3/1), strong, laminated to very thinly bedded, locally with moderately to thickly bedded appearance, fresh, with few laminated to thinly interbedded LIMESTONE (MICRITE), gray (5Y 5/1) and dark gray (N 4/) to bluish gray (5PB 6/1); strongly bioturbated, strong HCl reaction 67.9,68.7ft: J, 45°, PR-UR, O-T, A-C, I-II 68.2ft: BJ, 30°, PR, MO, D, III 70.2ft: J, 20°, UR, O,B, II 76.1,77.2,78.2,80.5,80.7,80.8ft: BJ, 30°, PR/UR, T-O, A-C, II 76.6ft: J, 45°, SR, O, C, II					
730.8	81.0	5.0	3:31 2:57 2:59 2:58 2:39	(5.0) 100%	(4.8) 96%	Run 16							
			4:03 3:13 3:07 3:30 3:03	(5.0) 100%	(4.3) 86%	Run 17							
720.8	91.0	5.0	3:47 3:30 3:31 3:30 3:19	(5.0) 100%	(5.0) 100%	Run 18 L1-20							
715.8	96.0	5.0	3:19 2:49 2:59 2:48 2:39	(5.0) 100%	(5.0) 100%	Run 19							
710.8	101.0	5.0	4:04 2:25 2:54 2:44 2:48	(5.0) 100%	(3.2) 64%	Run 20		101.2-101.3ft: FZ, 30°, PS, PO, B, II 102.8ft: J, 60-70°, PR, O, III, with calcite 103.0,103.5,103.9,104.0,104.2,104.8ft: BJ, 30°, PS, PO-O, B, II 103.1ft: J, 60-70°, VT, A, healed with calcite 105.3-105.9ft: FZ, 30-40°, PS, T-PO, II					
705.8	106.0												

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: C. Baldwin/M. Lear	
SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee								DRILLER: D. White/O. Smith		Boring Orientation	
BORING NO.: MP-202				DRILL METHOD: Mud Rotary/Core				DRILL MACHINE: CME-55LC (C)		Inclination: Vertical	
GROUND ELEV.: 811.8 ft		(NAVD88)		NORTHING: 570,922		US ft (NAD83)		EASTING: 2,448,050		US ft (NAD83)	
Azimuth: NA											
TOTAL DEPTH: 461.0 ft		SAMPLE METHODS: ASTM D 1586-11; 2488-09a; 2113-08; 6032-08							HAMMER (ID): 140-lb Auto (331145)		
DATE STARTED: 6/6/13		COMPLETED: 6/24/13		CASING DEPTH: 14.2 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		
700.8	111.0	5.0	2:47 2:37 2:29 2:52 2:31	(5.0) 100%	(5.0) 100%	Run 21			CALCAREOUS SILTSTONE, dusky red (7.5R 3/3) with trace very dark greenish gray (5G 3/1), strong, laminated to very thinly bedded, locally with moderately to thickly bedded appearance, fresh, with few laminated to thinly interbedded LIMESTONE (MICRITE), gray (5Y 5/1) and dark gray (N 4/) to bluish gray (5PB 6/1); strongly bioturbated, strong HCl reaction (continued)		
695.8	116.0	5.0	3:18 3:30 2:57 3:12 3:34	(5.0) 100%	(5.0) 100%	Run 22 L1-21 L6-3			CALCAREOUS SILTSTONE, very dark greenish gray (5GY 3/1) to greenish gray (10Y 5/1) and LIMESTONE (MICRITE), gray (N 5/) to dark gray (N 4/), strong, laminated to very thinly bedded, fresh, slightly fossiliferous, trace very thin chert lenses and nodules; trace sparry calcite "bird eyes" and calcite filled pits and burrows, strong HCl reaction		
690.8	121.0	5.0	3:12 3:08 2:43 2:40 2:47	(5.0) 100%	(5.0) 100%	Run 23			117.1ft: J, 60°, PR, PO, C, II, with trace calcite 119.6ft: BJ, 30°, PS, T, B, II		
685.8	126.0	5.0	3:23 5:02 2:44 3:18 2:43	(5.0) 100%	(4.5) 90%	Run 24			121.3ft: BJ, 30°, PR, O, II 122.5ft: FZ, 30°, PR, O, II		
680.8	131.0	5.0	2:58 2:56 2:31 2:41 2:48	(5.0) 100%	(5.0) 100%	Run 25			CALCAREOUS SILTSTONE, greenish gray (10Y 5/1) grading rapidly to dusky red (10R 3/2), strong, laminated to thinly bedded, fresh, with trace to few interbedded LIMESTONE (MICRITE/WACKESTONE), dark gray (N 4/); strongly bioturbated with vertical and horizontal burrows, strong HCl reaction 127.1ft: Becomes mostly dusky red (10R 3/2)		
675.8	136.0	5.0	3:02 3:09 3:19 2:55 3:06	(5.0) 100%	(5.0) 100%	Run 26			134.1ft: SH, 30°, PL, PO, C II, with slickensides and calcite 134.9ft: SH, 30°, PL, PO, C II, with slickensides and calcite		
670.8	141.0	5.0	3:20 3:08 3:03 2:54 2:56	(5.0) 100%	(5.0) 100%	Run 27					
665.8	146.0	5.0	3:44 2:57 2:56 3:07 2:52	(5.0) 100%	(5.0) 100%	Run 28					
660.8	151.0	5.0	4:05 2:56 2:33 3:04 2:51	(5.0) 100%	(5.0) 100%	Run 29 L1-22			148.3ft: J, 60°, PR, PO, C, III, with calcite 148.8ft: BJ, 30°, PS, PO, B, II 147.8-148.8ft: Moderately bedded LIMESTONE (WACKESTONE), dark gray (N 4/), fossiliferous with little, fine to coarse gravel sized carbonate clasts and nodules and few Calcareous SILTSTONE stringers, dusky red (10R 3/2)		
		5.0	3:35 3:15 2:39 2:01	(5.0) 100%	(4.4) 88%	Run 30			153.2ft: J, 30°, PL, PO, C, II, with calcite 153.4ft: BJ, 30°, PS, O, C, 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: C. Baldwin/M. Lear	
SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee				DRILLER: D. White/O. Smith		Boring Orientation
BORING NO.: MP-202		DRILL METHOD: Mud Rotary/Core		DRILL MACHINE: CME-55LC (C)		
GROUND ELEV.: 811.8 ft (NAVD88)		NORTHING: 570,922 US ft (NAD83)		EASTING: 2,448,050 US ft (NAD83)		Azimuth: NA
TOTAL DEPTH: 461.0 ft		SAMPLE METHODS: ASTM D 1586-11; 2488-09a; 2113-08; 6032-08			HAMMER (ID): 140-lb Auto (331145)	
DATE STARTED: 6/6/13		COMPLETED: 6/24/13	CASING DEPTH: 14.2 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								
655.8	156.0	5.0	1:51 3:47 4:40 3:47 3:16 3:03	(5.0) 100%	(4.1) 82%	Run 31	655.3	LIMESTONE (MICRITE), dark gray (N 4/) to greenish gray (10Y 5/1), strong, laminated to moderately bedded, argillaceous, fresh, with trace to few, laminated to very thinly interbedded Calcareous SILTSTONE, dusky red (10R 3/2); slight bioturbation, strong HCl reaction (continued) 154.1,154.5,155.1,155.2,155.4ft: BJ, 30°, US, T-PO, B 154.9,155.4,155.9ft: J, 60°, VT, A, I, healed with calcite CALCAREOUS SILTSTONE, dusky red (10R 3/2) to reddish gray (5R 5/1), strong, laminated to very thinly bedded, fresh, with trace to few laminated to very thinly interbedded LIMESTONE (MICRITE/WACKESTONE), locally very thinly to moderately bedded, gray (N 5/) to greenish gray (5GY 6/1); strongly bioturbated, strong HCl reaction 156.5-156.7ft: FZ, 30°, PS, O, C, II
650.8	161.0	5.0	3:35 3:22 3:00 3:57 3:41	(5.0) 100%	(5.0) 100%	Run 32 L1-24		
645.8	166.0	5.0	4:06 3:25 3:29 3:02 2:44	(5.0) 100%	(5.0) 100%	Run 33		
640.8	171.0	5.0	3:16 3:32 3:19 2:37 3:02	(5.0) 100%	(5.0) 100%	Run 34		172.2ft: BJ, 30°, PS, PO, B, II
635.8	176.0	5.0	3:07 2:41 3:02 2:45 3:01	(5.0) 100%	(5.0) 100%	Run 35		
630.8	181.0	4.3	3:16 2:54 3:05 3:48	(4.1) 95%	(3.9) 91%	Run 36		183.2,184.4ft: BJ, 30°, PS, PO, B, II 185.0-185.2ft: FZ, 30°, PS, O, C, II, with slight mechanical abrasion and core loss
626.5	185.3	0.7	3:20/0.3	(0.7)	(0.7)	Run 37		
625.8	186.0	5.0	3:29/0.7 3:10 3:10 3:17 3:15 3:16	100% (5.0) 100%	100% (5.0) 100%	Run 38		
620.8	191.0	5.0	4:00 3:43 3:32 3:21 3:32	(5.0) 100%	(5.0) 100%	Run 39		192.7ft: BJ, 30°, PS, PO, B, II
615.8	196.0	5.0	3:07 3:37 3:25 3:09 3:09	(5.0) 100%	(5.0) 100%	L6-4 Run 40	613.3	196.0ft: As above, grades to dusky red (10R 3/2) to reddish gray (5R 5/1) to gray (N 6/) to dark greenish gray (10Y 4/1) with depth CALCAREOUS SILTSTONE, dark greenish gray (10Y 4/1), strong, laminated to very thinly bedded, fresh, with little laminated to very thinly interbedded LIMESTONE (WACKESTONE), gray (N 6/); strongly bioturbated, strong HCl reaction
610.8	201.0	5.0	3:38 3:48	(5.0) 100%	(5.0) 100%	Run 41		

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: C. Baldwin/M. Lear	
SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee						DRILLER: D. White/O. Smith			Boring Orientation
BORING NO.: MP-202			DRILL METHOD: Mud Rotary/Core			DRILL MACHINE: CME-55LC (C)			Inclination: Vertical
GROUND ELEV.: 811.8 ft		(NAVD88)	NORTHING: 570,922		US ft (NAD83)	EASTING: 2,448,050		US ft (NAD83)	Azimuth: NA
TOTAL DEPTH: 461.0 ft		SAMPLE METHODS: ASTM D 1586-11; 2488-09a; 2113-08; 6032-08						HAMMER (ID): 140-lb Auto (331145)	
DATE STARTED: 6/6/13		COMPLETED: 6/24/13		CASING DEPTH: 14.2 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.	LOG	ROCK DESCRIPTION AND REMARKS
Continued from previous page									
605.8	206.0		3:29 3:34 3:10						CALCAREOUS SILTSTONE, dark greenish gray (10Y 4/1), strong, laminated to very thinly bedded, fresh, with little laminated to very thinly interbedded LIMESTONE (WACKESTONE), gray (N 6/); strongly bioturbated, strong HCl reaction (continued)
		5.0	3:02 4:07	(5.0) 100%	(5.0) 100%	Run 42		604.0	LIMESTONE (WACKESTONE), gray (N 6/), strong, very thinly to thinly bedded and nodular, fossiliferous, with little to some wispy Calcareous SILTSTONE interbeds and partings, very dark gray (N 3/); strong HCl reaction
			2:24 2:12 2:14					602.1	(Lincolnshire Formation-Eidson Member-Unit A)
600.8	211.0	5.0	2:43 2:27 2:23 2:41 2:33	(5.0) 100%	(5.0) 100%	Run 43			208.2ft: J, 50°, SR, O, C, III, with calcite and pyrite
			2:27 2:23 2:41 2:33						LIMESTONE (MICRITE), gray (N 5/) to greenish gray (10Y 5/1), strong, mostly laminated to thinly bedded, few moderately bedded and nodular, fresh, interbedded with trace to little laminated to thin clayey Calcareous SILTSTONE, very dark gray (N 3/) to dark greenish gray (10Y 4/1), very dark greenish gray (5GY 3/1), and trace dusky red (10R 3/2), and trace to few very thin to thin chert beds, lenses, and nodules (greenish gray to dark gray and black with calcite filled tensional fractures); locally bioturbated with trace calcite filled pits, locally argillaceous, strong HCl reaction
595.8	216.0	5.0	3:10 3:00 3:27 3:58 3:25	(5.0) 100%	(5.0) 100%	Run 44			220.6ft: BJ, 30°, PR, PO, B, II
			3:10 3:00 3:27 3:58 3:25			L1-25			220.6ft: J, 60°, PR, PO-VT, B-A, I-II, with calcite
590.8	221.0	5.0	2:43 2:07 3:04 3:00 3:06	(5.0) 100%	(5.0) 100%	Run 45			223.9ft: SH, 30°, PL, PO, C, II, with calcite
			2:07 3:04 3:00 3:06						225.1ft: J, 40°, SR, T, B, I, with calcite
585.8	226.0	0.8	7:35/0.8	(0.8) 100%	(0.0) 0%	Run 46			226.2,226.5ft: BJ, 20-30°, UR, O, B, II
585.0	226.8	4.2	1:07/0.2 3:32 3:18 2:00 3:00	(4.2) 100%	(4.2) 100%	Run 47			
			3:32 3:18 2:00 3:00						
580.8	231.0	5.0	3:44 2:55 3:31 3:26 3:19	(5.0) 100%	(5.0) 100%	Run 48			
			2:55 3:31 3:26 3:19						
575.8	236.0	5.0	3:22 3:08 3:10 3:00 2:58	(5.0) 100%	(5.0) 100%	Run 49			
			3:22 3:08 3:10 3:00 2:58			L1-26			
570.8	241.0	5.0	3:35 3:00 3:01 2:57 3:16	(5.0) 100%	(5.0) 100%	Run 50			244.7ft: J, 50°, SR, PO, C, III, with calcite
			3:35 3:00 3:01 2:57 3:16			L6-5			
565.8	246.0	5.0	3:17 3:08 2:54 3:01 3:54	(5.0) 100%	(4.4) 88%	Run 51			247.8ft: BJ, 20°, UR, T, B, II
			3:17 3:08 2:54 3:01 3:54			L6-6			250.0ft: SH, 20°, PL, T, B, II, with trace calcite
560.8	251.0	5.0	4:16	(5.0)	(4.4)	Run 52			250.4-250.8ft: FZ, 30°, PL, O, C, III, with calcite
			4:16						251.2,251.7,252.1,253.0,255.0,255.8ft: SH, 30°, PL, T, B, II, with calcite
									253.1ft: J, 55°, PR, O, C, II, with calcite
									247.3-250.0ft: As above to moderately bedded, bluish gray (5PB 5/1), strongly bioturbated with coarse horizontal and vertical burrows filled with carbonate and sparry calcite, fossiliferous

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: C. Baldwin/M. Lear	
SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee								DRILLER: D. White/O. Smith			Boring Orientation Inclination: Vertical Azimuth: NA
BORING NO.: MP-202				DRILL METHOD: Mud Rotary/Core				DRILL MACHINE: CME-55LC (C)			
GROUND ELEV.: 811.8 ft (NAVD88)				NORTHING: 570,922 US ft (NAD83)				EASTING: 2,448,050 US ft (NAD83)			
TOTAL DEPTH: 461.0 ft			SAMPLE METHODS: ASTM D 1586-11; 2488-09a; 2113-08; 6032-08						HAMMER (ID): 140-lb Auto (331145)		
DATE STARTED: 6/6/13			COMPLETED: 6/24/13		CASING DEPTH: 14.2 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		
555.8	256.0		4:28 3:35 3:42 4:32	100%	88%				555.8		
		5.0	4:50 6:35 6:12 5:07 3:43	(5.0) 100%	(4.2) 84%	Run 53				L1-27	
550.8	261.0										
		5.0	4:10 4:11 5:06 7:07 8:42	(5.0) 100%	(4.5) 90%	Run 54				L1-28	
545.8	266.0										
		5.0	3:31 3:54 4:50 3:54 3:59	(5.0) 100%	(4.5) 90%	Run 55				L1-29	
540.8	271.0										
		5.0	5:18 5:36 5:50 4:45 5:10	(5.0) 100%	(4.3) 86%	Run 56				L1-30	
535.8	276.0										
		5.0	8:30 5:06 4:50 4:46 7:19	(5.0) 100%	(2.3) 46%	Run 57				L1-31	
530.8	281.0										
		5.0	7:11 6:00 5:09 4:03 3:36	(5.0) 100%	(3.6) 72%	Run 58				L1-32	
525.8	286.0										
		5.0	6:18 4:25 4:34 3:37 3:49	(5.0) 100%	(3.5) 70%	Run 59				L1-33	
520.8	291.0										
		5.0	4:21 4:12 4:20 2:30 4:25	(5.0) 100%	(4.5) 90%	Run 60				L1-34	
515.8	296.0										
		5.0	5:51 5:59 4:22 3:44 3:09	(5.0) 100%	(4.0) 80%	Run 61				L1-35	

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: C. Baldwin/M. Lear
SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee				DRILLER: D. White/O. Smith	Boring Orientation
BORING NO.: MP-202		DRILL METHOD: Mud Rotary/Core		DRILL MACHINE: CME-55LC (C)	
GROUND ELEV.: 811.8 ft (NAVD88)		NORTHING: 570,922 US ft (NAD83)		EASTING: 2,448,050 US ft (NAD83)	Inclination: Vertical
TOTAL DEPTH: 461.0 ft		SAMPLE METHODS: ASTM D 1586-11; 2488-09a; 2113-08; 6032-08			Azimuth: NA
DATE STARTED: 6/6/13		COMPLETED: 6/24/13		CASING DEPTH: 14.2 ft	HAMMER (ID): 140-lb Auto (331145)
CORE BARREL TYPE: HQ3/Diamond Impregnated core bits					

ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	REC. (ft) %	RQD (ft) %	SAMP. NO.	LOG	ROCK DESCRIPTION AND REMARKS
Continued from previous page								
510.8	301.0	5.0	4:57 4:31 3:09 2:51 3:35	(5.0) 100%	(5.0) 100%	Run 62		
505.8	306.0	5.0	3:31 3:30 3:38 3:14 2:32	(5.0) 100%	(5.0) 100%	Run 63		
500.8	311.0	5.0	4:03 4:16 3:56 3:26 3:20	(5.0) 100%	(4.8) 96%	Run 64		
495.8	316.0	5.0	4:31 2:50 3:21 3:02 3:18	(5.0) 100%	(4.5) 90%	Run 65		
490.8	321.0	5.0	3:55 3:44 3:34 2:33 3:13	(5.0) 100%	(4.8) 96%	Run 66		
485.8	326.0	5.0	8:00 3:26 3:04 3:04 2:30	(5.0) 100%	(4.4) 88%	Run 67 L1-31		
480.8	331.0	5.0	3:13 4:04 4:45 2:59 2:37	(5.0) 100%	(4.7) 94%	Run 68		
475.8	336.0	5.0	3:47 2:39 3:39 4:15 3:16	(5.0) 100%	(4.6) 92%	Run 69		
470.8	341.0	5.0	4:11 3:36 6:02 3:52 3:55	(5.0) 100%	(4.8) 96%	Run 70		
465.8	346.0	5.0	5:01 3:29 4:52	(5.0) 100%	(5.0) 100%	Run 71 L1-32		

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: C. Baldwin/M. Lear	
SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee				DRILLER: D. White/O. Smith		Boring Orientation
BORING NO.: MP-202		DRILL METHOD: Mud Rotary/Core		DRILL MACHINE: CME-55LC (C)		
GROUND ELEV.: 811.8 ft (NAVD88)		NORTHING: 570,922 US ft (NAD83)		EASTING: 2,448,050 US ft (NAD83)		Azimuth: NA
TOTAL DEPTH: 461.0 ft		SAMPLE METHODS: ASTM D 1586-11; 2488-09a; 2113-08; 6032-08			HAMMER (ID): 140-lb Auto (331145)	
DATE STARTED: 6/6/13		COMPLETED: 6/24/13	CASING DEPTH: 14.2 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
460.8	351.0	5.0	4:20 3:04	(5.0) 100%	(4.8) 96%	Run 72		
455.8	356.0	5.0	4:19 3:40 3:08 4:27 3:10	(5.0) 100%	(5.0) 100%	Run 73		458.1 CALCREOUS SILTSTONE, mostly dusky red (5R 3/2), with dark reddish gray (5R 4/1) and very dusky red (10R 2.5/2), grading to dark reddish gray (7.5R 3/1) and reddish black (2.5YR 2.5/1), locally very dark gray (5YR 3/1) to black (N 2.5/) with trace very dark greenish gray (5GY 3/1), weak to medium strong and strong, laminated to moderately bedded, locally thickly bedded, fresh, with few to little interbedded LIMESTONE (MICRITE/ PACKSTONE/ GRAINSTONE), light gray (10R 7/1), gray (2.5Y 5/1), to dark gray (N 4/), with trace very dark greenish gray (5GY 3/1), locally nodular and fossiliferous, trace calcite filled pits, and with few very thin to thin chert beds, lenses, and nodules (dark gray to reddish brown and dusky red to black, fractured as described previously); locally strongly bioturbated with horizontal and vertical burrows, strong HCl reaction
450.8	361.0	5.0	4:18 3:56 3:49 3:44 3:00	(5.0) 100%	(5.0) 100%	Run 74		354.4ft: BJ, 30°, SR, PO, B, I 355.1,355.7ft: BJ, 30°, PR/SR, PO, B, I 358.9ft: BJ, 45°, PS, T, A, I 361.3,362.1,362.4ft: BJ, 30°, PR, T-PO, B, II 362.9,364.3,364.5,365.1ft: BJ, 30°, PS-PR/UR, T, A, I 365.4ft: BJ, 30°, PR, PO, B, II
445.8	366.0	5.0	4:58 3:41 3:26 4:02 4:24	(5.0) 100%	(4.8) 96%	Run 75		366.3-367.2ft: SH, 80°, VT, A, I, with calcite 366.5ft: J, 30°, PR, PO, C, II 367.8,368.1ft: BJ, 30°, PR, PO, C, II 368.5,370.8ft: J, 45°, PR/UR, T-PO, A, I 370.9ft: BJ, 30°, PR, PO, B, II
440.8	371.0	5.0	4:58 4:08 4:13 3:20 3:56	(5.0) 100%	(4.7) 94%	Run 76		371.3ft: BJ, 30°, PS, T, A, I 375.3ft: J, 45°, PR, PO, C, II
435.8	376.0	5.0	4:50 3:00 2:45 2:59 3:28	(5.0) 100%	(5.0) 100%	Run 77		377.3,377.4,378.0-378.5(4),379.2-379.5(3),380.7,380.8ft: BJ, 30°, PR, T-PO, C-B, I-II
430.8	381.0	5.0	3:44 3:48 5:03 3:47 2:34	(5.0) 100%	(3.9) 78%	Run 78		
425.8	386.0	5.0	5:11 2:44 3:21 4:10 2:59	(5.0) 100%	(4.8) 96%	Run 79		386.8,388.0,388.9,390.5ft: BJ, 30-35°, PS, T-PO, B-A, I
420.8	391.0	5.0	3:28 3:31 3:00 2:23 3:30	(5.0) 100%	(5.0) 100%	Run 80		391.4,391.6ft: J, 0°, PR/SR, MO-PO, C, II 392.4ft: J, 50°, UR, PO, B, II 392.5ft: BJ, 30°, PR, PO, B, II
415.8	396.0	5.0	6:18 3:03 2:45 2:38 2:31	(5.0) 100%	(4.7) 94%	Run 81		398.5ft: BJ, 40°, PS, T, A, I 400.3ft: BJ, 45°, PS, T, A, I

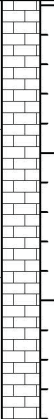
CLINCH RIVER SMR CORE FINAL CLINCH FINAL LOGS.GPJ CLINCH BORING DATA TEMPLATE.GDT 3/5/14



BECHTEL PROJECT NO.: 25847			AMEC PROJECT NO.: 6468-13-1072			COUNTY: Roane, TN		GEOLOGIST: C. Baldwin/M. Lear	
SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee						DRILLER: D. White/O. Smith			Boring Orientation
BORING NO.: MP-202			DRILL METHOD: Mud Rotary/Core			DRILL MACHINE: CME-55LC (C)			Inclination: Vertical
GROUND ELEV.: 811.8 ft (NAVD88)			NORTHING: 570,922 US ft (NAD83)			EASTING: 2,448,050 US ft (NAD83)			Azimuth: NA
TOTAL DEPTH: 461.0 ft		SAMPLE METHODS: ASTM D 1586-11; 2488-09a; 2113-08; 6032-08					HAMMER (ID): 140-lb Auto (331145)		
DATE STARTED: 6/6/13		COMPLETED: 6/24/13		CASING DEPTH: 14.2 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	
410.8	401.0	5.0	2:50 2:46 2:46			Run 82		CALCAREOUS SILTSTONE, mostly dusky red (5R 3/2), with dark reddish gray (5R 4/1) and very dusky red (10R 2.5/2), grading to dark reddish gray (7.5R 3/1) and reddish black (2.5YR 2.5/1), locally very dark gray (5YR 3/1) to black (N 2.5/) with trace very dark greenish gray (5GY 3/1), weak to medium strong and strong, laminated to moderately bedded, locally thickly bedded, fresh, with few to little interbedded LIMESTONE (MICRITE/ PACKSTONE/ GRAINSTONE), light gray (10R 7/1), gray (2.5Y 5/1), to dark gray (N 4/), with trace very dark greenish gray (5GY 3/1), locally nodular and fossiliferous, trace calcite filled pits, and with few very thin to thin chert beds, lenses, and nodules (dark gray to reddish brown and dusky red to black, fractured as described previously); locally strongly bioturbated with horizontal and vertical burrows, strong HCl reaction (continued) 403.1-403.2ft: BJ, 30°, PR, PO, C, II 403.9ft: J, 30°, UR, PO, B, II 407.7-408.2ft: BJ(3), 30°, PR, PO, B-E, II-III	
405.8	406.0	5.0	2:54 4:05 3:39 2:21 2:37	(5.0) 100%	(4.9) 98%	Run 83		403.6	
400.8	411.0	5.0	3:20 2:35 3:38 4:27 4:05	(5.0) 100%	(4.1) 82%	Run 84 L1-34			CALCAREOUS SILTSTONE, variably very dark gray (5YR 3/1) to black (N 2.5/) to reddish black (2.5YR 2.5/1) and dusky red (5R 3/2) and reddish gray (7.5R 3/1) to very dusky red (10R 2.5/2), weak to medium strong and strong, laminated to moderately bedded, locally thickly bedded, fresh, with little to some interbedded LIMESTONE (MICRITE/ PACKSTONE/ GRAINSTONE), light gray (10R 7/1) to gray (2.5Y 5/1) and dark gray (N 4/), locally nodular and fossiliferous, trace stylolites and calcite filled pits, and with few very thin to moderate chert beds, lenses, and nodules (dark gray to reddish brown and dusky red to black, few with red jasper specks, fractured as described previously); locally strongly bioturbated with horizontal and vertical burrows, strong HCl reaction 408.6-408.9ft: BJ, 30°, PR, T-PO, B-A, I 409.3-409.8ft: BJ(3), 30°, PR/UR, T-PO, C-B, I-II 410.0ft: BJ, 30°, SR, PO, C, II 413.4-413.8ft: BJ, 40°, PR, PO, C, II 414.6ft: J, 40°, PR, PO, C, II 416.3(2), 416.8, 417.5, 418.1ft: BJ, 40°, PR, PO, C-B, I-II 417.6-418.0ft: J, 0°, PR, PO, B, II 418.6-419.8ft: BJ(3), 40°, PR, T-PO, C-B, I-II 419.1ft: J, 40°, PR, PO, C, II 419.9ft: BJ, 30°, UR, T, B, I 423.9ft: J, 45°, SR, PO, B, II 424.1ft: BJ, 40°, PR, PO, B, I
395.8	416.0	5.0	4:18 3:43 4:04 5:36 5:50	(5.0) 100%	(5.0) 100%	Run 85			
390.8	421.0	5.0	5:33 4:39 5:53 5:47 3:18	(5.0) 100%	(4.2) 84%	Run 86			
385.8	426.0	5.0	5:12 4:14 4:18 4:09 4:54	(5.0) 100%	(4.8) 96%	Run 87			429.3-429.6ft: BJ, 40-45°, PR, T, A, I
380.8	431.0	5.0	4:45 3:50 3:30 4:09 4:25	(5.0) 100%	(4.8) 96%	Run 88			431.0ft: BJ, 40°, PR, T, A, I 431.6-431.9ft: BJ(3), 40°, PR, PO, C-A, I-II 432.5-432.9ft: BJ, 40°, PR, PO, B-A, II 433.5ft: J, 50°, PR, T, A, I 434.7ft: J, 45°, PR, T, A, I
375.8	436.0	5.0	4:33 4:11 5:05 4:18 3:55	(5.0) 100%	(4.6) 92%	Run 89 L1-35			438.0-438.1, 439.4, 439.8, 440.6ft: BJ, 35-40°, PR-PS, T, C-B, II
370.8	441.0	5.0	3:52 4:35 4:13 5:22 3:47	(5.0) 100%	(4.9) 98%	Run 90			442.3-443.9ft: BJ, 40°, PR/UR, T, A, I 442.5ft: BJ, 40°, PR, PO, B, II 444.9-445.7ft: BJ(5), 40°, PR, T-PO, C-A, I-II
365.8	446.0	5.0	3:51 5:10 3:30 3:57 4:56	(5.0) 100%	(4.2) 84%	Run 91		365.8	446.0

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: C. Baldwin/M. Lear					
SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee								DRILLER: D. White/O. Smith			Boring Orientation				
BORING NO.: MP-202				DRILL METHOD: Mud Rotary/Core				DRILL MACHINE: CME-55LC (C)			Inclination: Vertical				
GROUND ELEV.: 811.8 ft (NAVD88)				NORTHING: 570,922 US ft (NAD83)				EASTING: 2,448,050 US ft (NAD83)		Azimuth: NA					
TOTAL DEPTH: 461.0 ft			SAMPLE METHODS: ASTM D 1586-11; 2488-09a; 2113-08; 6032-08						HAMMER (ID): 140-lb Auto (331145)						
DATE STARTED: 6/6/13			COMPLETED: 6/24/13		CASING DEPTH: 14.2 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						
360.8	451.0		7:16 6:41 3:50 3:39	100%	54%				LIMESTONE (GRAINSTONE/WACKESTONE/MICRITE), gray (5Y 6/1 to N 6/), strong, very thinly to moderately bedded, fresh, fossiliferous, with little to some laminated to thinly bedded Calcareous SILTSTONE, reddish black (2.5YR 2.5/1) to black (N 2.5/), and few very thin to moderate chert beds and lenses (dusky red to reddish brown and black with olive gray and dusky red mottling, fractured as described previously); trace bioturbation and calcite filled pits, strong HCl reaction (continued) 446.2-447.1ft: BJ(8), 30°, PR, T-PO, D-A, I-II 447.8ft: J, 0°, PR, PO, C, II, likely mechanical 447.9ft: BJ, 30°, UR, PO, B, II 448.5-448.9ft: BJ(5), 30°, PR/UR, T-PO, C-B, I-II 449.1ft: J, 0°, PR, PO, C, II, likely mechanical 449.9ft: J, 40°, PR, PO, C, II 450.5,450.6ft: BJ, 40°, PR/SR, PO, C, II 451.5,451.9,452.3ft: BJ, 40°, PL-SR, PO, C-B, I-II 452.7-453.4ft: SZ 454.0ft: BJ, 30°, PR, T, A, I 455.5-455.9ft: BJ, 30°, PR, PO, D-C, II 456.6ft: BJ, 30°, PR, T, B, I 458.1,458.2ft: BJ, 30°, PR, PO, B, I 458.6,458.9ft: BJ, 30-40°, PR/SR, PO, B, I-II						
		5.0	4:24 4:09 4:00 5:46 4:25	(5.0) 100%	(3.7) 74%	Run 92									
355.8	456.0														
		5.0	4:52 3:25 3:30 3:46 3:26	(5.0) 100%	(4.6) 92%	Run 93 L1-36									
350.8	461.0											350.8	461.0		
												Boring and coring terminated at 461.0 feet.			