



GEOTECHNICAL BORING LOG

Prepared By JPJ Date 5-30-08Checked By JPJ Date 5-30-08

SHEET 1 OF 2

BECHTEL PROJECT NO.: 25409					MACTEC PROJECT NO.: 6468-07-1950					COUNTY: Miami-Dade		GEOLOGIST: L. Bisson			
SITE DESCRIPTION: Turkey Point COL					DRILL MACHINE: CME-550 (ATL)					DRILLER: L. Carter/ J. Landeros				GROUND WATER (ft)	
BORING NO.: B-639					DRILL METHOD: Mud Rotary/Core					SAMPLE METHODS: SPT/Core				0 HR. NA	
GROUND ELEV.: -1.4 ft (NAVD88)					NORTHING: 396,964 US ft (NAD83/90)					EASTING: 876,998 US ft (NAD83/90)				24 HR. NA	
TOTAL DEPTH: 102.6 ft			BORING DIAMETER: 4" to 102.6"					CASING DEPTH: 4" to 15.0'				HAMMER (ID): 140 lb. Auto (MEC-03)			
DATE STARTED: 3/22/08			COMPLETED: 3/24/08			CORE SIZE: HQ3			BITS USED: 4" Roller Cone						
ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	L O G	SOIL AND ROCK DESCRIPTION		
		0.5ft	0.5ft	0.5ft	0	20	40	60	80	100					
-1.4					Ground Surface										
-1.4	0.0	WOR	WOR	WOR	0						639-1		-1.4	0.0	
-3.9	2.5				0						639-2A&B		-4.4	3.0	
-6.4	5.0	2	6	20		26									
-8.9	7.5	7	9	8		17					639-3				
-11.4	10.0	6	8	4		12					639-4				
-13.9	12.5	4	5	6		11					639-5		10.0ft: white (10YR8/1)		
-16.4	15.0	10	10	8		18					639-6				
-17.7	16.3										639-7		15.0ft: white (2.5Y8/1), to light gray (2.5Y7/1), hard		
-19.0	17.6	5	12	50/0.3						62/0.8	RUN-1		16.3ft: Switch sampling method to coring		
											RUN-2		16.3ft: moderately hard, moderately indurated		
													17.6ft: soft to medium hard, trace sand		
-24.0	22.6										RUN-3		22.0ft: loss of circulation	24.0	
-29.0	27.6												LIMESTONE, boundstone, white (2.5Y8/1), hard, indurated, few vugs, trace sand, trace recrystallized calcite, fossiliferous, strong HCl reaction, coralline (Upper Fort Thompson Formation)		
-34.0	32.6										RUN-4				
-39.0	37.6										RUN-5		32.6ft: trace vugs		
-44.0	42.6										RUN-6				
-49.0	47.6										RUN-7		42.6ft: white (2.5Y8/1) to 45.7ft then gray (10YR6/1), to light gray (10YR7/1), little to trace vugs		
-54.0	52.6										RUN-8		LIMESTONE, boundstone, white (10YR8/1), hard, indurated, fossiliferous, trace vugs, few gastropod shell molds and casts, strong HCl reaction (Lower Fort Thompson Formation)	47.6	
-59.0	57.6										RUN-9		52.6ft: trace shell molds		
-64.0	62.6										RUN-10		57.6ft: white (2.5Y8/1), to light gray (2.5Y7/1), moderately hard, sandy		
-69.0	67.6										RUN-11		62.6ft: white (2.5Y8/1)		
-70.0	68.6										RUN-12		52.6 to 74.6ft: possible interbedded sand lenses		
											RUN-13				
-74.0	72.6														
-76.0	74.6										RUN-14				



SHEET 2 OF 2

BECHTEL PROJECT NO.: 25409		MACTEC PROJECT NO.: 6468-07-1950		COUNTY: Miami-Dade		GEOLOGIST: L. Bisson									
SITE DESCRIPTION: Turkey Point COL		DRILL MACHINE: CME-550 (ATL)		DRILLER: L. Carter/ J. Landeros		GROUND WATER (ft)									
BORING NO.: B-639		DRILL METHOD: Mud Rotary/Core		SAMPLE METHODS: SPT/Core		0 HR. NA									
GROUND ELEV.: -1.4 ft (NAVD88)		NORTHING: 396,964 US ft (NAD83/90)		EASTING: 876,998 US ft (NAD83/90)		24 HR. NA									
TOTAL DEPTH: 102.6 ft		BORING DIAMETER: 4" to 102.6'		CASING DEPTH: 4" to 15.0'		HAMMER (ID): 140 lb. Auto (MEC-03)									
DATE STARTED: 3/22/08		COMPLETED: 3/24/08		CORE SIZE: HQ3		BITS USED: 4" Roller Cone									
ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT						SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION		
		0.5ft	0.5ft	0.5ft	0	20	40	60	80	100					
-76.2					Continued from previous page										
-79.0	77.6										RUN-15		76.4ft: white (2.5Y8/1), to light gray (2.5Y7/1), hard, indurated LIMESTONE, boundstone, white (10YR8/1), hard, indurated, fossiliferous, trace vugs, few gastropod shell molds and casts, strong HCl reaction (Lower Fort Thompson Formation) (continued) 77.6ft: white (2.5Y8/1), few to little shell molds and casts		
-84.0	82.6										RUN-16				
-89.0	87.6										RUN-17				
-94.0	92.6										RUN-18				
-99.0	97.6										RUN-19				
											RUN-20		97.6ft: trace vugs		
													-104.0	102.6	Boring Terminated at Elevation -104.0 ft

TURKEY POINT COL BORE TURKEY POINT.GPJ TURKEY POINT COL GDT 5/30/08



SHEET 1 OF 2

BECHTEL PROJECT NO.: 25409				MACTEC PROJECT NO.: 6468-07-1950				COUNTY: Miami-Dade		GEOLOGIST: L. Bisson			
SITE DESCRIPTION: Turkey Point COL				DRILL MACHINE: CME-550 (ATL)				DRILLER: L. Carter/ J. Landeros				GROUND WATER (ft)	
BORING NO.: B-639				DRILL METHOD: Mud Rotary/Core				SAMPLE METHODS: SPT/Core				0 HR. NA	
GROUND ELEV.: -1.4 ft (NAVD88)				NORTHING: 396,964 US ft (NAD83/90)				EASTING: 876,998 US ft (NAD83/90)				24 HR. NA	
TOTAL DEPTH: 102.6 ft				CASING DEPTH: 4" to 15.0'						HAMMER (ID): 140 lb. Auto (MEC-03)			
DATE STARTED: 3/22/08		COMPLETED: 3/24/08		CORE SIZE: HQ3		CORE BARREL TYPE: Triple Tube Wireline (Split inner liners)							
ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC (ft) %		RQD (ft) %	SAMP. NO.	STRATA REC (ft) %		RQD (ft) %	L O G	DESCRIPTION AND REMARKS	
												Begin Coring @ 16.3 ft	
-17.7	16.3	1.3	1:32	(1.0)	(0.5)	RUN-1	(4.5)	(1.1)				LIMESTONE, boundstone, light gray (2.5Y7/2), soft, wet, sandy, fossiliferous, oolitic (Miami Formation) (continued)	
-19.0	17.6	5.0	0:48/0.3	77%	38%	RUN-2	58%	14%				16.3ft: moderately hard, moderately indurated	
			0:59	(2.5)	(0.6)							17.6ft: soft to medium hard, trace sand	
			1:13	50%	12%								
			1:36										
			0:43										
-24.0	22.6		0:17										
		5.0	0:45	(4.2)	(2.7)	RUN-3						22.0ft: loss of circulation	
			0:13	84%	54%		(23.2)	(21.6)					
			1:31				98%	92%				LIMESTONE, boundstone, white (2.5Y8/1), hard, indurated, few vugs, trace sand, trace recrystallized calcite, fossiliferous, strong HCl reaction, coralline (Upper Fort Thompson Formation)	
			1:13										
-29.0	27.6		2:33										
		5.0	1:03	(5.0)	(4.7)	RUN-4						42.6ft: white (2.5Y8/1) to 45.7ft then gray (10YR6/1), to light gray (10YR7/1), little to trace vugs	
			1:08	100%	94%								
			1:27										
			1:59										
-34.0	32.6		1:37									32.6ft: trace vugs	
		5.0	1:11	(5.0)	(4.8)	RUN-5							
			1:07	100%	96%								
			1:09										
			1:05										
-39.0	37.6		1:26										
		5.0	0:36	(5.0)	(4.6)	RUN-6						42.6ft: white (2.5Y8/1) to 45.7ft then gray (10YR6/1), to light gray (10YR7/1), little to trace vugs	
			1:29	100%	92%								
			0:45										
			1:22										
-44.0	42.6		1:23										
		5.0	1:01	(5.0)	(4.8)	RUN-7						42.6ft: white (2.5Y8/1) to 45.7ft then gray (10YR6/1), to light gray (10YR7/1), little to trace vugs	
			1:32	100%	96%								
			1:35										
			2:08										
-49.0	47.6		2:07										
		5.0	0:59	(5.0)	(5.0)	RUN-8	(44.9)	(27.3)				LIMESTONE, boundstone, white (10YR8/1), hard, indurated, fossiliferous, trace vugs, few gastropod shell molds and casts, strong HCl reaction (Lower Fort Thompson Formation)	
			2:08	100%	100%		82%	50%					
			1:32										
			1:06										
-54.0	52.6		1:13									52.6ft: trace shell molds	
		5.0	0:36	(5.0)	(4.1)	RUN-9							
			0:53	100%	82%								
			0:42										
			1:20										
-59.0	57.6		1:05									57.6ft: white (2.5Y8/1), to light gray (2.5Y7/1), moderately hard, sandy	
		5.0	1:06	(3.8)	(1.6)	RUN-10							
			0:29	76%	32%								
			0:43										
			0:13										
-64.0	62.6		0:36									62.6ft: white (2.5Y8/1)	
		5.0	0:31	(1.8)	(0.0)	RUN-11						52.6 to 74.6ft: possible interbedded sand lenses	
			0:27	36%	0%								
			0:40										
			0:25										
-69.0	67.6		0:29										
		1.0	2:00	(0.9)	(0.0)	RUN-12							
-70.0	68.6		0:58	90%	0%	RUN-13							
		4.0	0:10	(2.4)	(0.8)								
			0:24	60%	20%								
-74.0	72.6		2:04										
		2.0	0:30	(1.5)	(0.0)	RUN-14						76.4ft: white (2.5Y8/1), to light gray (2.5Y7/1), hard, indurated	
			3:47	75%	0%								
-76.0	74.6												
		3.0	3:13	(3.0)	(1.9)	RUN-15						77.6ft: white (2.5Y8/1), few to little shell molds and casts	
			1:27	100%	63%								
			1:04										
		5.0	1:31	(5.0)	(3.7)	RUN-16							
			0:56	100%	74%								
			0:45										
			0:43										
-84.0	82.6		0:58										
		5.0	0:49	(4.1)	(2.3)	RUN-17						87.6ft: few vugs, few shell molds and casts	
			0:14	82%	46%								
			1:07										
			0:53										
-89.0	87.6		1:06										
		5.0	0:59	(4.0)	(2.3)	RUN-18						87.6ft: few vugs, few shell molds and casts	
			0:16	80%	46%								
			0:46										

TURKEY POINT COL CORE TURKEY POINT G.P.I. TURKEY POINT COL GDT 5/30/08

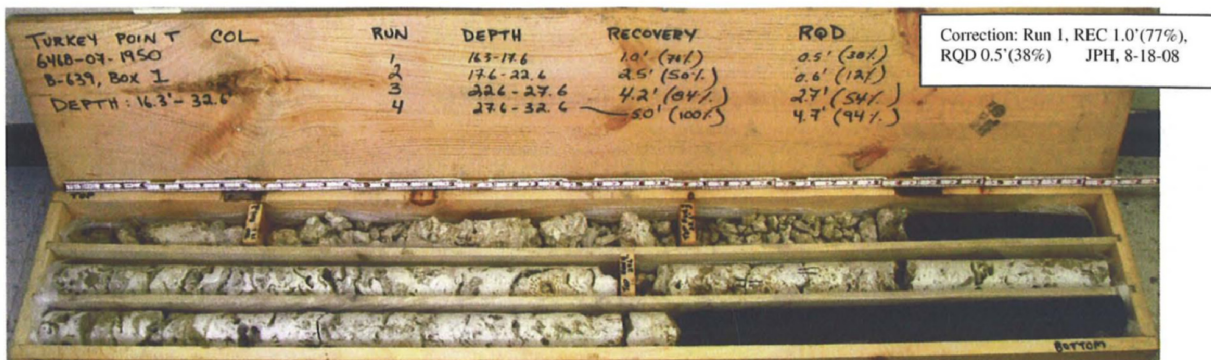


SHEET 2 OF 2

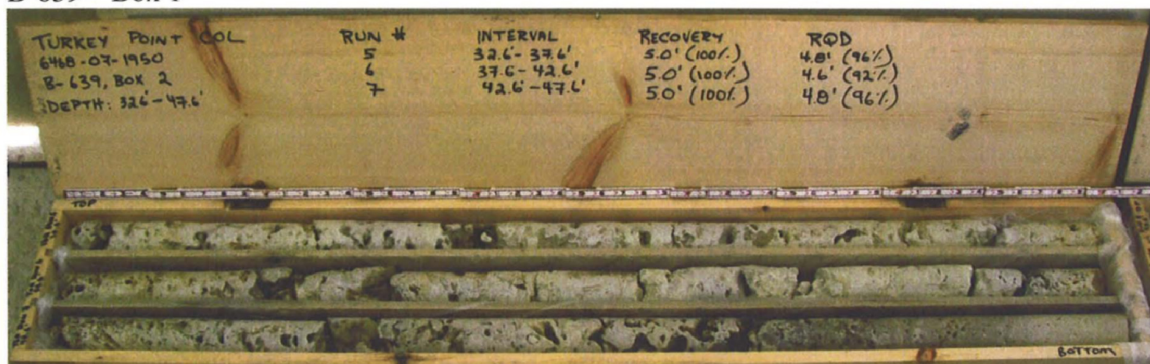
BECHTEL PROJECT NO.: 25409		MACTEC PROJECT NO.: 6468-07-1950		COUNTY: Miami-Dade		GEOLOGIST: L. Bisson	
SITE DESCRIPTION: Turkey Point COL		DRILL MACHINE: CME-550 (ATL)		DRILLER: L. Carter/ J. Landeros		GROUND WATER (ft)	
BORING NO.: B-639		DRILL METHOD: Mud Rotary/Core		SAMPLE METHODS: SPT/Core		0 HR. NA	
GROUND ELEV.: -1.4 ft (NAVD88)		NORTHING: 396,964 US ft (NAD83/90)		EASTING: 876,998 US ft (NAD83/90)		24 HR. NA	
TOTAL DEPTH: 102.6 ft		CASING DEPTH: 4" to 15.0'				HAMMER (ID): 140 lb. Auto (MEC-03)	
DATE STARTED: 3/22/08		COMPLETED: 3/24/08		CORE SIZE: HQ3		CORE BARREL TYPE: Triple Tube Wireline (Split inner liners)	

ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS
				REC. (ft) %	ROD (ft) %		REC. (ft) %	ROD (ft) %		
			1:16 0:30							Continued from previous page
-94.0	92.6	5.0	0:45 0:36 1:11 0:58 0:32	(4.3) 86%	(2.9) 58%	RUN-19				LIMESTONE, boundstone, white (10YR8/1), hard, indurated, fossiliferous, trace vugs, few gastropod shell molds and casts, strong HCl reaction (Lower Fort Thompson Formation) (continued)
-99.0	97.6	5.0	0:57 1:38 1:05 1:35 1:32	(4.1) 82%	(2.7) 54%	RUN-20				97.6ft: trace vugs
-104.0	102.6									-104.0 102.6 Coring Terminated at Elevation -104.0

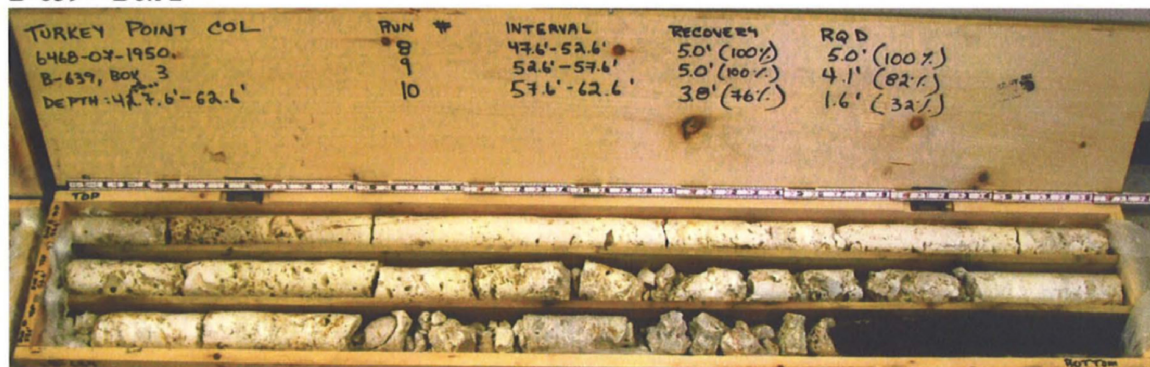
TURKEY POINT COL CORE TURKEY POINT GPJ TURKEY POINT COL GDI 5/30/08



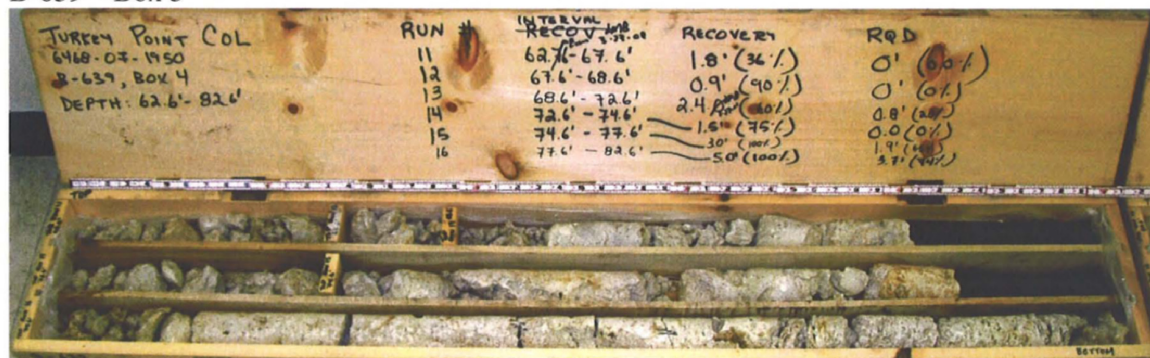
B-639 - Box 1



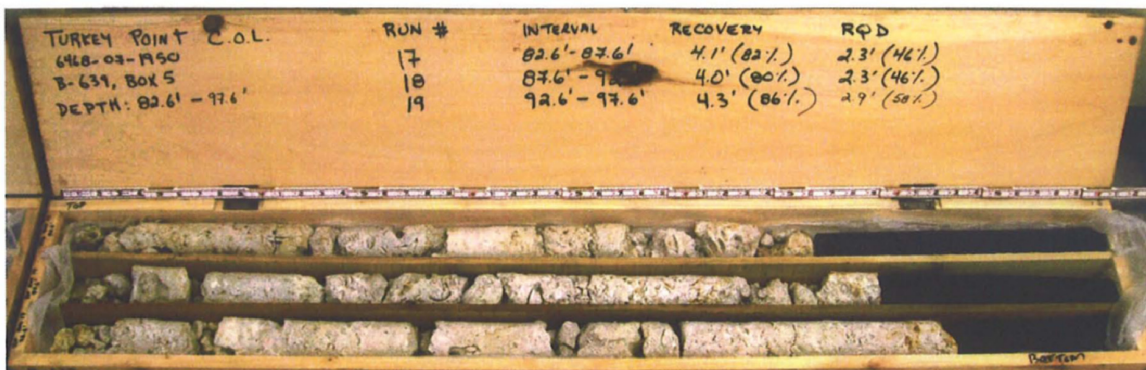
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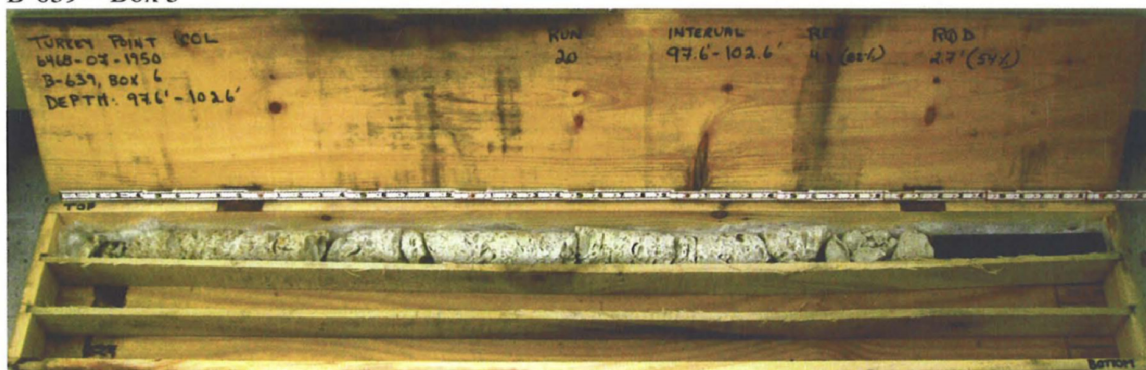
B-639 - Box 3



B-639 - Box 4



B-639 - Box 5



B-639 - Box 6



Revised
9/25/08

GEOTECHNICAL BORING LOG

Prepared By MR Date 9/25/08

Checked By CA Date 9/25/08

SHEET 1 OF 9

BECHTEL PROJECT NO.: 25409					MACTEC PROJECT NO.: 6468-07-1950					COUNTY: Miami-Dade			GEOLOGIST: R. Clark				
SITE DESCRIPTION: Turkey Point COL					DRILL MACHINE: CME-750 (Miller)					DRILLER: G.Bilbrey/P.McKorkle/J.Tucker					GROUND WATER (ft)		
BORING NO.: B-701(DH)					DRILL METHOD: Mud Rotary/ Core					SAMPLE METHODS: SPT/Core					0 HR. NA		
GROUND ELEV.: -1.1 ft (NAVD88)					NORTHING: 396,976 US ft (NAD83/90)					EASTING: 875,792 US ft (NAD83/90)					24 HR. NA		
TOTAL DEPTH: 615.5 ft					BORING DIAMETER: 6" to 16.0', 4" to 615.5'					CASING DEPTH: 6" to 16.0', 4" to 457.5'					HAMMER (ID):140 lb. Auto (07)		
DATE STARTED: 4/3/08					COMPLETED: 5/5/08					CORE SIZE: PQ3/HQ3					BITS USED: 6 7/8" & 3 7/8" Tricone, 3 7/8" wingbit		
ELEV.	DEPTH	BLOW COUNT			BLOWS PER FOOT					SAMP.	LOG	SOIL AND ROCK DESCRIPTION					
(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	20	40	60	80	100					NO.		
-1.1					Ground Surface												
-1.1	0.0	WOH	WOH	1	1								-1.1	0.0			
-3.6	2.5										701(DH)-1						
		11	8	15							701(DH)-2A&B		-4.0	2.9			
-6.2	5.1										701(DH)-3						
		17	14	15							701(DH)-4						
-8.6	7.5										701(DH)-5						
		8	7	7							701(DH)-6						
-11.2	10.1										701(DH)-7						
		4	7	9							RUN-1						
-13.6	12.5																
		10	15	6									12.5ft: soft				
-16.2	15.1										701(DH)-7						
-17.1	16.0	27	50/0.3								RUN-1						
													15.1ft: hard				
													16.0ft: Switched sampling method to coring				
													16.0ft: friable to indurated, trace locally				
													interconnected vugs, recrystallized calcite				
-21.6	20.5										RUN-2						
													-23.1	22.0			
													20.5 to 22.0ft: fragmented zone				
-26.6	25.5										RUN-3						
											701(DH)-CS-01						
													LIMESTONE, boundstone, white (5Y8/1), hard, indurated, wet, strong HCl reaction, few vugs, porous, fossiliferous, few shell molds and casts, recrystallized calcite (Upper Fort Thompson Formation)				
-31.6	30.5										RUN-4						
													24.5ft: loss of circulation				
											RUN-5						
													25.5ft: few to little vugs, mostly shell molds and casts				
-36.6	35.5												30.5ft: soft to hard, friable to indurated, coralline				
											RUN-6						
											701(DH)-CS-02						
-41.6	40.5																
											RUN-7						
													35.5ft: hard, indurated				
-46.6	45.5																
											RUN-8						
											701(DH)-CS-03						
-51.6	50.5												40.5ft: soft to hard, friable to indurated, few vugs				
											RUN-9						
													45.5ft: gray (5Y6/1), hard, indurated to 47.8ft				
-56.6	55.5												-48.9	47.8			
											RUN-10						
											701(DH)-CS-04						
											701(DH)-CS-05						
-61.6	60.5												LIMESTONE, boundstone, white (5Y8/1), to very pale brown (10YR8/3), hard, indurated, fossiliferous, little gastropod shell molds and cast, few vugs, strong HCl reaction (Lower Fort Thompson Formation)				
											RUN-11						
													50.5ft: white (5Y8/1)				
-66.6	65.5												55.5ft: trace to little sand				
											RUN-12						
-71.6	70.5												65.5ft: very soft to hard, friable to indurated				
													70.5ft: hard, indurated				

TURKEY POINT COL BORE TURKEY POINT.GPJ TURKEY POINT COL.GDT 9/25/08



SHEET 2 OF 9

BECHTEL PROJECT NO.: 25409					MACTEC PROJECT NO.: 6468-07-1950					COUNTY: Miami-Dade			GEOLOGIST: R. Clark				
SITE DESCRIPTION: Turkey Point COL					DRILL MACHINE: CME-750 (Miller)					DRILLER: G.Bilbrey/P.McKorkle/J.Tucker					GROUND WATER (ft)		
BORING NO.: B-701(DH)					DRILL METHOD: Mud Rotary/ Core					SAMPLE METHODS: SPT/Core					0 HR. NA		
GROUND ELEV.: -1.1 ft (NAVD88)					NORTHING: 396,976 US ft (NAD83/90)					EASTING: 875,792 US ft (NAD83/90)					24 HR. NA		
TOTAL DEPTH: 615.5 ft					BORING DIAMETER: 6" to 16.0', 4" to 615.5'					CASING DEPTH: 6" to 16.0', 4" to 457.5'					HAMMER (ID):140 lb. Auto (07)		
DATE STARTED: 4/3/08					COMPLETED: 5/5/08					CORE SIZE: PQ3/HQ3					BITS USED: 6 7/8" & 3 7/8" Tricone, 3 7/8" wingbit		
ELEV.	DEPTH	BLOW COUNT			BLOWS PER FOOT					SAMP.	MOI	LOG	SOIL AND ROCK DESCRIPTION				
(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	20	40	60	80	100				NO.			
-75.9					Continued from previous page												
-76.6	75.5										701(DH)-CS-06 RUN-13		LIMESTONE, boundstone, white (5Y8/1), to very pale brown (10YR8/3), hard, indurated, fossiliferous, little gastropod shell molds and cast, few vugs, strong HCl reaction (Lower Fort Thompson Formation) (continued)				
-81.6	80.5										RUN-14		83.5 to 84.5ft: soft, friable zone				
-86.6	85.5										RUN-15						
-91.6	90.5										RUN-16		90.5ft: soft to hard, friable to indurated, sandy				
-96.6	95.5										RUN-17		95.5ft: moderately hard, moderately indurated				
-101.6	100.5										RUN-18		96.0 to 98.5ft: soft, friable, sandy zone				
-106.6	105.5										RUN-19		100.5ft: hard, indurated, few to little vugs				
-111.6	110.5										RUN-20		105.5ft: very soft to hard, friable to indurated				
-116.6	115.5	2	5	4							RUN-20		110.5ft: hard, indurated, some sand				
-123.8	122.7	3	4	6							701(DH)-8		115.5ft: Switched sampling method to SPT Silty SAND (SM), white (5Y8/1), loose, wet, strong HCl reaction, trace shell fragments, fine to coarse grained sand, few fine gravel-sized cemented sand fragments (Tamiami Formation)				
-128.6	127.5	4	5	5							701(DH)-9		122.7ft: mostly fine grained sand				
-138.6	137.5	8	5	6							701(DH)-10		127.5ft: light olive gray (5Y6/2), trace gravel-sized cemented sand fragments				
-148.6	147.5	5	4	10							701(DH)-11		137.5ft: gray (5Y6/1), medium dense				
											701(DH)-12		147.5ft: olive gray (5Y5/2)				

TURKEY POINT COL BORE TURKEY POINT GP TURKEY POINT COL GDT 9/25/08

TURKEY POINT COL BORE TURKEY POINT.GPJ TURKEY POINT COL.GDT 9-25'08



SHEET 4 OF 9

BECHTEL PROJECT NO.: 25409		MACTEC PROJECT NO.: 6468-07-1950		COUNTY: Miami-Dade		GEOLOGIST: R. Clark							
SITE DESCRIPTION: Turkey Point COL		DRILL MACHINE: CME-750 (Miller)		DRILLER: G.Bilbrey/P.McKorkle/J.Tucker		GROUND WATER (ft)							
BORING NO.: B-701(DH)		DRILL METHOD: Mud Rotary/ Core		SAMPLE METHODS: SPT/Core		0 HR. NA							
GROUND ELEV.: -1.1 ft (NAVD88)		NORTHING: 396,976 US ft (NAD83/90)		EASTING: 875,792 US ft (NAD83/90)		24 HR. NA							
TOTAL DEPTH: 615.5 ft		BORING DIAMETER: 6" to 16.0', 4" to 615.5'		CASING DEPTH: 6" to 16.0', 4" to 457.5'		HAMMER (ID): 140 lb. Auto (07)							
DATE STARTED: 4/3/08		COMPLETED: 5/5/08		CORE SIZE: PQ3/HQ3		BITS USED: 6 7/8" & 3 7/8" Tricone, 3 7/8" wingbit							
ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	
		0.5ft	0.5ft	0.5ft	0	20	40	60	80	100			
-225.5					Continued from previous page								
-228.6	227.5	15	12	22							701(DH)-21		Silty SAND (SM), olive gray (5Y5/2), dense, wet, strong HCl reaction, fine grained sand, little silt (Hawthorn Group) (continued)
-238.6	237.5	12	14	21							701(DH)-22		
-248.6	247.5	5	8	17							701(DH)-23		247.5ft: gray (5Y5/1) medium dense
-258.6	257.5	8	11	22							701(DH)-24		257.5ft: greenish gray (10Y6/1), dense
-268.6	267.5	8	13	20							701(DH)-25		
-278.6	277.5	5	10	24							701(DH)-26		277.5ft: dark greenish gray (10Y4/1)
-288.6	287.5	7	9	21							701(DH)-27		287.5ft: medium dense
-298.6	297.5	7	14	26							701(DH)-28		297.5ft: olive gray (5Y5/2), dense, fine to

TURKEY POINT COL BORE TURKEY POINT.GPJ TURKEY POINT COL.GDT 9/25/08