



GEOTECHNICAL BORING LOG

Prepared By: MBL Date: 3/5/14

Checked By: JCM Date: 3/5/14

SHEET 1 OF 1

BECHTEL NO.: 25847		AMEC PROJECT NO.: 6468-13-1072			COUNTY: Roane, TN		GEOLOGIST: N. Smith							
SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee					DRILLER: G. Bilbrey/J. Walker			Boring Orientation						
BORING NO.: MP-425		DRILL METHOD: Mud Rotary/Core			DRILL MACHINE: CME-75 (TSD)			Inclination: 29°						
GROUND ELEV.: 811.9 ft (NAVD88)		NORTHING: 570,815 US ft (NAD83)		EASTING: 2,448,200 US ft (NAD83)		Azimuth: N 49° E								
TOTAL DEPTH: 272.9 ft		SAMPLE METHODS: ASTM D 2488-09a; 2113-08; 6032-08			ROD TYPE: AWJ		HAMMER (ID): NA-Sampler pushed							
DATE STARTED: 7/11/13		COMPLETED: 7/21/13	HOLE DIA.: 4"	CASING DEPTH: 6.4 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	
													Ground Surface	0.0
	0.0	NA	NA	NA							SS-1		FILL: LEAN CLAY (CL), red (2.5YR 4/6), dusky red (2.5YR 3/2), dark reddish gray (2.5YR 4/1), and strong brown (7.5YR 5/6), mottled, moist, moderate plasticity fines, trace fine gravel, few to trace organics/roots, no HCl reaction	
	1.5	NA	NA	NA							SS-2		WEATHERED ROCK: LIMESTONE, not sampled; bit refusal at 6.2 feet	3.8
													Soil drilling halted. Log continues on geotechnical coring log	6.2
													NOTE: Elevations not shown. Depths indicated on log are lengths measured along plunge of boring from ground surface.	
													Observed water levels: 8.6 ft bgs, AM 7/16/13 12.0 ft bgs, AM 7/17/13 12.8 ft bgs, AM 7/18/13 10.5 ft bgs, AM 7/19/13 12.2 ft bgs, AM 7/20/13 10.6 ft bgs, AM 7/21/13	

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: N. Smith
SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee				DRILLER: G. Bilbrey/J. Walker	
BORING NO.: MP-425		DRILL METHOD: Mud Rotary/Core		DRILL MACHINE: CME-75 (TSD)	
GROUND ELEV.: 811.9 ft (NAVD88)		NORTHING: 570,815 US ft (NAD83)		EASTING: 2,448,200 US ft (NAD83)	
TOTAL DEPTH: 272.9 ft		SAMPLE METHODS: ASTM D 2488-09a; 2113-08; 6032-08			HAMMER (ID): NA-Sampler pushed
DATE STARTED: 7/11/13		COMPLETED: 7/21/13	CASING DEPTH: 6.4 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 @ 6.2 ft
	6.2	1.7	3:56	(1.7)	(1.7)	Run 1		LIMESTONE (WACKESTONE/MICRITE), gray (N 6/ to N 5/) and bluish gray (5PB 5/1), strong, laminated to moderately bedded, fresh, fossiliferous, interbedded with little to some, laminated to thin Calcareous SILTSTONE, very dark gray (N 3/), wispy/wavy to irregular and diffuse bedding; slight bioturbation, trace calcite filled pits, trace pyrite, strong HCl reaction (Rockdell Formation-Unit C)
	7.9	5.0	7:25/0.7	100%	100%	Run 2		
			2:40	(5.0)	(5.0)			
			2:25	100%	100%			
			2:19					
			2:29					
	12.9	5.0	2:57					
			2:53	(5.0)	(4.8)	Run 3		13.0ft: J, 60°, SR, O-PO, B-C, II-III 16.9ft: J, 70°, UR, B, T, II, with calcite
			2:10	100%	96%			
			2:12					
	17.9	5.0	2:14					
			2:26	(5.0)	(5.0)	Run 4	20.1ft: J, 70°, PR, T, B, II, with calcite	
			2:09	100%	100%			
			2:18					
			3:13					
	22.9	5.0	3:02					
			2:28	(5.0)	(4.7)	Run 5	27.0-27.3ft: FZ, 30°, SR-SL, T-PO, C, II, with calcite 27.0,27.3ft: BJ, 30°, PR, PO, C, II	
			1:58	100%	94%			
			2:30					
			2:13					
	27.9	5.0	3:00					
			2:33	(5.0)	(5.0)	Run 6	29.1ft: J, 80°, UR-US, VT-T, A-B, I-II, partially healed with trace calcite	
			2:33	100%	100%			
			2:04					
			2:18					
	32.9	5.0	2:30					
			1:58	(5.0)	(4.8)	Run 7	35.7,35.8,35.9ft: BJ, 30°, PR, T-PO, A-B, II	
			1:53	100%	96%			
			1:42					
			2:17					
	37.9	5.0	2:20				LIMESTONE (PACKSTONE/GRAINSTONE) with few (WACKESTONE/MICRITE), gray (N 6/-N 5/), strong, thinly to thickly bedded, locally laminated, fresh, fossiliferous, stylonitic, interbedded with trace to few, laminated to very thin Calcareous SILTSTONE, very dark gray (N 3/), wispy/wavy to irregular and diffuse bedding; locally nodular, slight bioturbation, trace calcite filled pits, strong HCl reaction	
			2:37	(5.0)	(4.9)	Run 8	37.4ft: J, 50°, PR, T, B, II, with calcite 38.8,39.2,41.9,42.0ft: BJ, 30°, PR, T-PO, B-C, II	
			2:33	100%	98%			
			2:08					
			2:15					
	42.9	5.0	2:33					
			1:55	(5.0)	(5.0)	Run 9	47.6ft: J, 45°, PR, T-PO, B-C, II, with calcite	
			2:07	100%	100%			
			2:09					
			2:07					
	47.9	5.0	2:24					
			2:01	(5.0)	(4.7)	Run 10	48.8,49.1ft: SH, 50°, SL-PL, T, B, II, with calcite 51.2,52.3ft: BJ, 30°, PS-PR, T-PO, B-C, II	
			2:01	100%	94%			
			2:19					
			2:38					
	52.9	5.0	2:32					
			2:12	(5.0)	(4.6)	Run 11	54.5-54.9ft: FZ, 30°, PS-PR, T, B, II, with calcite 53.4,54.9ft: J, 50°, PR, T-PO, C, II, with calcite	
			2:24	100%	92%			

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: N. Smith	
SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee				DRILLER: G. Bilbrey/J. Walker		Boring Orientation	
BORING NO.: MP-425		DRILL METHOD: Mud Rotary/Core		DRILL MACHINE: CME-75 (TSD)		Inclination: 29°	
GROUND ELEV.: 811.9 ft (NAVD88)		NORTHING: 570,815 US ft (NAD83)		EASTING: 2,448,200 US ft (NAD83)		Azimuth: N 49° E	
TOTAL DEPTH: 272.9 ft		SAMPLE METHODS: ASTM D 2488-09a; 2113-08; 6032-08				HAMMER (ID): NA-Sampler pushed	
DATE STARTED: 7/11/13		COMPLETED: 7/21/13		CASING DEPTH: 6.4 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) %			
			2:20 2:39 3:50					Continued from previous page
	57.9	5.0	1:46 1:43 1:34 1:54 1:49	(5.0) 100%	(5.0) 100%	Run 12		LIMESTONE (WACKESTONE/MICRITE), gray (N 5/) and bluish gray (5PB 5/1), medium strong to strong, laminated to thinly bedded, fresh, fossiliferous, interbedded with some, laminated to thin Calcareous SILTSTONE, very dark gray (N 3/), wavy/wispy to irregular and diffuse bedding; locally nodular, slight to moderate bioturbation, trace calcite filled pits, strong HCl reaction
	62.9	5.0	2:05 1:50 2:06 2:07 2:23	(5.0) 100%	(5.0) 100%	Run 13		
	67.9	5.0	1:55 2:07 1:25 1:51 2:10	(5.0) 100%	(5.0) 100%	Run 14		67.9ft: J, 50°, PR, T, B, II, with calcite 69.5ft: J, 50°, PR, VT, A, I
	72.9	5.0	1:42 1:59 1:55 1:54 2:46	(5.0) 100%	(5.0) 100%	Run 15		LIMESTONE (MICRITE), gray (N 6/), strong, laminated to thinly bedded and nodular, fresh, interbedded with little, laminated to very thin Calcareous SILTSTONE, dark greenish gray (10GY 4/1), mostly as wispy, irregular and diffuse partings; trace fossils, strong HCl reaction
	77.9	5.0	1:54 1:49 1:58 1:43 1:56	(5.0) 100%	(5.0) 100%	Run 16		77.2ft: SH, 40°, PL, VT, A, II, with calcite 80.1ft: J, 30°, PR, T-PO, B, II, with calcite
	82.9	5.0	1:54 1:57 2:03 1:59 2:16	(5.0) 100%	(5.0) 100%	Run 17		CALCAREOUS SILTSTONE, olive gray (5Y 4/2) to very dark gray (N 3/, 5Y 3/1) and dark greenish gray (10GY 4/1), with trace dusky red (10R 3/2), strong, laminated to thinly bedded, fresh, interbedded with little to some, laminated to thin LIMESTONE (MICRITE), gray (N 6/-N 5/), mostly planar to amorphous and diffuse bedding; slight to moderate bioturbation, strong HCl reaction (Lincolnshire Formation-Fleanor Member-Unit B)
	87.9	5.0	2:10 1:54 1:50 1:54 1:58	(5.0) 100%	(5.0) 100%	Run 18		
	92.9	5.0	1:37 1:53 2:00 2:00 2:20	(5.0) 100%	(5.0) 100%	Run 19		94.7, 96.7ft: J, 45-50°, PR, T, B, II, with calcite
	97.9	5.0	2:35 1:55 2:09 2:43 3:15	(5.0) 100%	(5.0) 100%	Run 20		CALCAREOUS SILTSTONE, dusky red (10R 3/2), with trace dark greenish gray (10Y 4/1, 10GY 4/1), strong, laminated to thinly bedded, locally with moderately to thickly bedded appearance, fresh, interbedded with few to little, laminated to thin LIMESTONE (MICRITE/WACKESTONE), gray (N 6/-N 5/) and greenish gray (5GY 5/1) to dark gray (N 4/) and dark reddish gray (10R 4/1), mostly planar to amorphous and diffuse bedding; moderate to strong bioturbation, trace calcite filled pits and burrows, locally with trace fossils, strong HCl reaction
	102.9	5.0	2:06			Run 21		

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: G. Bilbrey/J. Walker		Boring Orientation	
BORING NO.: MP-425		DRILL METHOD: Mud Rotary/Core		DRILL MACHINE: CME-75 (TSD)		Inclination: 29°	
GROUND ELEV.: 811.9 ft (NAVD88)		NORTHING: 570,815 US ft (NAD83)		EASTING: 2,448,200 US ft (NAD83)		Azimuth: N 49° E	
TOTAL DEPTH: 272.9 ft		SAMPLE METHODS: ASTM D 2488-09a; 2113-08; 6032-08				HAMMER (ID): NA-Sampler pushed	
DATE STARTED: 7/11/13		COMPLETED: 7/21/13		CASING DEPTH: 6.4 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
	107.9	5.0	2:10 2:11 2:00 2:47	(5.0) 100%	(5.0) 100%			CALCAREOUS SILTSTONE, dusky red (10R 3/2), with trace dark greenish gray (10Y 4/1, 10GY 4/1), strong, laminated to thinly bedded, locally with moderately to thickly bedded appearance, fresh, interbedded with few to little, laminated to thin LIMESTONE (MICRITE/WACKESTONE), gray (N 6-N 5/) and greenish gray (5GY 5/1) to dark gray (N 4/) and dark reddish gray (10R 4/1), mostly planar to amorphous and diffuse bedding; moderate to strong bioturbation, trace calcite filled pits and burrows, locally with trace fossils; strong HCl reaction (continued)
	112.9	5.0	2:25 2:11 2:25 2:40 2:43	(5.0) 100%	(5.0) 100%	Run 22		98.7,100.0,100.5ft: J, 50-60°, PR, VT-T, A-B, I-II, with trace calcite 100.2ft: BJ, 40°, PS, T, A, I 100.2ft: SH, 40°, PL, T, B, II 109.5,110.8ft: SH, 40°, PL, T, A-B, I-II, with trace calcite 110.6ft: J, 50°, PR, T-VT, B, II, with calcite
	117.9	5.0	2:05 2:11 2:14 2:22 2:28	(5.0) 100%	(5.0) 100%	Run 23		
	122.9	5.0	2:19 2:23 2:14 2:40 2:16	(5.0) 100%	(5.0) 100%	Run 24		118.7ft: BJ, 40°, PS, T, B, II 119.2ft: SH, 40°, PL, T, B, II, with calcite
	124.7	1.8	3:46 1:50/0.8	(1.8) 100%	(1.8) 100%	Run 25		123.0ft: J, 45°, PR, T, B, II
	127.9	3.2	2:26/0.2 3:37 3:13 2:55	(3.2) 100%	(3.2) 100%	Run 26		
	132.9	5.0	3:11 3:19 2:42 2:44 3:14	(5.0) 100%	(5.0) 100%	Run 27		128.4,129.1ft: SH, 40°, PL, VT-T, B, II, with trace calcite 129.7ft: J, 60°, PR-SR, T, B, II, with trace calcite
	137.9	5.0	2:55 2:42 2:38 2:57 2:57	(5.0) 100%	(5.0) 100%	Run 28		134.9ft: J, 60°, PR-SR, VT, A, I
	142.9	5.0	3:30 2:37 3:11 2:52 2:51	(5.0) 100%	(5.0) 100%	Run 29		142.5ft: J, 60-70°, SR, VT, A, I, with trace calcite
	145.0	2.1	2:54 2:21	(2.1) 100%	(2.1) 100%	Run 30		
	147.9	2.9	0:25/0.1 4:58/0.9 4:31 4:39	(2.9) 100%	(2.9) 100%	Run 31		146.7ft: SH, 40°, PL, T, B, II, with trace calcite 147.3ft: J, 60°, SR, T-PO, B, II
		5.0	2:33 2:46 2:39 2:47	(5.0) 100%	(5.0) 100%	Run 32		150.1,152.2ft: J, 60°, SR, 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: N. Smith
SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee				DRILLER: G. Bilbrey/J. Walker	Boring Orientation
BORING NO.: MP-425		DRILL METHOD: Mud Rotary/Core		DRILL MACHINE: CME-75 (TSD)	Inclination: 29°
GROUND ELEV.: 811.9 ft (NAVD88)		NORTHING: 570,815 US ft (NAD83)	EASTING: 2,448,200 US ft (NAD83)		Azimuth: N 49° E
TOTAL DEPTH: 272.9 ft		SAMPLE METHODS: ASTM D 2488-09a; 2113-08; 6032-08			HAMMER (ID): NA-Sampler pushed
DATE STARTED: 7/11/13		COMPLETED: 7/21/13	CASING DEPTH: 6.4 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) %			
	152.9		2:45					<p>Continued from previous page</p> <p>CALCAREOUS SILTSTONE, dusky red (10R 3/2), with trace dark greenish gray (10Y 4/1, 10GY 4/1), strong, laminated to thinly bedded, locally with moderately to thickly bedded appearance, fresh, interbedded with few to little, laminated to thin LIMESTONE (MICRITE/WACKESTONE), gray (N 6/-N 5/) and greenish gray (5GY 5/1) to dark gray (N 4/) and dark reddish gray (10R 4/1), mostly planar to amorphous and diffuse bedding; moderate to strong bioturbation, trace calcite filled pits and burrows, locally with trace fossils, strong HCl reaction (continued) 155.3,157.1ft: J, 50-60°, SR, VT, A, I 159.3,161.7ft: J, 50°, PR, T-PO, B, II</p> <p>176.9ft: SH, 45°, PL, VT-T, B, II, with trace calcite</p> <p>179.7ft: J, 60°, PR, T, A-B, I-II</p> <p>187.8ft: J, 60°, SR, T, B, II 183.5-183.8ft: As above, to dark reddish gray (10R 4/1)</p> <p>188.1ft: J, 50°, SR, T, B, II, mechanically broken 190.3ft: SH, 40°, PL, VT-T, B, II, with calcite 191.8ft: J, 50°, SR-PR, T, B, II</p> <p>CALCAREOUS SILTSTONE, dark greenish gray (10GY 4/1) to very dark gray (N 3/), strong, laminated to thinly bedded, fresh, interbedded with some, laminated to thin LIMESTONE (MICRITE/WACKESTONE), gray (N 5/) to bluish gray (5PB 5/1), amorphous and diffuse to wavy bedding, few fossils; strong bioturbation, few calcite filled pits and burrows, strong HCl reaction 197.1ft: J, 60-70°, SR, T, B, II</p>
		5.0	2:32	(5.0) 100%	(5.0) 100%	Run 33		
			2:38					
			2:41					
			2:47					
	157.9		3:12					
		5.0	2:25	(5.0) 100%	(5.0) 100%	Run 34		
			2:32					
			2:32					
			2:34					
	162.9		2:43					
		5.0	2:50	(5.0) 100%	(5.0) 100%	Run 35		
			2:46					
			2:32					
			2:43					
	167.9		2:43					
		5.0	4:45	(5.0) 100%	(5.0) 100%	Run 36		
			2:40					
			2:03					
			2:10					
	172.9		2:40					
		5.0	3:51	(5.0) 100%	(5.0) 100%	Run 37		
			2:29					
			2:24					
			2:12					
	177.9		2:33					
		5.0	2:32	(5.0) 100%	(5.0) 100%	Run 38		
			2:11					
			2:07					
			2:09					
	182.9		2:10					
		5.0	2:32	(5.0) 100%	(5.0) 100%	Run 39		
			2:21					
			2:15					
			2:30					
	187.9		2:39					
		5.0	3:19	(5.0) 100%	(5.0) 100%	Run 40		
			2:21					
			2:44					
			2:35					
	192.9		2:46					
		5.0	2:18	(5.0) 100%	(5.0) 100%	Run 41		
			2:12					
			2:07					
			2:32					
	197.9		2:50					
		5.0	2:37	(5.0) 100%	(5.0) 100%	Run 42		
			2:14					
			2:28					

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: N. Smith	
SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee				DRILLER: G. Bilbrey/J. Walker		Boring Orientation	
BORING NO.: MP-425		DRILL METHOD: Mud Rotary/Core		DRILL MACHINE: CME-75 (TSD)		Inclination: 29°	
GROUND ELEV.: 811.9 ft (NAVD88)		NORTHING: 570,815 US ft (NAD83)		EASTING: 2,448,200 US ft (NAD83)		Azimuth: N 49° E	
TOTAL DEPTH: 272.9 ft		SAMPLE METHODS: ASTM D 2488-09a; 2113-08; 6032-08				HAMMER (ID): NA-Sampler pushed	
DATE STARTED: 7/11/13		COMPLETED: 7/21/13		CASING DEPTH: 6.4 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
	202.9		2:41 2:42					CALCAREOUS SILTSTONE, dusky red (10R 3/2), with trace dark greenish gray (10GY 4/1), strong, laminated to thinly bedded, locally with moderately to thickly bedded appearance, fresh, interbedded with few to little, laminated to thin LIMESTONE (MICRITE/WACKESTONE), gray (N 6-N 5/) and greenish gray (5GY 5/1) to dark gray (N 4/) and dark reddish gray (10R 4/1), mostly planar to amorphous and diffuse bedding; moderate to strong bioturbation, locally with trace to few fossils, strong HCl reaction (<i>continued</i>) 201.9ft: J, 60°, SR, T, B, II
		5.0	2:32 2:21 1:57 2:24 2:35	(5.0) 100%	(5.0) 100%	Run 43		
	207.9		2:05 2:27 2:32 2:35 2:58	(5.0) 100%	(5.0) 100%	Run 44		
		5.0	2:50 3:05 3:12 3:02 3:33	(5.0) 100%	(5.0) 100%	Run 45		
	217.9		2:46 2:27 2:32 2:23 2:36	(5.0) 100%	(5.0) 100%	Run 46		
		5.0	3:05 2:58 2:15 2:18 2:13	(5.0) 100%	(5.0) 100%	Run 47		
	222.9		2:40 2:07 2:18 1:59 2:26	(5.0) 100%	(5.0) 100%	Run 48		
		5.0	1:50 2:16 2:06 2:05 2:28	(5.0) 100%	(5.0) 100%	Run 49		
	232.9		2:39 2:19 1:50 2:19 2:16	(5.0) 100%	(5.0) 100%	Run 50		
		5.0	3:10 2:58 2:35 2:47 2:15	(5.0) 100%	(5.0) 100%	Run 51		
	242.9		3:03	(5.0) 100%	(5.0) 100%	Run 52		

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BECHTEL PROJECT NO.: 25847		AMEC PROJECT NO.: 6468-13-1072		COUNTY: Roane, TN		GEOLOGIST: N. Smith	
SITE DESCRIPTION: Clinch River SMR Project, Roane County, Tennessee				DRILLER: G. Bilbrey/J. Walker		Boring Orientation	
BORING NO.: MP-425		DRILL METHOD: Mud Rotary/Core		DRILL MACHINE: CME-75 (TSD)		Inclination: 29°	
GROUND ELEV.: 811.9 ft (NAVD88)		NORTHING: 570,815 US ft (NAD83)		EASTING: 2,448,200 US ft (NAD83)		Azimuth: N 49° E	
TOTAL DEPTH: 272.9 ft		SAMPLE METHODS: ASTM D 2488-09a; 2113-08; 6032-08				HAMMER (ID): NA-Sampler pushed	
DATE STARTED: 7/11/13		COMPLETED: 7/21/13		CASING DEPTH: 6.4 ft		CORE BARREL TYPE: HQ3/Diamond Impregnated core bits	

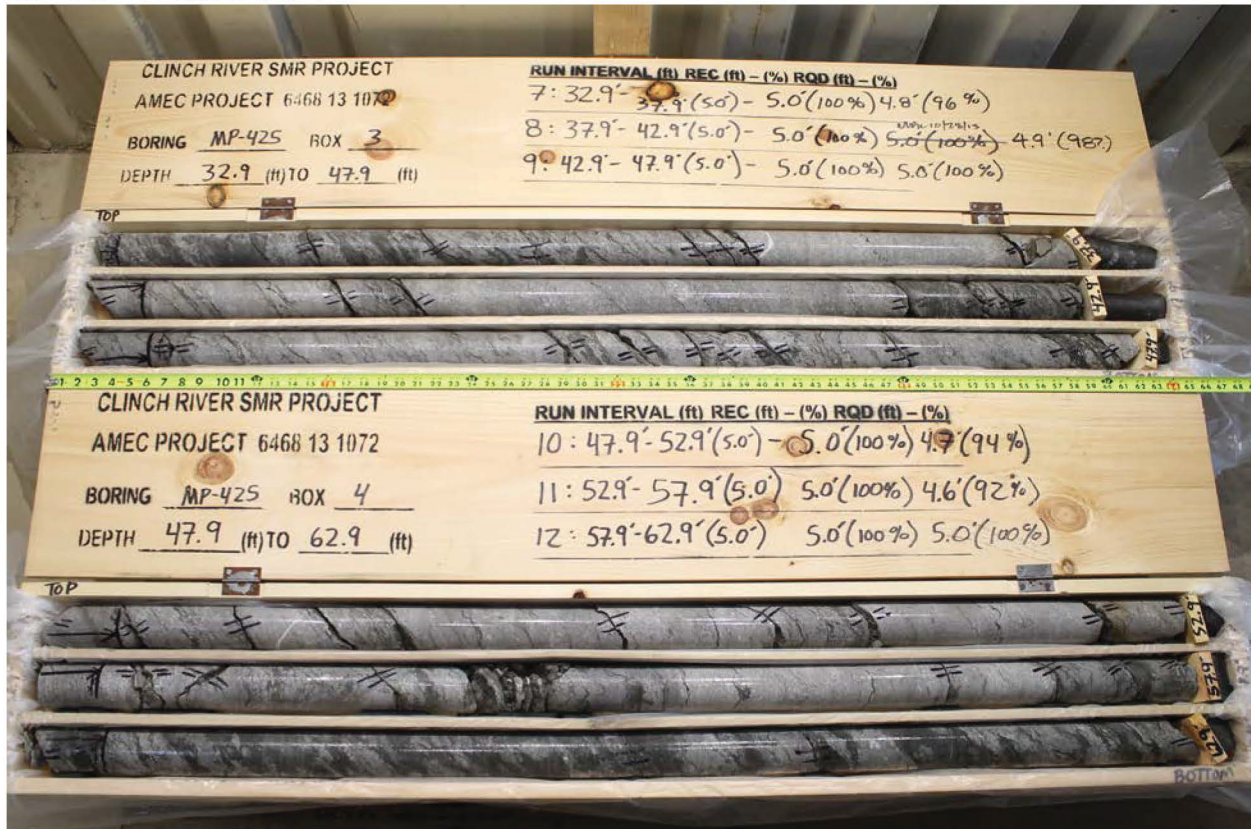
ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	LOG	ROCK DESCRIPTION AND REMARKS
				REC. (ft) %	RQD (ft) %			
			2:46 3:02 3:54 3:13					Continued from previous page
	252.9	5.0	2:57 2:24 2:28 2:43 2:37	(5.0) 100%	(5.0) 100%	Run 53		CALCAREOUS SILTSTONE, dusky red (10R 3/2), with trace dark greenish gray (10GY 4/1), strong, laminated to thinly bedded, locally with moderately to thickly bedded appearance, fresh, interbedded with few to little, laminated to thin LIMESTONE (MICRITE/WACKESTONE), gray (N 6/-N 5/) and greenish gray (5GY 5/1) to dark gray (N 4/) and dark reddish gray (10R 4/1), mostly planar to amorphous and diffuse bedding; moderate to strong bioturbation, locally with trace to few fossils, strong HCl reaction (continued)
	257.9	5.0	2:46 2:30 2:34 2:36 2:42	(5.0) 100%	(5.0) 100%	Run 54		CALCAREOUS SILTSTONE, greenish black (10Y 2.5/1) to very dark gray (5Y 3/1, N 3/), strong, laminated to thinly bedded, fresh, interbedded with little to some, laminated to moderately bedded LIMESTONE (MICRITE/WACKESTONE), gray (N 5/) and bluish gray (5PB 5/1), mostly planar to amorphous and diffuse bedding; slight to moderate bioturbation, trace calcite filled pits and burrows, strong HCl reaction 255.6ft: J, 45°, PR-SR, T, B, II, with trace calcite 259.4,261.7ft: J, 50°, PR-SR, T, B, II, with trace calcite
	262.9	5.0	2:49 2:40 2:43 2:42 2:34	(5.0) 100%	(5.0) 100%	Run 55		
	267.9	5.0	2:33 2:04 2:15 2:16 2:34	(4.7) 94%	(4.7) 94%	Run 56		270.8ft: J, 50°, PS-PR, VT, A, I RUN 56: 0.3' Core left in hole at termination of boring/coring
	272.9							Boring and coring terminated at 272.9 feet.

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

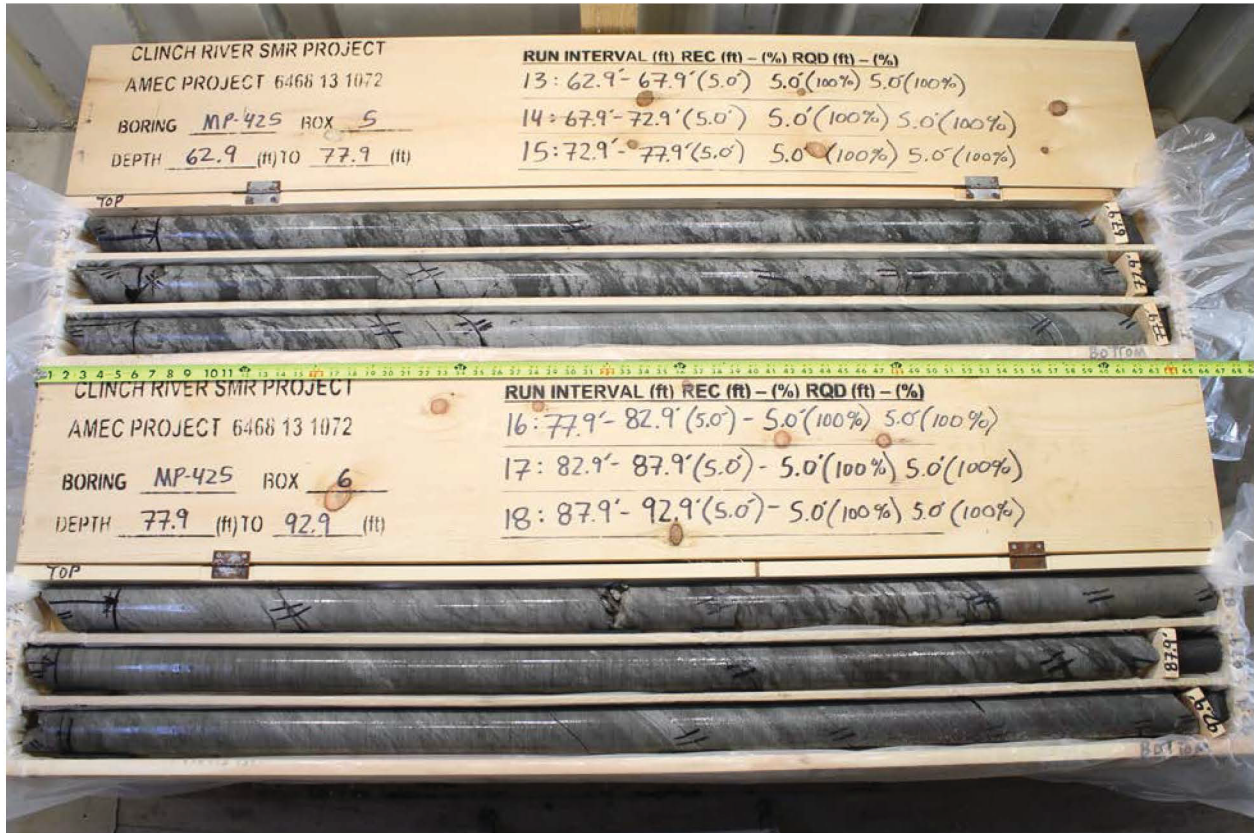
MP-425 – Boxes 1 and 2



MP-425 – Boxes 3 and 4



MP-425 – Boxes 5 and 6



MP-425 – Boxes 7 and 8

