



# GEOTECHNICAL CORING LOG

Prepared By: MBL Date: 3/5/14

Checked By: JCM Date: 3/5/14

SHEET 1 OF 4

BECHTEL PROJECT NO.: 25847				AMEC PROJECT NO.: 6468-13-1072				COUNTY: Roane, TN		GEOLOGIST: R. Clark				
SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee								DRILLER: S. Snow/D. King				Boring Orientation		
BORING NO.: MP-114				DRILL METHOD: Mud Rotary/Core				DRILL MACHINE: CME-55 (TSD)				Inclination: Vertical		
GROUND ELEV.: 797.2 ft (NAVD88)				NORTHING: 570,053 US ft (NAD83)				EASTING: 2,448,465 US ft (NAD83)				Azimuth: NA		
TOTAL DEPTH: 175.2 ft			SAMPLE METHODS: ASTM D 1586-11; 2488-09a; 2113-08; 6032-08							HAMMER (ID): 140-lb Auto (373705)				
DATE STARTED: 7/30/13			COMPLETED: 8/3/13		CASING DEPTH: 12.4 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 @ 11.9 ft					
785.3	11.9	3.3	3:39 4:27 3:26	(2.8) 85%	(1.3) 39%	Run 1		785.3	LIMESTONE (MICRITE), gray (5Y 5/1) to bluish gray (5PB 6/1) with light yellowish brown (2.5Y 6/4) staining, weak to medium strong, very thinly to moderately bedded, moderately to slightly weathered, interbedded with few to little, laminated clayey Calcareous SILTSTONE, very dark gray (N 3/), wavy/wispy and irregular partings; strong HCl reaction ( <b>Benbolt Formation-Unit E</b> )					11.9
782.0	15.2	5.0	1:08/0.3 4:20 2:59 4:27 3:38 5:11	(4.7) 94%	(2.2) 44%	Run 2			13.1,13.4,13.5,14.0,14.3ft: BJ, 30°, PS, PO, C, III 14.2ft: J, 85°, US, VT, B, III 14.7-15.0ft: FZ, BJ, 30°, PS, PO, C, III 15.5,15.7,16.1,16.3,16.7,17.5,18.1ft: BJ, 30°, PS, T-PO, B-C, III 16.9ft: J, 65°, UR, PO, B, III 18.5-20.2ft: FZ, 30°, PS-PR, T-PO, B-C, III					
777.0	20.2	5.0	5:35 4:42 2:15 3:01 3:26	(5.0) 100%	(3.7) 74%	Run 3		777.0	LIMESTONE (MICRITE), gray (5Y 5/1) to bluish gray (5PB 6/1) and dark bluish gray (5PB 4/1), trace light yellowish brown (2.5Y 6/4) staining, medium strong to strong, very thinly to moderately bedded, slightly weathered to fresh, interbedded with little to some, laminated to very thin clayey Calcareous SILTSTONE, very dark gray (N 3/), wavy/wispy and irregular partings; slight to moderate bioturbation, trace fossils, trace to few calcite filled pits and burrows, strong HCl reaction					20.2
772.0	25.2	5.0	3:28 3:45 3:40 3:18 2:51	(4.9) 98%	(4.3) 86%	Run 4			20.5,20.7,20.9,22.1,22.4,22.7,23.0,23.1ft: BJ, 30°, PS, T, B, III 21.2-21.4ft: FZ, 30°, PS, VW, L, III 23.5,24.7ft: BJ, 30°, PS, O, C, III 24.4ft: FZ, 10-40°, PR, PO, C, III 25.5,25.6ft: BJ, 30°, PS, O, C, III 26.1-26.4ft: FZ, 30°, PR, VW, G-D, IV 27.0ft: BJ, 30°, PS, T, B, II 28.4ft: J, 50°, UR, PO, B, III					
767.0	30.2	5.0	2:08 2:18 2:46 3:48 2:32	(5.0) 100%	(4.5) 90%	Run 5			30.7,32.5,32.7,33.0,33.6,34.9ft: BJ, 30°, PS, T, B, II 31.5ft: J, 60°, PR, PO, B, III					
762.0	35.2	5.0	2:33 2:34 2:46 3:06 3:24	(5.0) 100%	(4.8) 96%	Run 6			36.0,37.5,38.8,38.9,40.0ft: BJ, 30°, PS, T, B, II 39.5ft: J, 60°, PS, T, B, III					
757.0	40.2	5.0	2:43 2:36 3:14 2:38 3:26	(5.0) 100%	(5.0) 100%	Run 7		757.0	LIMESTONE (MICRITE), gray (5Y 5/1) to bluish gray (5PB 6/1) and dark bluish gray (5PB 4/1), medium strong to strong, very thinly to mostly moderately and thickly bedded, fresh, interbedded with few to little, laminated to very thin clayey Calcareous SILTSTONE, very dark gray (N 3/), wavy/wispy to irregular and diffuse partings; becomes argillaceous and amorphous with sparry calcite "bird eyes", slight bioturbation, strong HCl reaction					40.2
752.0	45.2	5.0	1:47 2:33 2:02 2:18 2:25	(5.0) 100%	(5.0) 100%	Run 8			41.9,42.8ft: BJ, 30°, PS, T, B, II					
747.0	50.2	5.0	1:44 1:25 1:40 2:00 2:31	(5.0) 100%	(5.0) 100%	Run 9			45.3,48.6ft: BJ, 30°, PS, T, B, II					
742.0	55.2	5.0	2:10 1:46 2:04 1:47 1:50	(5.0) 100%	(5.0) 100%	Run 10			52.2,53.2,54.3ft: BJ, 30°, PS, T, B, II					
737.0	60.2							736.6	58.8,59.8ft: BJ, 30°, PS, T, B, II					

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



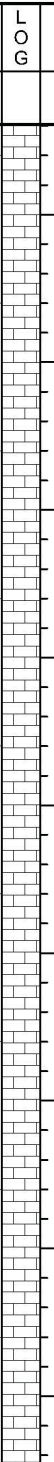
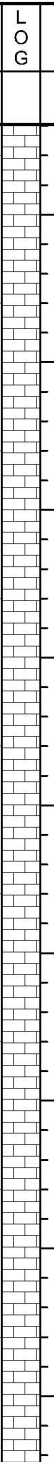
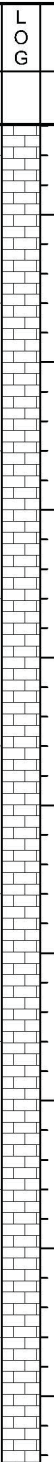
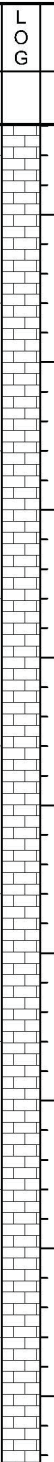
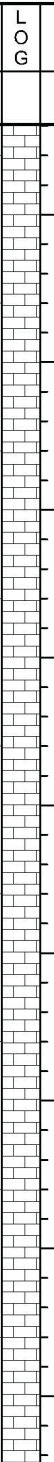
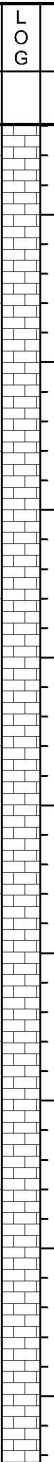
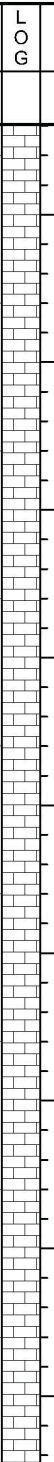
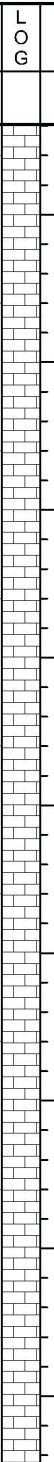
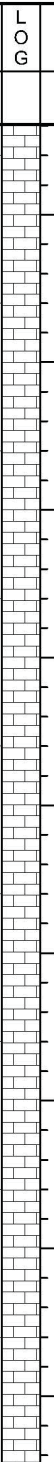
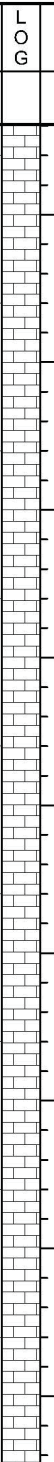
BECHTEL PROJECT NO.: 25847		AMEC PROJECT NO.: 6468-13-1072		COUNTY: Roane, TN	GEOLOGIST: R. Clark
SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee				DRILLER: S. Snow/D. King	Boring Orientation
BORING NO.: MP-114		DRILL METHOD: Mud Rotary/Core		DRILL MACHINE: CME-55 (TSD)	Inclination: Vertical
GROUND ELEV.: 797.2 ft (NAVD88)		NORTHING: 570,053 US ft (NAD83)		EASTING: 2,448,465 US ft (NAD83)	Azimuth: NA
TOTAL DEPTH: 175.2 ft		SAMPLE METHODS: ASTM D 1586-11; 2488-09a; 2113-08; 6032-08			HAMMER (ID): 140-lb Auto (373705)
DATE STARTED: 7/30/13		COMPLETED: 8/3/13	CASING DEPTH: 12.4 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.	LOG	ROCK DESCRIPTION AND REMARKS
								Continued from previous page
732.0	65.2	5.0	2:17 1:56 2:02 1:33 2:02	(5.0) 100%	(4.7) 94%	Run 11		LIMESTONE (MICRITE/WACKESTONE), gray (N 5/) to bluish gray (5PB 5/1) and dark bluish gray (5PB 4/1), strong, laminated to very thinly bedded becoming very thinly bedded to moderately bedded, fresh, interbedded with little to some laminated to thin Calcareous SILTSTONE, very dark gray (N 3/), planar bedding becoming wavy/irregular and diffuse with trace pyrite, and trace very thin to thin chert beds, lenses, and nodules (gray to dark gray and black, with calcite filled tensional fractures orthogonal to bedding); locally fossiliferous in (WACKESTONE/GRAINSTONE) beds, slight bioturbation, trace stylolites, trace calcite filled pits and vugs (separate/non-touching), strong HCl reaction 61.2,61.6,62.3,62.6,63.1,64.8ft: BJ, 30°, PS, T, B, II 64.0ft: BJ, 30°, SS, T, B, II 67.4,67.9,68.4,68.6,69.0ft: BJ, 30°, PS, T, B, II 69.3ft: BJ, 30°, US, T, B, II
727.0	70.2	5.0	2:25 2:03 2:12 1:45 2:24	(5.0) 100%	(5.0) 100%	Run 12		70.5,71.9,72.2,72.4,72.6,73.7,74.3ft: BJ, 30°, PS, T, B, II
722.0	75.2	5.0	3:21 2:49 3:01 2:20 2:45	(5.0) 100%	(3.5) 70%	Run 13		75.3,75.7,77.3,78.5ft: BJ, 30°, PS, T, B, II 78.3ft: SH, 45°, PR, PO, B, II, with calcite
717.0	80.2	5.0	2:37 1:54 1:52 2:55 1:58	(5.0) 100%	(4.8) 96%	Run 14		80.9ft: BJ, 30°, 35°, US, T, B, II 84.8ft: BJ, 30°, PS, T, B, II
712.0	85.2	5.0	3:22 2:44 2:55 2:29 2:57	(5.0) 100%	(5.0) 100%	Run 15		86.0,86.6,87.2,87.7,88.6,89.9ft: BJ, 30°, PS, T, B, II
707.0	90.2	5.0	2:05 2:13 2:23 2:07 2:00	(5.0) 100%	(5.0) 100%	Run 16		91.1,91.6,92.1,92.7,93.6,94.2,94.7ft: BJ, 30-, PS-US, T, B, II
702.0	95.2	5.0	3:48 2:04 2:45 2:29 2:35	(5.0) 100%	(4.7) 94%	Run 17		95.8,96.6,99.1,99.9ft: BJ, 30°, PS-US, T, B, II
697.0	100.2	5.0	3:53 2:48 3:18 3:01 3:41	(5.0) 100%	(5.0) 100%	Run 18		100.5,101.2,103.9ft: BJ, 30°, PS-US, T, B, II
692.0	105.2	5.0	4:51 3:35 3:36 2:48 3:31	(5.0) 100%	(5.0) 100%	Run 19		105.8,108.9ft: BJ, 30°, PS, T, B, II 106.6-106.7ft: FZ, 35° and 75°, PS, PO, B, III-IV 109.2ft: J, 50°, PS, VT, A-B, III
		5.0	1:57 2:04 1:43 2:05	(5.0) 100%	(5.0) 100%	Run 20		

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





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SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee								DRILLER: S. Snow/D. King		Boring Orientation Inclination: Vertical Azimuth: NA	
BORING NO.: MP-114				DRILL METHOD: Mud Rotary/Core				DRILL MACHINE: CME-55 (TSD)			
GROUND ELEV.: 797.2 ft		(NAVD88)		NORTHING: 570,053		US ft (NAD83)		EASTING: 2,448,465		US ft (NAD83)	
TOTAL DEPTH: 175.2 ft		SAMPLE METHODS: ASTM D 1586-11; 2488-09a; 2113-08; 6032-08								HAMMER (ID): 140-lb Auto (373705)	
DATE STARTED: 7/30/13		COMPLETED: 8/3/13		CASING DEPTH: 12.4 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			
687.0	110.2	5.0	2:01			Run 21		LIMESTONE (MICRITE/WACKESTONE), gray (N 5/) to bluish gray (5PB 5/1) and dark bluish gray (5PB 4/1), strong, laminated to very thinly bedded becoming very thinly bedded to moderately bedded, fresh, interbedded with little to some laminated to thin Calcareous SILTSTONE, very dark gray (N 3/), planar bedding becoming wavy/irregular and diffuse with trace pyrite, and trace very thin to thin chert beds, lenses, and nodules (gray to dark gray and black, with calcite filled tensional fractures orthogonal to bedding); locally fossiliferous in (WACKESTONE/GRAINSTONE) beds, slight bioturbation, trace stylolites, trace calcite filled pits and vugs (separate/non-touching), strong HCl reaction (continued) 111.7-111.8ft: FZ, 30°, PL-PS, T, B, II 112.4ft: SH, 55°, PL, T, B, II 112.9ft: BJ, 30°, PS, T, B, II 114.4ft: BJ, 30°, PS, T, B, II			
			2:35	(5.0)	(4.7)						
			2:20	100%	94%						
			2:25								
			2:21								
682.0	115.2	5.0	2:57			Run 22		LIMESTONE (MICRITE/WACKESTONE), gray (N 5/) to bluish gray (5PB 5/1) and dark bluish gray (5PB 4/1), strong, laminated to very thinly bedded becoming very thinly bedded to moderately bedded, fresh, interbedded with little to some laminated to thin Calcareous SILTSTONE, very dark gray (N 3/), planar bedding becoming wavy/irregular and diffuse with trace pyrite, and trace very thin to thin chert beds, lenses, and nodules (gray to dark gray and black, with calcite filled tensional fractures orthogonal to bedding); locally fossiliferous in (WACKESTONE/GRAINSTONE) beds, slight bioturbation, trace stylolites, trace calcite filled pits and vugs (separate/non-touching), strong HCl reaction (continued) 111.7-111.8ft: FZ, 30°, PL-PS, T, B, II 112.4ft: SH, 55°, PL, T, B, II 112.9ft: BJ, 30°, PS, T, B, II 114.4ft: BJ, 30°, PS, T, B, II			
			2:45	(5.0)	(5.0)						
			3:07	100%	100%						
			3:02								
			2:35								
677.0	120.2	5.0	2:41			Run 23		LIMESTONE (MICRITE/WACKESTONE), gray (N 5/) to bluish gray (5PB 5/1) and dark bluish gray (5PB 4/1), strong, laminated to very thinly bedded becoming very thinly bedded to moderately bedded, fresh, interbedded with little to some laminated to thin Calcareous SILTSTONE, very dark gray (N 3/), planar bedding becoming wavy/irregular and diffuse with trace pyrite, and trace very thin to thin chert beds, lenses, and nodules (gray to dark gray and black, with calcite filled tensional fractures orthogonal to bedding); locally fossiliferous in (WACKESTONE/GRAINSTONE) beds, slight bioturbation, trace stylolites, trace calcite filled pits and vugs (separate/non-touching), strong HCl reaction (continued) 111.7-111.8ft: FZ, 30°, PL-PS, T, B, II 112.4ft: SH, 55°, PL, T, B, II 112.9ft: BJ, 30°, PS, T, B, II 114.4ft: BJ, 30°, PS, T, B, II			
			2:49	(5.0)	(5.0)						
			1:58	100%	100%						
			1:39								
			1:45								
672.0	125.2	5.0	2:48			Run 24		LIMESTONE (MICRITE/WACKESTONE), gray (N 5/) to bluish gray (5PB 5/1) and dark bluish gray (5PB 4/1), strong, laminated to very thinly bedded becoming very thinly bedded to moderately bedded, fresh, interbedded with little to some laminated to thin Calcareous SILTSTONE, very dark gray (N 3/), planar bedding becoming wavy/irregular and diffuse with trace pyrite, and trace very thin to thin chert beds, lenses, and nodules (gray to dark gray and black, with calcite filled tensional fractures orthogonal to bedding); locally fossiliferous in (WACKESTONE/GRAINSTONE) beds, slight bioturbation, trace stylolites, trace calcite filled pits and vugs (separate/non-touching), strong HCl reaction (continued) 111.7-111.8ft: FZ, 30°, PL-PS, T, B, II 112.4ft: SH, 55°, PL, T, B, II 112.9ft: BJ, 30°, PS, T, B, II 114.4ft: BJ, 30°, PS, T, B, II			
			2:07	(5.0)	(4.9)						
			2:29	100%	98%						
			2:46								
			2:18								
667.0	130.2	5.0	2:33			Run 25		LIMESTONE (MICRITE/WACKESTONE), gray (N 5/) to bluish gray (5PB 5/1) and dark bluish gray (5PB 4/1), strong, laminated to very thinly bedded becoming very thinly bedded to moderately bedded, fresh, interbedded with little to some laminated to thin Calcareous SILTSTONE, very dark gray (N 3/), planar bedding becoming wavy/irregular and diffuse with trace pyrite, and trace very thin to thin chert beds, lenses, and nodules (gray to dark gray and black, with calcite filled tensional fractures orthogonal to bedding); locally fossiliferous in (WACKESTONE/GRAINSTONE) beds, slight bioturbation, trace stylolites, trace calcite filled pits and vugs (separate/non-touching), strong HCl reaction (continued) 111.7-111.8ft: FZ, 30°, PL-PS, T, B, II 112.4ft: SH, 55°, PL, T, B, II 112.9ft: BJ, 30°, PS, T, B, II 114.4ft: BJ, 30°, PS, T, B, II			
			2:05	(5.0)	(4.8)						
			2:21	100%	96%						
			2:39								
			2:54								
662.0	135.2	5.0	1:59			Run 26		LIMESTONE (MICRITE/WACKESTONE), gray (N 5/) to bluish gray (5PB 5/1) and dark bluish gray (5PB 4/1), strong, laminated to very thinly bedded becoming very thinly bedded to moderately bedded, fresh, interbedded with little to some laminated to thin Calcareous SILTSTONE, very dark gray (N 3/), planar bedding becoming wavy/irregular and diffuse with trace pyrite, and trace very thin to thin chert beds, lenses, and nodules (gray to dark gray and black, with calcite filled tensional fractures orthogonal to bedding); locally fossiliferous in (WACKESTONE/GRAINSTONE) beds, slight bioturbation, trace stylolites, trace calcite filled pits and vugs (separate/non-touching), strong HCl reaction (continued) 111.7-111.8ft: FZ, 30°, PL-PS, T, B, II 112.4ft: SH, 55°, PL, T, B, II 112.9ft: BJ, 30°, PS, T, B, II 114.4ft: BJ, 30°, PS, T, B, II			
			2:18	(5.0)	(5.0)						
			2:14	100%	100%						
			1:51								
			1:45								
657.0	140.2	5.0	1:55			Run 27		LIMESTONE (MICRITE/WACKESTONE), gray (N 5/) to bluish gray (5PB 5/1) and dark bluish gray (5PB 4/1), strong, laminated to very thinly bedded becoming very thinly bedded to moderately bedded, fresh, interbedded with little to some laminated to thin Calcareous SILTSTONE, very dark gray (N 3/), planar bedding becoming wavy/irregular and diffuse with trace pyrite, and trace very thin to thin chert beds, lenses, and nodules (gray to dark gray and black, with calcite filled tensional fractures orthogonal to bedding); locally fossiliferous in (WACKESTONE/GRAINSTONE) beds, slight bioturbation, trace stylolites, trace calcite filled pits and vugs (separate/non-touching), strong HCl reaction (continued) 111.7-111.8ft: FZ, 30°, PL-PS, T, B, II 112.4ft: SH, 55°, PL, T, B, II 112.9ft: BJ, 30°, PS, T, B, II 114.4ft: BJ, 30°, PS, T, B, II			
			3:13	(5.0)	(5.0)						
			2:57	100%	100%						
			2:32								
			2:13								
652.0	145.2	5.0	2:25			Run 28		LIMESTONE (MICRITE/WACKESTONE), gray (N 5/) to bluish gray (5PB 5/1) and dark bluish gray (5PB 4/1), strong, laminated to very thinly bedded becoming very thinly bedded to moderately bedded, fresh, interbedded with little to some laminated to thin Calcareous SILTSTONE, very dark gray (N 3/), planar bedding becoming wavy/irregular and diffuse with trace pyrite, and trace very thin to thin chert beds, lenses, and nodules (gray to dark gray and black, with calcite filled tensional fractures orthogonal to bedding); locally fossiliferous in (WACKESTONE/GRAINSTONE) beds, slight bioturbation, trace stylolites, trace calcite filled pits and vugs (separate/non-touching), strong HCl reaction (continued) 111.7-111.8ft: FZ, 30°, PL-PS, T, B, II 112.4ft: SH, 55°, PL, T, B, II 112.9ft: BJ, 30°, PS, T, B, II 114.4ft: BJ, 30°, PS, T, B, II			
			2:25	(5.0)	(5.0)						
			2:29	100%	100%						
			2:03								
			2:18								
647.0	150.2	5.0	2:22			Run 29		LIMESTONE (MICRITE/WACKESTONE), gray (N 5/) to bluish gray (5PB 5/1) and dark bluish gray (5PB 4/1), strong, laminated to very thinly bedded becoming very thinly bedded to moderately bedded, fresh, interbedded with little to some laminated to thin Calcareous SILTSTONE, very dark gray (N 3/), planar bedding becoming wavy/irregular and diffuse with trace pyrite, and trace very thin to thin chert beds, lenses, and nodules (gray to dark gray and black, with calcite filled tensional fractures orthogonal to bedding); locally fossiliferous in (WACKESTONE/GRAINSTONE) beds, slight bioturbation, trace stylolites, trace calcite filled pits and vugs (separate/non-touching), strong HCl reaction (continued) 111.7-111.8ft: FZ, 30°, PL-PS, T, B, II 112.4ft: SH, 55°, PL, T, B, II 112.9ft: BJ, 30°, PS, T, B, II 114.4ft: BJ, 30°, PS, T, B, II			
			2:09	(5.0)	(5.0)						
			2:03	100%	100%						
			2:23								
			1:58								
642.0	155.2	5.0	2:23			Run 30		LIMESTONE (MICRITE/WACKESTONE), gray (N 5/) to bluish gray (5PB 5/1) and dark bluish gray (5PB 4/1), strong, laminated to very thinly bedded becoming very thinly bedded to moderately bedded, fresh, interbedded with little to some laminated to thin Calcareous SILTSTONE, very dark gray (N 3/), planar bedding becoming wavy/irregular and diffuse with trace pyrite, and trace very thin to thin chert beds, lenses, and nodules (gray to dark gray and black, with calcite filled tensional fractures orthogonal to bedding); locally fossiliferous in (WACKESTONE/GRAINSTONE) beds, slight bioturbation, trace stylolites, trace calcite filled pits and vugs (separate/non-touching), strong HCl reaction (continued) 111.7-111.8ft: FZ, 30°, PL-PS, T, B, II 112.4ft: SH, 55°, PL, T, B, II 112.9ft: BJ, 30°, PS, T, B, II 114.4ft: BJ, 30°, PS, T, B, II			
			2:41	(5.0)	(5.0)						
			3:03	100%	100%						
			3:25								
			3:25								

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

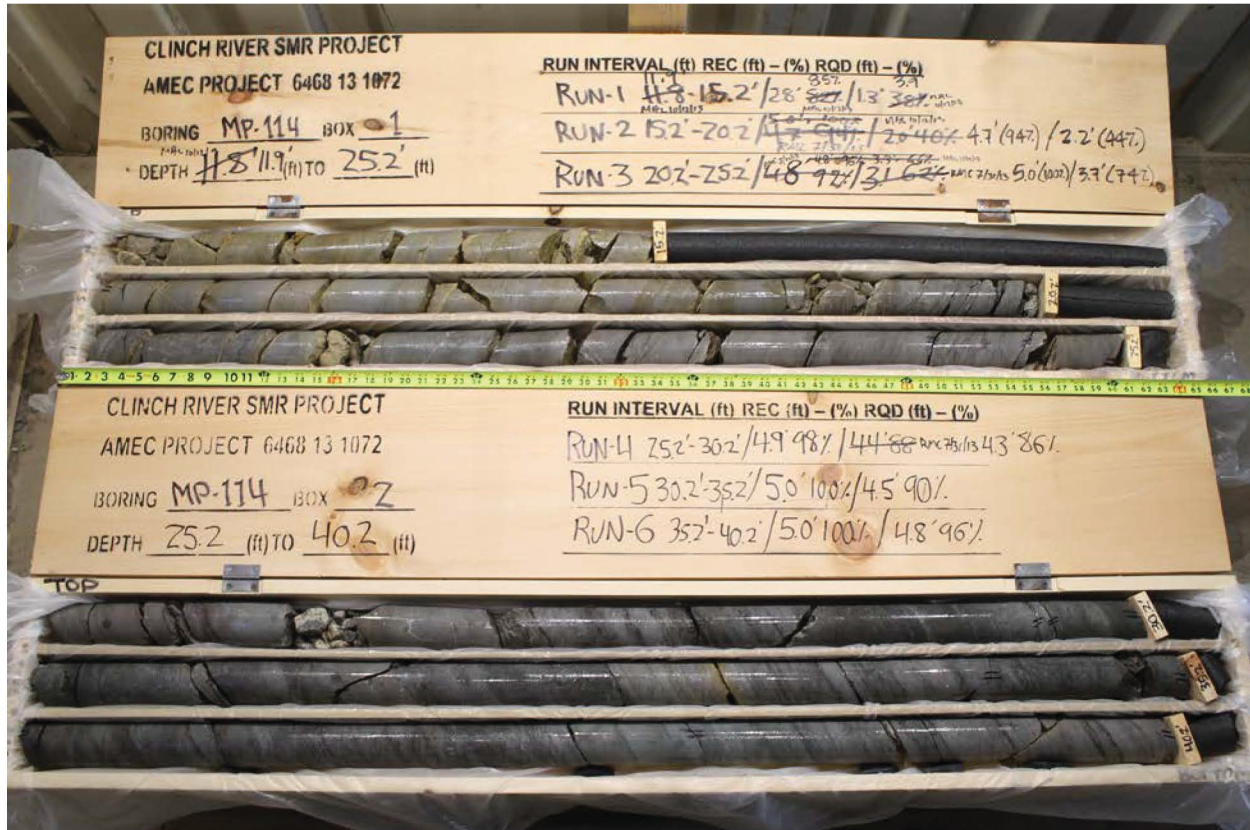


BECHTEL PROJECT NO.: 25847				AMEC PROJECT NO.: 6468-13-1072				COUNTY: Roane, TN		GEOLOGIST: R. Clark		
SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee								DRILLER: S. Snow/D. King			Boring Orientation	
BORING NO.: MP-114				DRILL METHOD: Mud Rotary/Core				DRILL MACHINE: CME-55 (TSD)			Inclination: Vertical	
GROUND ELEV.: 797.2 ft (NAVD88)				NORTHING: 570,053 US ft (NAD83)				EASTING: 2,448,465 US ft (NAD83)			Azimuth: NA	
TOTAL DEPTH: 175.2 ft			SAMPLE METHODS: ASTM D 1586-11; 2488-09a; 2113-08; 6032-08						HAMMER (ID): 140-lb Auto (373705)			
DATE STARTED: 7/30/13			COMPLETED: 8/3/13		CASING DEPTH: 12.4 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			
637.0	160.2	5.0	2:28 2:29	(5.0) 100%	(5.0) 100%	Run 31			LIMESTONE (MICRITE/WACKESTONE), gray (N 5/) to bluish gray (5PB 5/1) and dark bluish gray (5PB 4/1), strong, laminated to very thinly bedded becoming very thinly bedded to moderately bedded, fresh, interbedded with little to some laminated to thin Calcareous SILTSTONE, very dark gray (N 3/), planar bedding becoming wavy/irregular and diffuse with trace pyrite, and trace very thin to thin chert beds, lenses, and nodules (gray to dark gray and black, with calcite filled tensional fractures orthogonal to bedding); locally fossiliferous in (WACKESTONE/GRAINSTONE) beds, slight bioturbation, trace stylolites, trace calcite filled pits and vugs (separate/non-touching), strong HCl reaction (continued) 161.6,164.0,164.4ft: SH, 30-35°, PL, T, B, II, with calcite 163.6ft: BJ, 35°, US, T, B, II 165.0-165.4ft: SZ, 35-55°, PL-UL, VT, A, I, with calcite 165.6,165.9ft: SH, 35°, PL, T, B, II, with calcite 168.1ft: BJ, 30°, PS, T, B, II			
632.0	165.2		2:46									
			2:09									
			2:03									
			2:09									
627.0	170.2	5.0	1:48									
			2:14									
			2:08									
			2:00									
622.0	175.2	5.0	1:53									
			2:25									
			2:37									
			1:35									
			1:39									
			1:54									
			2:10									
									622.0	175.2		
Boring and coring terminated at 175.2 feet.												

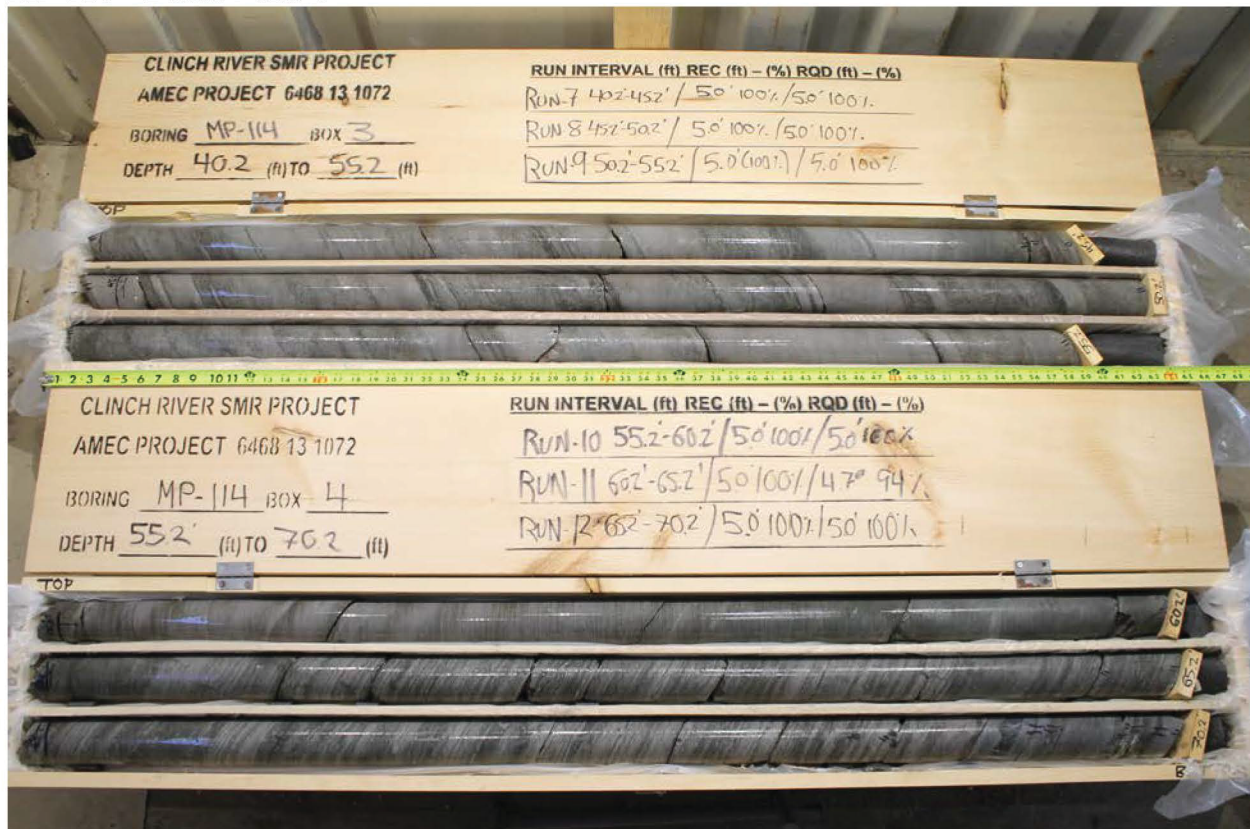
CLINCH RIVER SMR CORE FINAL CLINCH FINAL LOGS.GPJ CLINCH BORING DATA TEMPLATE.GDT 3/5/14



# MP-114 – Boxes 1 and 2

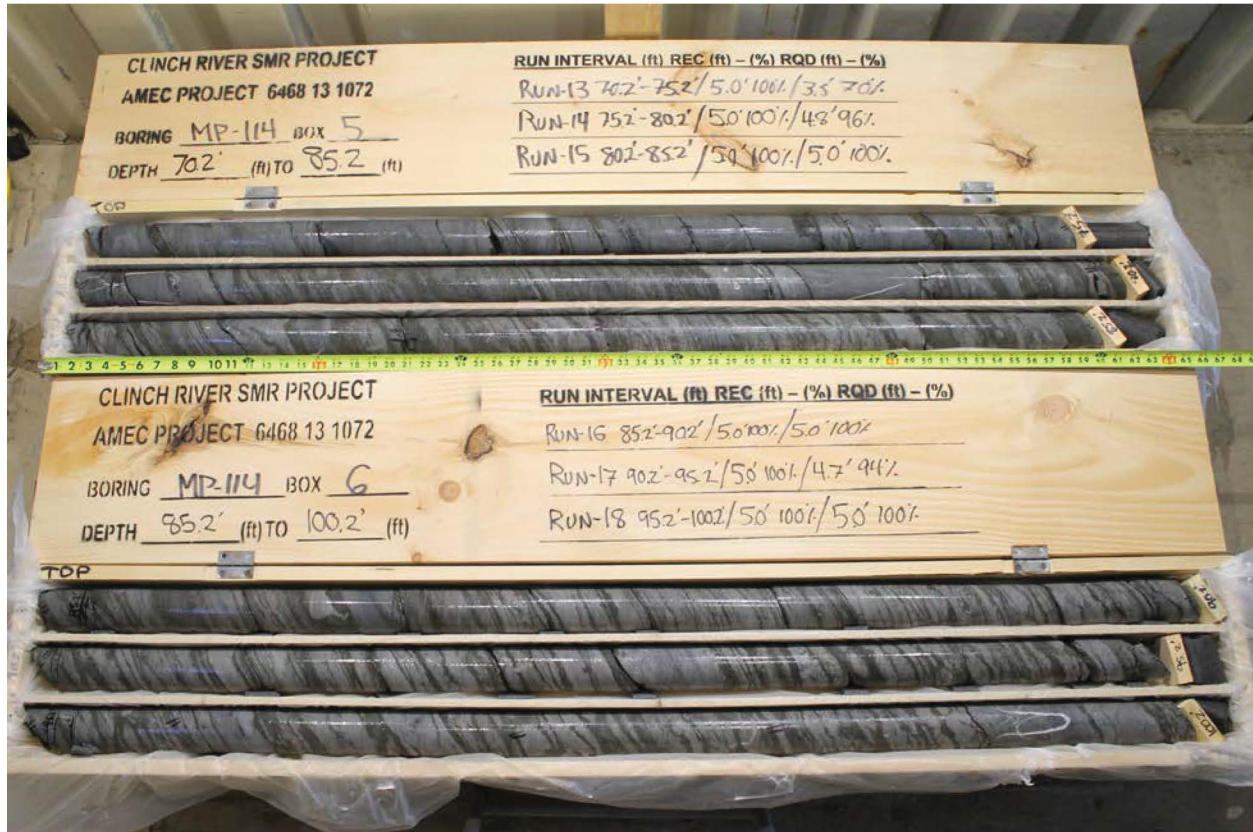


# MP-114 – Boxes 3 and 4

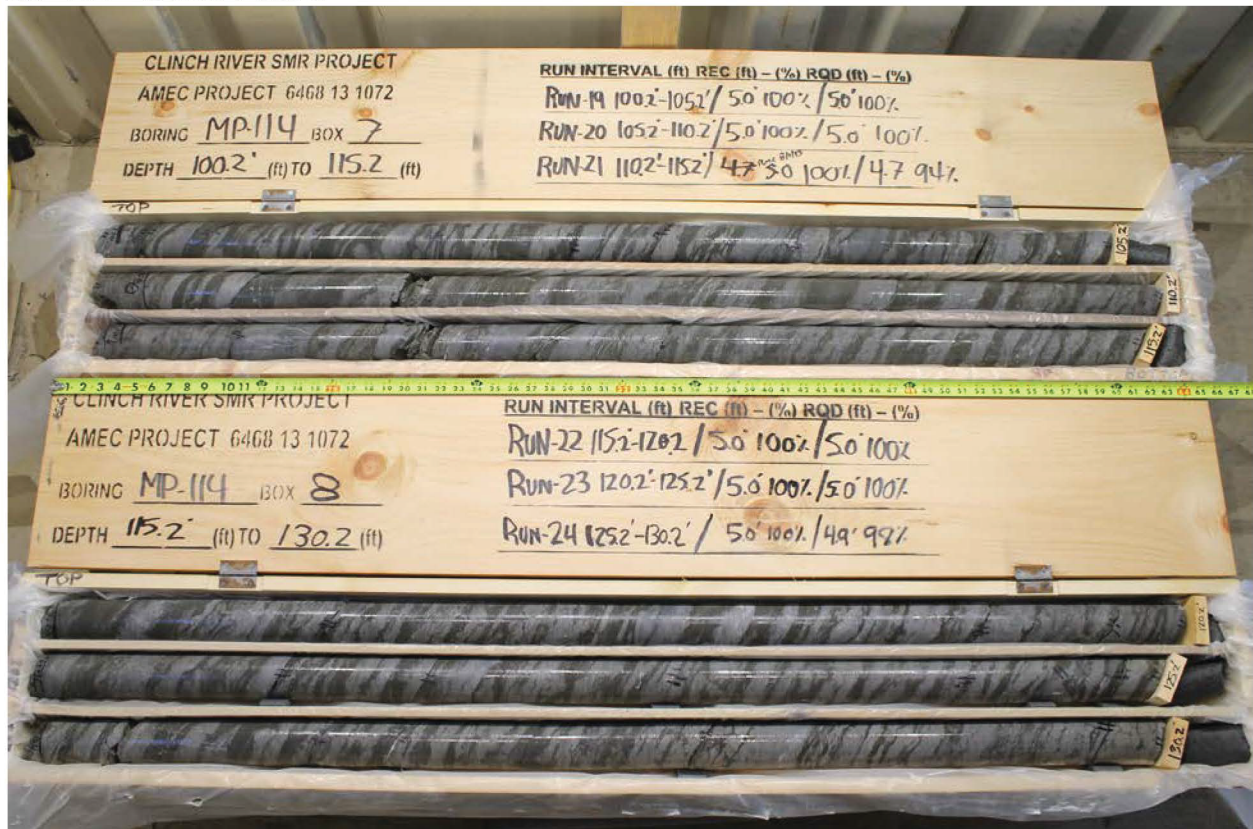




# MP-114 – Boxes 5 and 6

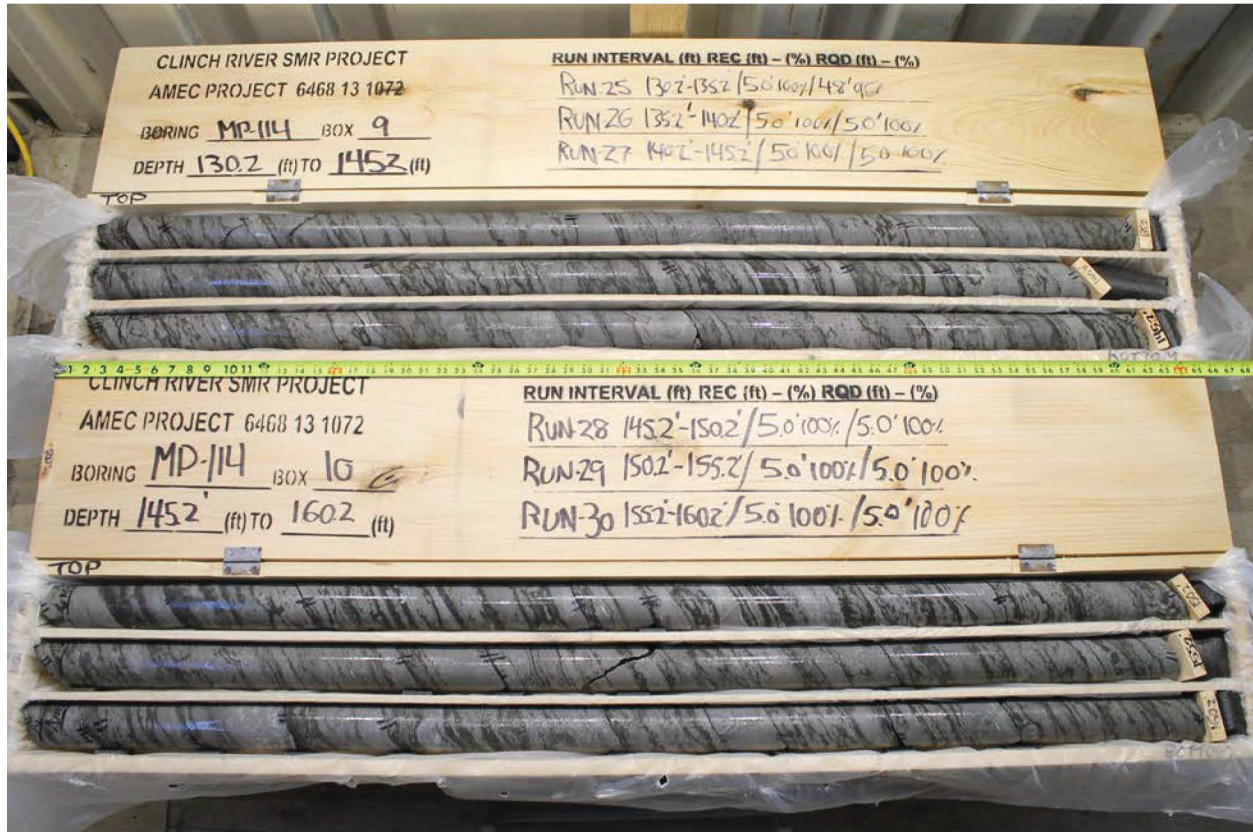


# MP-114 – Boxes 7 and 8





# MP-114 – Boxes 9 and 10



# MP-114 – Box 11

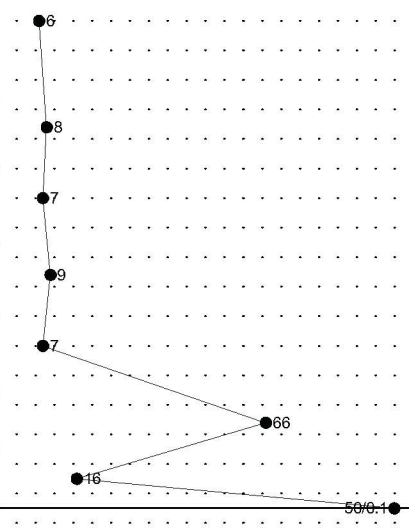







## GEOTECHNICAL BORING LOG

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: M. Flanik					
SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee								DRILLER: J. Landeros/N. Molinalara				Boring Orientation					
BORING NO.: MP-115				DRILL METHOD: Mud Rotary/Core				DRILL MACHINE: CME-550X (P)				Inclination: Vertical					
GROUND ELEV.: 796.9 ft (NAVD88)				NORTHING: 570,095 US ft (NAD83)				EASTING: 2,448,562 US ft (NAD83)				Azimuth: NA					
TOTAL DEPTH: 99.1 ft		SAMPLE METHODS: ASTM D 1586-11; 2488-09a; 2113-08; 6032-08						ROD TYPE: AWJ		HAMMER (ID): 140-lb Auto (337153)							
DATE STARTED: 6/23/13		COMPLETED: 6/24/13		HOLE DIA.: 4"		CASING DEPTH: 16.7 ft		CORE SIZE:HQ3		BITS USED: 4" Roller Cone							
ELEV.	DEPTH	BLOW COUNT			BLOWS PER FOOT					SAMP.	LOG	SOIL DESCRIPTION AND REMARKS					
(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	20	40	60	80	100							
796.9					Ground Surface							796.9 0.0					
796.9	0.0	2	2	4						SS-1		FILL: FAT CLAY (CH), reddish yellow (7.5YR 6/8) and red (10R 5/8) mottled, medium stiff, moist, high plasticity fines, few fine angular gravel, trace organics, no HCl reaction					
793.3	3.6	3	4	4						SS-2		793.9 3.0					
790.9	6.0	2	3	4						SS-3		FILL: FAT CLAY with Gravel (CH), reddish yellow (7.5YR 6/8) and red (10R 5/8) mottled, medium stiff, moist, high plasticity fines, little fine to coarse subangular to angular gravel, no HCl reaction					
788.3	8.6	4	4	5						SS-4		8.6ft: As above, to stiff					
785.9	11.0	3	2	5						SS-5	786.4 10.5						
783.3	13.6	2	43	23						SS-6		783.9 13.0					
781.4	15.5	10	6	10						SS-7		781.4 15.5					
779.5	17.4	50/0.1								SS-8		779.9 17.5					
						779.4 17.5											
												RESIDUAL SOIL: SILTY GRAVEL with Sand (GM), dark gray (7.5YR 4/1), very dense, moist to wet, fine to coarse angular gravel, little non-plastic fines, little coarse sand, strong HCl reaction					
												RESIDUAL SOIL: FAT CLAY with Gravel (CH), dark gray (7.5YR 4/1) and light olive brown (2.5Y 5/4), very stiff, moist, high plasticity fines, little fine to coarse angular gravel, trace coarse sand, strong HCl reaction					
												WEATHERED ROCK: LIMESTONE, No recovery					
												Soil drilling halted. Log continues on geotechnical coring log					
												Observed water levels: 15.4 ft bgs, AM 6/24/13					

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