MACTEC

GEOTECHNICAL BORING LOG

Prepared By [illegible] Date 9-29-08
Checked By [illegible] Date 9-29-08
Revised 9-29-08

SHEET 1 OF 3

BECHTEL PROJECT NO.: 25409	MACTEC PROJECT NO.: 6468-07-1950	COUNTY: Miami-Dade	GEOLOGIST: G. Pillappa
SITE DESCRIPTION: Turkey Point COL	DRILL MACHINE: CME-55 LC (RAL)	DRILLER: R. Banks/ J. Rosser	GROUND WATER (ft)
BORING NO.: B-615	DRILL METHOD: Mud Rotary/ Core	SAMPLE METHODS: SPT/Core	0 HR. NA
GROUND ELEV.: -1.5 ft (NAVD88)	NORTHING: 397,167 US ft (NAD83/90)	EASTING: 876,762 US ft (NAD83/90)	24 HR. NA
TOTAL DEPTH: 150.6 ft	BORING DIAMETER: 4" to 23.6', 3" to 150.6'	CASING DEPTH: 4" to 23.6', 3" to 117.3'	HAMMER (ID):140 lb. Auto (MEC-02)
DATE STARTED: 3/24/08	COMPLETED: 3/26/08	CORE SIZE: HQ3	BITS USED: 2 7/8" & 3 7/8" Tricones

ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (0 20 40 60 80 100)	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
-1.5					Ground Surface				-1.5 / 0.0
-1.5 / -4.3	0.0 / 2.8	WOH	WOH	WOH	0	615-1			MUCK, dark brown (7.5Y3/2), very soft, wet, strong HCl reaction
-6.0	4.5	WOH	WOH	WOH	0	615-2			-6.0 / 4.5
-8.5	7.0	1	4	5	9	615-3			LIMESTONE, boundstone, white (10YR8/1). very soft, wet, strong HCl reaction, oolitic (Miami Formation)
-10.5	9.0	50/0.5			50/0.5	615-4			7.0ft: hard
-13.0	11.5	2	8	8	16	615-5			9.0ft: very soft
-14.7	13.2	6	27	14	41	615-6			11.5ft: medium hard, trace shells
-19.8	18.3	7	8	6	14	615-7			13.2ft: very soft
-24.5	23.0	11	5	9	14	615-8			23.0ft: hard
-26.0 / -26.8	24.5 / 25.3	5	11	50/0.5	50/0.5	615-9 / RUN-1			-25.5 / 24.0 Field notes do not indicate that sample 615-9 was split into two jars
-31.8	30.3					RUN-2			LIMESTONE, boundstone, white (10YR8/1), hard, wet, strong HCl reaction (Upper Fort Thompson Formation) 24.5ft: Switch sampling method to coring 24.5ft: white, 10YR8/1), hard, indurated, coralline, strong HCl reaction, recrystallized calcite
-36.8	35.3					RUN-3			25.3ft: white (10YR8/1), to light yellowish brown (10YR6/4) 30.3ft: white (10YR8/1), fossiliferous
-41.8	40.3					RUN-4			35.3ft: few vugs
-46.8	45.3					RUN-5			40.3ft: white (2.5Y8/1)
-51.8	50.3					RUN-6			45.3ft: white (2.5Y8/1) to 45.7ft, then gray (10YR6/1) to 48.0ft -49.5 / 48.0 LIMESTONE, boundstone, white (2.5Y8/1), hard, indurated, fossiliferous, trace shells, few vugs, strong HCl reaction (Lower Fort Thompson Formation)
-56.8	55.3					RUN-7			
-61.8	60.3					RUN-8			
-66.8	65.3					RUN-9			
-71.8	70.3					RUN-10			
						RUN-11			70.3ft: white (5Y8/1), trace fine sand

SEE LEGEND FOR ROCK HARDNESS CRITERIA BASED ON SPT DATA

TURKEY POINT COL BORE TURKEY POINT.GPJ TURKEY POINT COL.GDT 9/29/08

MACTEC

BECHTEL PROJECT NO.: 25409	MACTEC PROJECT NO.: 6468-07-1950	COUNTY: Miami-Dade	GEOLOGIST: G. Pillappa
SITE DESCRIPTION: Turkey Point COL	DRILL MACHINE: CME-55 LC (RAL)	DRILLER: R. Banks/ J. Rosser	GROUND WATER (ft)
BORING NO.: B-615	DRILL METHOD: Mud Rotary/ Core	SAMPLE METHODS: SPT/Core	0 HR. NA
GROUND ELEV.: -1.5 ft (NAVD88)	NORTHING: 397,167 US ft (NAD83/90)	EASTING: 876,762 US ft (NAD83/90)	24 HR. NA
TOTAL DEPTH: 150.6 ft	BORING DIAMETER: 4" to 23.6', 3" to 150.6'	CASING DEPTH: 4" to 23.6', 3" to 117.3'	HAMMER (ID):140 lb. Auto (MEC-02)
DATE STARTED: 3/24/08	COMPLETED: 3/26/08	CORE SIZE: HQ3	BITS USED: 2 7/8" & 3 7/8" Tricones

ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (0 20 40 60 80 100)	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
-76.3					Continued from previous page				
-76.8	75.3					RUN-12			LIMESTONE, boundstone, white (2.5Y8/1), hard, indurated, fossiliferous, trace shells, few vugs, strong HCl reaction (Lower Fort Thompson Formation) *(continued)*
-81.8	80.3					RUN-13			-80.8 / 79.3 Silty SAND (SM), white (5Y8/1), wet, trace shell fragments, strong HCl reaction
-84.8	83.3					RUN-14			-83.8 / 82.3 LIMESTONE, boundstone, white (5Y8/1), hard, indurated, trace fine sand, fossiliferous, strong HCl reaction, few vugs
-88.8	87.3					RUN-15			87.3ft: few shell molds and casts
-93.8	92.3					RUN-16			
-98.8	97.3					RUN-17			97.3ft: coralline, little shell molds and casts
-103.8	102.3					RUN-18			
-108.8	107.3					RUN-19			107.3ft: few to little shell molds and casts
-113.8	112.3					RUN-20			-114.5 / 113.0 Silty SAND (SM), pale yellow (5Y8/2), very dense, moist, fine grained sand, limestone fragments, strong HCl reaction (Tamiami Formation)
-118.8	117.3	27	22	31	53	615-10			117.3ft: Switch sampling method to SPT
-128.5	127.0	4	8	8	16	615-11			127ft: dark greenish gray (10Y4/1), medium dense, weak HCl reaction
-140.6	139.1	27	24	16	40	615-12			139.1ft: dense, trace shell fragments
-150.6	149.1								

TURKEY POINT COL BORE TURKEY POINT.GPJ TURKEY POINT COL.GDT 9/29/08

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BECHTEL PROJECT NO.: 25409	MACTEC PROJECT NO.: 6468-07-1950	COUNTY: Miami-Dade	GEOLOGIST: G. Pillappa
SITE DESCRIPTION: Turkey Point COL	DRILL MACHINE: CME-55 LC (RAL)	DRILLER: R. Banks/ J. Rosser	GROUND WATER (ft)
BORING NO.: B-615	DRILL METHOD: Mud Rotary/ Core	SAMPLE METHODS: SPT/Core	0 HR. NA
GROUND ELEV.: -1.5 ft (NAVD88)	NORTHING: 397,167 US ft (NAD83/90)	EASTING: 876,762 US ft (NAD83/90)	24 HR. NA
TOTAL DEPTH: 150.6 ft	BORING DIAMETER: 4" to 23.6', 3" to 150.6'	CASING DEPTH: 4" to 23.6', 3" to 117.3'	HAMMER (ID):140 lb. Auto (MEC-02)
DATE STARTED: 3/24/08	COMPLETED: 3/26/08	CORE SIZE: HQ3	BITS USED: 2 7/8" & 3 7/8" Tricones

ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 20 40 60 80 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
-151.1					Continued from previous page				
		6	10	12	22	615-13			-152.1 149.1ft: medium dense 150.6
									Boring Terminated at Elevation -152.1 ft

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MACTEC

BECHTEL PROJECT NO.: 25409	MACTEC PROJECT NO.: 6468-07-1950	COUNTY: Miami-Dade	GEOLOGIST: G. Pillappa
SITE DESCRIPTION: Turkey Point COL	DRILL MACHINE: CME-55 LC (RAL)	DRILLER: R. Banks/ J. Rosser	GROUND WATER (ft)
BORING NO.: B-615	DRILL METHOD: Mud Rotary/ Core	SAMPLE METHODS: SPT/Core	0 HR. NA
GROUND ELEV.: -1.5 ft (NAVD88)	NORTHING: 397,167 US ft (NAD83/90)	EASTING: 876,762 US ft (NAD83/90)	24 HR. NA
TOTAL DEPTH: 150.6 ft	CASING DEPTH: 4" to 23.6', 3" to 117.3'		HAMMER (ID): 140 lb. Auto (MEC-02)
DATE STARTED: 3/24/08	COMPLETED: 3/26/08	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) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS
										Begin Coring @ 24.5 ft
-26.0	24.5	0.8	0:30/0.8	(0.7) 88%	(0.5) 63%	RUN-1	(17.2) 73%	(12.5) 53%		LIMESTONE, boundstone, white (10YR8/1), hard, wet, strong HCl reaction (Upper Fort Thompson Formation)
-26.8	25.3	5.0	0:42 0:19 0:34 0:26 0:21	(3.3) 66%	(2.5) 50%	RUN-2				24.5ft: Switch sampling method to coring *(continued)* 24.5ft: white, 10YR8/1), hard, indurated, coralline, strong HCl reaction, recrystallized calcite
-31.8	30.3	5.0	0:32 0:46 0:35 0:33 0:23	(4.6) 92%	(3.6) 72%	RUN-3				25.3ft: white (10YR8/1), to light yellowish brown (10YR6/4) 30.3ft: white (10YR8/1), fossiliferous
-36.8	35.3	5.0	0:41 0:22 0:23 0:23 0:31	(2.3) 46%	(0.5) 10%	RUN-4				35.3ft: few vugs
-41.8	40.3	5.0	0:25 0:15 0:26 0:39 0:40	(3.7) 74%	(2.9) 58%	RUN-5				40.3ft: white (2.5Y8/1)
-46.8	45.3	5.0	0:34 0:33 0:25 0:17 0:34	(4.9) 98%	(4.8) 96%	RUN-6				45.3ft: white (2.5Y8/1) to 45.7ft, then gray (10YR6/1) to 48.0ft
-51.8	50.3	5.0	1:01 0:28 0:25 0:19 0:24	(5.0) 100%	(4.2) 84%	RUN-7	(22.0) 70%	(13.2) 42%		-49.5 / 48.0 LIMESTONE, boundstone, white (2.5Y8/1), hard, indurated, fossiliferous, trace shells, few vugs, strong HCl reaction (Lower Fort Thompson Formation)
-56.8	55.3	5.0	0:22 0:21 0:25 0:23 0:21	(4.9) 98%	(3.1) 62%	RUN-8				
-61.8	60.3	5.0	0:23 0:23 0:22 0:17 0:21	(2.0) 40%	(0.0) 0%	RUN-9				
-66.8	65.3	5.0	0:40 0:17 0:21 0:16 0:17	(3.1) 62%	(1.7) 34%	RUN-10				
-71.8	70.3	5.0	0:10 0:15 0:20 0:36 0:21	(0.8) 16%	(0.4) 8%	RUN-11				70.3ft: white (5Y8/1), trace fine sand
-76.8	75.3	5.0	0:32 0:25 0:29 0:35 0:40	(3.9) 78%	(1.5) 30%	RUN-12				
-81.8	80.3	3.0	0:34 0:31 0:17	(3.0) 100%	(0.5) 17%	RUN-13	(2.0) 67%	(NA)		-80.8 / 79.3 Silty SAND (SM), white (5Y8/1), wet, trace shell fragments, strong HCl reaction -83.8 / 82.3
-84.8	83.3	4.0	0:44 0:32 0:21 0:42	(3.3) 83%	(2.9) 73%	RUN-14	(22.4) 73%	(11.0) 36%		LIMESTONE, boundstone, white (5Y8/1), hard, indurated, trace fine sand, fossiliferous, strong HCl reaction, few vugs
-88.8	87.3	5.0	0:22 0:28 0:22 0:26 0:24	(4.6) 92%	(2.3) 46%	RUN-15				87.3ft: few shell molds and casts
-93.8	92.3	5.0	0:34 0:25 0:22 0:29 0:49	(1.3) 26%	(0.0) 0%	RUN-16				
-98.8	97.3	5.0	0:25 0:16	(2.8) 56%	(0.0) 0%	RUN-17				97.3ft: coralline, little shell molds and casts

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

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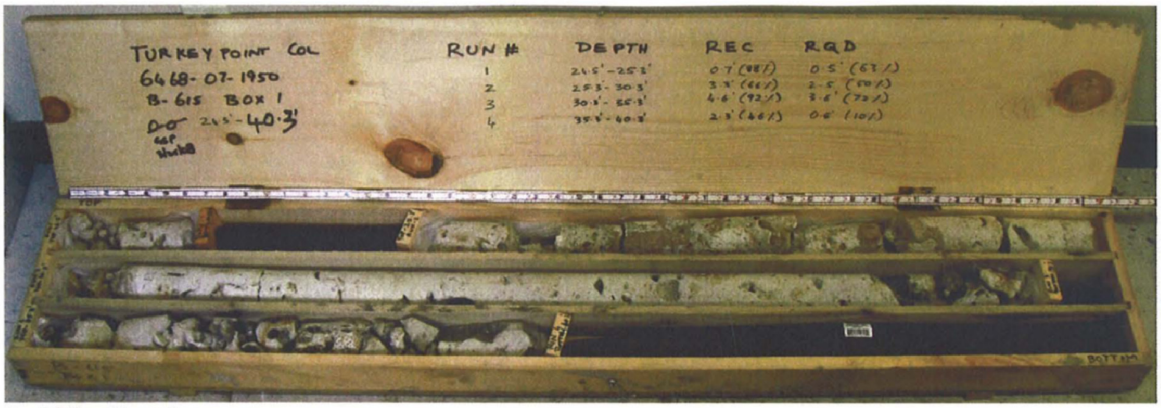
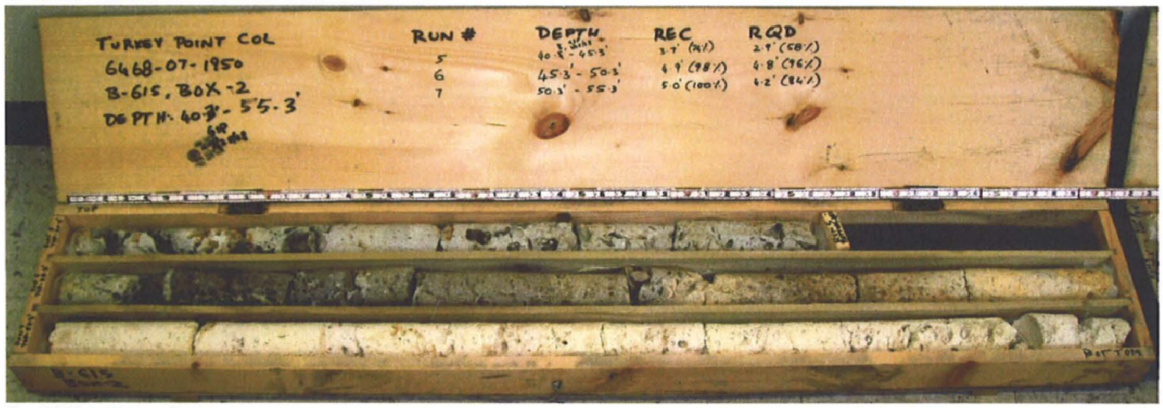
BORING NO.: B-615	DRILL METHOD: Mud Rotary/ Core	SAMPLE METHODS: SPT/Core	0 HR. NA
GROUND ELEV.: -1.5 ft (NAVD88)	NORTHING: 397,167 US ft (NAD83/90)	EASTING: 876,762 US ft (NAD83/90)	24 HR. NA
TOTAL DEPTH: 150.6 ft	CASING DEPTH: 4" to 23.6', 3" to 117.3'		HAMMER (ID): 140 lb. Auto (MEC-02)
DATE STARTED: 3/24/08	COMPLETED: 3/26/08	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) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS
										Continued from previous page
			0:12 0:15 0:27							LIMESTONE, boundstone, white (5Y8/1), hard, indurated, trace fine sand, fossiliferous, strong HCl reaction, few vugs *(continued)*
-103.8	102.3	5.0	0:29 0:25 0:19 0:23 0:29	(4.9) 98%	(3.6) 72%	RUN-18				
-108.8	107.3	5.0	0:28 0:12 0:14 0:17 0:14	(4.0) 80%	(1.7) 34%	RUN-19				107.3ft: few to little shell molds and casts
-113.8	112.3	5.0	0:31 0:24 0:18 0:50 0:24	(0.5) 10%	(0.0) 0%	RUN-20	(0.0) 0%	(NA)		-114.5 113.0 Silty SAND (SM), pale yellow (5Y8/2), very dense, moist, fine grained sand, limestone fragments, strong HCl reaction (Tamiami Formation)
-118.8	117.3									-118.8 117.3 Coring Terminated at Elevation -118.8

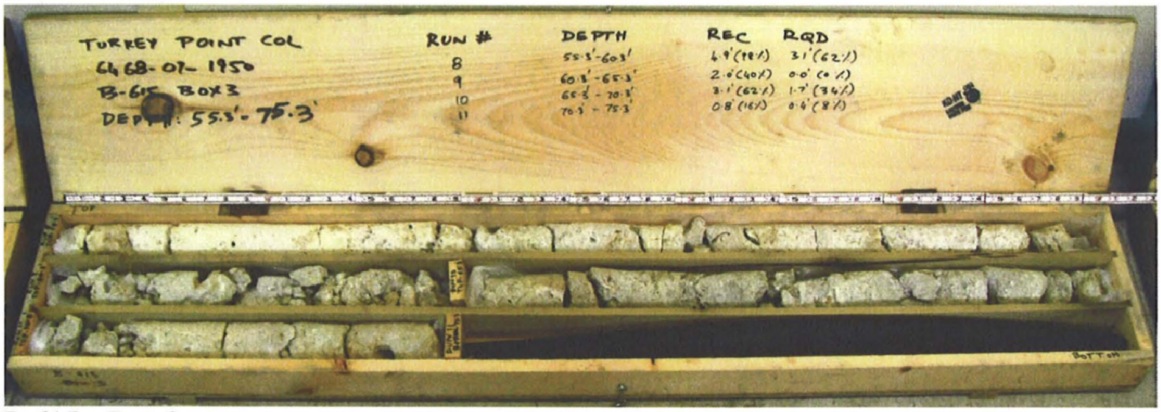
TURKEY POINT COL CORE TURKEY POINT.GPJ TURKEY POINT COL.GDT 5/30/08



B-615 – Box 1



B-615 – Box 2



B-615 – Box 3

B-615 – Box 4

B-615 – Box 5

B-615 – Box 6

MACTEC

GEOTECHNICAL BORING LOG

Prepared By [signature] Date 5-30-08
Checked By [signature] Date 9-12-08

BECHTEL PROJECT NO.: 25409	MACTEC PROJECT NO.: 6468-07-1950	COUNTY: Miami-Dade	GEOLOGIST: H. Lyatuu
SITE DESCRIPTION: Turkey Point COL	DRILL MACHINE: CME-550 (ATL)	DRILLER: L. Carter/ J. Landeros	GROUND WATER (ft)
BORING NO.: B-616	DRILL METHOD: Mud Rotary/ Core	SAMPLE METHODS: SPT/Core	0 HR. NA
GROUND ELEV.: -1.2 ft (NAVD88)	NORTHING: 397,208 US ft (NAD83/90)	EASTING: 876,724 US ft (NAD83/90)	24 HR. NA
TOTAL DEPTH: 125.0 ft	BORING DIAMETER: 4" to 35.0', 3" to 125.0'	CASING DEPTH: 4" to 35.0', 3" to 123.0'	HAMMER (ID):140 lb. Auto (MEC-03)
DATE STARTED: 3/19/08	COMPLETED: 3/21/08	CORE SIZE: HQ3	BITS USED: 4" & 3" Tricones

ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (0 20 40 60 80 100)	SAMP NO	MOI	LOG	SOIL AND ROCK DESCRIPTION
-1.2					Ground Surface				-1.2 / 0.0
-1.2 / -3.7	0.0 / 2.5	WOR	WOR	WOR	0 WOR	616-1			MUCK, very dark gray (7.5YR3/1), very soft, wet, moistly organics, weak HCl reaction
-6.2	5.0	WOH	WOH	WOH	0 WOH	616-2			2.5ft: trace shell fragments, weak HCl reaction
-8.7	7.5	WOH	WOH	WOH	0 WOH	616-3			SEE LEGEND FOR ROCK HARDNESS CRITERIA BASED ON SPT DATA
-8.2	7.0								Silty SAND with limestone fragments (SM), greenish gray (10Y6/1), very loose, wet, fine grained sand
-11.2	10.0	11	1	1	2	616-4			-10.7 / 9.5
-13.7	12.5	2	3	25	28	616-5			-12.2 / 11.0 MUCK with limestone fragments, brown (7.5YR4/3), firm, wet, mostly organics
-16.2	15.0	4	9	5	14	616-6			LIMESTONE, white (10YR8/1), soft, wet, fossiliferous, strong HCl reaction (Miami Formation)
-20.7	19.5	2	3	4	7	616-7			-15.7 / 14.5 12.5ft: boundstone, very soft, oolitic
-25.7	24.5	2	2	3	5	616-8			-19.2 / 18.0 POORLY GRADED SAND with limestone fragments (SP), light reddish brown (2.5YR6/3), loose, wet, fine to coarse grained sand, strong HCl reaction
-30.7	29.5	3	28	39	67	616-9			LIMESTONE, boundstone, white (10YR8/1), very soft, wet, fossiliferous, strong HCl reaction, trace fine grained sand, oolitic
-35.7	34.5	4	5	7	12	616-10			-25.2 / 24.0 23.0ft: loss of circulation
-37.2	36.0	9	19	50/0.3	69/0.8	616-11			LIMESTONE, boundstone, white (2.5Y8/1), hard, wet, fossiliferous, strong HCl reaction (Upper Fort Thompson Formation)
-39.2	38.0					RUN-1 616-CS-01			29.5ft: mottled, light brownish gray (2.5Y6/2), very soft, trace fine grained sand, strong HCl reaction
-44.2	43.0					RUN-2			34.5ft: hard, mottled light gray (7.5Y7/1) 36.0ft: Switch sampling method to coring
-49.2	48.0					RUN-3			36.0ft: white (10YR8/1), hard, indurated, coralline, trace sand, fossiliferous, strong HCl reaction, trace shell casts, few vugs
-54.2	53.0					RUN-4			43.0ft: white (10YR8/1), to 46.1ft then gray (10YR6/1) to 48.0ft
-59.2	58.0					RUN-5			-49.2 / 48.0 LIMESTONE, boundstone, white (10YR8/1), hard, indurated, few vugs, porous, fossiliferous, trace shell casts, trace recrystallized calcite, strong HCl reaction (Lower Fort Thompson Formation)
-64.2	63.0					RUN-6 616-CS-04			53.0ft: moderately hard, moderately indurated
-69.2	68.0					RUN-7			
-74.2	73.0					RUN-8			68.0ft: sandy
						RUN-9			

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

MACTEC

BECHTEL PROJECT NO.: 25409	MACTEC PROJECT NO.: 6468-07-1950	COUNTY: Miami-Dade	GEOLOGIST: H. Lyatuu
SITE DESCRIPTION: Turkey Point COL	DRILL MACHINE: CME-550 (ATL)	DRILLER: L. Carter/ J. Landeros	GROUND WATER (ft)
BORING NO.: B-616	DRILL METHOD: Mud Rotary/ Core	SAMPLE METHODS: SPT/Core	0 HR. NA
GROUND ELEV.: -1.2 ft (NAVD88)	NORTHING: 397,208 US ft (NAD83/90)	EASTING: 876,724 US ft (NAD83/90)	24 HR. NA
TOTAL DEPTH: 125.0 ft	BORING DIAMETER: 4" to 35.0', 3" to 125.0'	CASING DEPTH: 4" to 35.0', 3" to 123.0'	HAMMER (ID):140 lb. Auto (MEC-03)
DATE STARTED: 3/19/08	COMPLETED: 3/21/08	CORE SIZE: HQ3	BITS USED: 4" & 3" Tricones

ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 20 40 60 80 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
-76.0					Continued from previous page				
-79.2	78.0								LIMESTONE, boundstone, white (10YR8/1), hard, indurated, few vugs, porous, fossiliferous, trace shell casts, trace recrystallized calcite, strong HCl reaction (Lower Fort Thompson Formation) *(continued)*
-84.2	83.0					RUN-10			
-89.2	88.0					RUN-11			
-94.2	93.0					RUN-12			88.0ft: hard, indurated, trace shell casts
-99.2	98.0					RUN-13			93.0ft: hard to moderately hard, indurated to moderately indurated
-104.2	103.0					RUN-14			98.0ft: hard, indurated, some shell casts
-109.2	108.0					RUN-15			103.0ft: mostly shell casts
-114.2	113.0					RUN-16			108.0ft: mottled brownish yellow (10YR6/8)
-119.2	118.0					RUN-17			113.0ft: moderately hard, moderately indurated, sandy
-124.2	123.0					RUN-18			-116.2 / 115.0: Silty SAND (SM), light brownish gray (10YR6/2), medium dense, wet, fine to medium grained sand,, weak HCl reaction on sand, and lenses of fine to coarse LIMESTONE gravel, boundstone, moderately hard, moderately indurated, sandy, fossiliferous (Tamiami Formation)
		10	7	8	●15	616-12			123.0ft: Switch sampling method to SPT
									-126.2 / 125.0: Boring Terminated at Elevation -126.2 ft

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

MACTEC

BECHTEL PROJECT NO.: 25409	MACTEC PROJECT NO.: 6468-07-1950	COUNTY: Miami-Dade	GEOLOGIST: H. Lyatuu
SITE DESCRIPTION: Turkey Point COL	DRILL MACHINE: CME-550 (ATL)	DRILLER: L. Carter/ J. Landeros	GROUND WATER (ft)
BORING NO.: B-616	DRILL METHOD: Mud Rotary/ Core	SAMPLE METHODS: SPT/Core	0 HR. NA
GROUND ELEV.: -1.2 ft (NAVD88)	NORTHING: 397,208 US ft (NAD83/90)	EASTING: 876,724 US ft (NAD83/90)	24 HR. NA
TOTAL DEPTH: 125.0 ft	CASING DEPTH: 4" to 35.0', 3" to 123.0'		HAMMER (ID): 140 lb. Auto (MEC-03)
DATE STARTED: 3/19/08	COMPLETED: 3/21/08	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) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS
										Begin Coring @ 36.0 ft
-37.2	36.0	2.0	1:23	(2.0)	(2.0)	RUN-1	(11.9)	(9.5)		LIMESTONE, boundstone, white (2.5Y8/1), hard, wet, fossiliferous, strong HCl
-39.2	38.0		1:21	100%	100%	616-CS-01	99%	79%		reaction (Upper Fort Thompson Formation) *(continued)*
		5.0	2:05	(5.0)	(4.3)	RUN-2				36.0ft: white (10YR8/1), hard, indurated, coralline, trace sand, fossiliferous,
			2:29	100%	86%					strong HCl reaction, trace shell casts, few vugs
			2:03							
			2;37							
-44.2	43.0		2:18							
		5.0	1:10	(4.9)	(3.2)	RUN-3				43.0ft: white (10YR8/1), to 46.1ft then gray (10YR6/1) to 48.0ft
			1:50	98%	64%					
			1:00							
			3:00							
-49.2	48.0		3:11							-49.2 48.0
		5.0	1:15	(5.0)	(4.7)	RUN-4	(47.3)	(26.8)		LIMESTONE, boundstone, white (10YR8/1), hard, indurated, few vugs, porous,
			1:01	100%	94%		71%	40%		fossiliferous, trace shell casts, trace recrystallized calcite, strong HCl reaction
			1:47							(Lower Fort Thompson Formation)
			1:35							
-54.2	53.0		1:10							
		5.0	0:24	(5.0)	(4.7)	RUN-5				53.0ft: moderately hard, moderately indurated
			0:59	100%	94%					
			0:36							
			0:45							
-59.2	58.0		0:42							
		5.0	1:06	(4.0)	(1.7)	RUN-6				
			1:00	80%	34%					
			0:53							
			0:59			616-CS-04				
-64.2	63.0		1:20							
		5.0	1:21	(3.8)	(1.8)	RUN-7				
			1:04	76%	36%					
			0:58							
			0:36							
-69.2	68.0		0:23							
		5.0	0:16	(1.8)	(0.4)	RUN-8				68.0ft: sandy
			0:30	36%	8%					
			0:08							
			0:15							
-74.2	73.0		0:31							
		5.0	0:16	(3.2)	(1.6)	RUN-9				
			0:58	64%	32%					
			1:57							
			1:47							
-79.2	78.0		1:36							
		5.0	1:28	(2.0)	(0.4)	RUN-10				
			1:19	40%	8%					
			0:08							
			0:20							
-84.2	83.0		0:28							
		5.0	0:33	(2.3)	(0.0)	RUN-11				
			0:25	46%	0%					
			0:10							
			0:31							
-89.2	88.0		1:26							
		5.0	1:35	(4.8)	(3.0)	RUN-12				88.0ft: hard, indurated, trace shell casts
			1:08	96%	60%					
			0:55							
			0:51							
-94.2	93.0		0:54							
		5.0	0:58	(3.0)	(2.2)	RUN-13				93.0ft: hard to moderately hard, indurated to moderately indurated
			0:24	60%	44%					
			0:15							
			0:18							
-99.2	98.0		0:31							
		5.0	0:20	(3.8)	(2.7)	RUN-14				98.0ft: hard, indurated, some shell casts
			0:28	76%	54%					
			0:47							
			0:37							
-104.2	103.0		0:50							
		5.0	0:52	(4.2)	(1.6)	RUN-15				103.0ft: mostly shell casts
			0:48	84%	32%					
			0:53							
			0:56							
-109.2	108.0		0:47							
		5.0	1:00	(3.4)	(2.0)	RUN-16				108.0ft: mottled brownish yellow (10YR6/8)
			0:42	68%	40%					
			1:04							

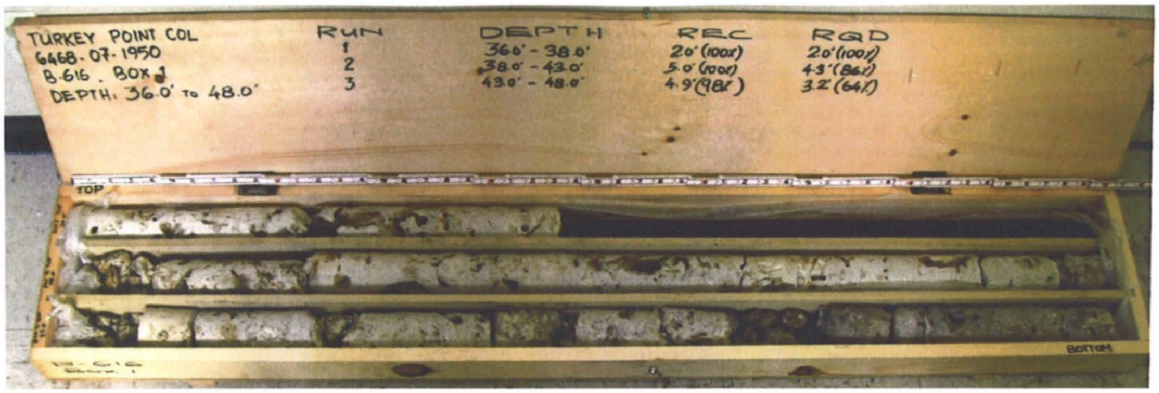
TURKEY POINT COL CORE TURKEY POINT.GPJ TURKEY POINT COL.GDT 5-30-08

MACTEC

BECHTEL PROJECT NO.: 25409	MACTEC PROJECT NO.: 6468-07-1950	COUNTY: Miami-Dade	GEOLOGIST: H. Lyatuu
SITE DESCRIPTION: Turkey Point COL	DRILL MACHINE: CME-550 (ATL)	DRILLER: L. Carter/ J. Landeros	GROUND WATER (ft)
BORING NO.: B-616	DRILL METHOD: Mud Rotary/ Core	SAMPLE METHODS: SPT/Core	0 HR. NA
GROUND ELEV.: -1.2 ft (NAVD88)	NORTHING: 397,208 US ft (NAD83/90)	EASTING: 876,724 US ft (NAD83/90)	24 HR. NA
TOTAL DEPTH: 125.0 ft	CASING DEPTH: 4" to 35.0', 3" to 123.0'		HAMMER (ID): 140 lb. Auto (MEC-03)
DATE STARTED: 3/19/08	COMPLETED: 3/21/08	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) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS
										Continued from previous page
-114.2	113.0		0:28 0:43							LIMESTONE, boundstone, white (10YR8/1), hard, indurated, few vugs, porous, fossiliferous, trace shell casts, trace recrystallized calcite, strong HCl reaction (Lower Fort Thompson Formation) *(continued)*
		5.0	0:42 0:33 0:12 0:12 0:39	(1.0) 20%	(0.0) 0%	RUN-17	(0.4) 5%	(NA)		-116.2 113.0ft: moderately hard, moderately indurated, sandy 115.0 Silty SAND (SM), light brownish gray (10YR6/2), medium dense, wet, fine to medium grained sand,, weak HCl reaction on sand, and lenses of fine to coarse LIMESTONE gravel, boundstone, moderately hard, moderately indurated, sandy, fossiliferous (Tamiami Formation)
-119.2	118.0									
		5.0	0:35 0:28 0:46 0:08 0:09	(0.4) 8%	(0.0) 0%	RUN-18				
-124.2	123.0									-124.2 123.0
										Coring Terminated at Elevation -124.2

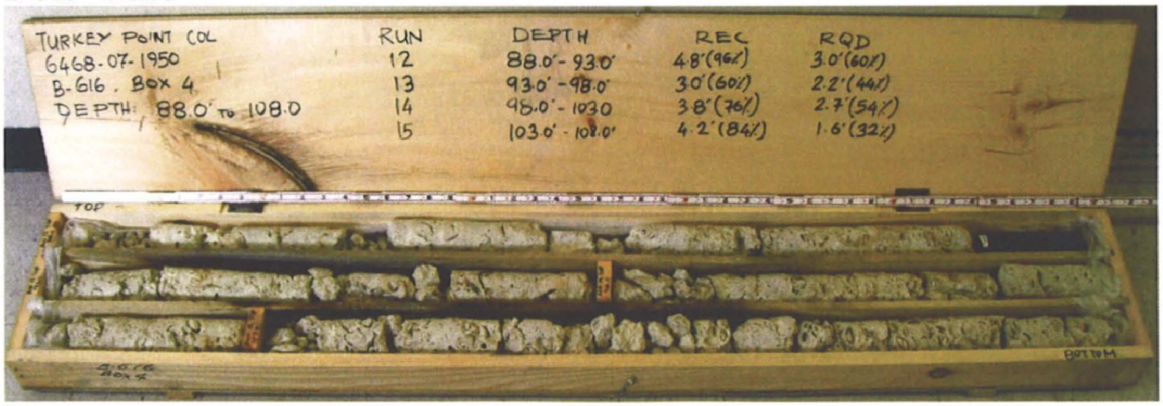
TURKEY POINT COL CORE TURKEY POINT.GPJ TURKEY POINT COL.GDT 5/30/08



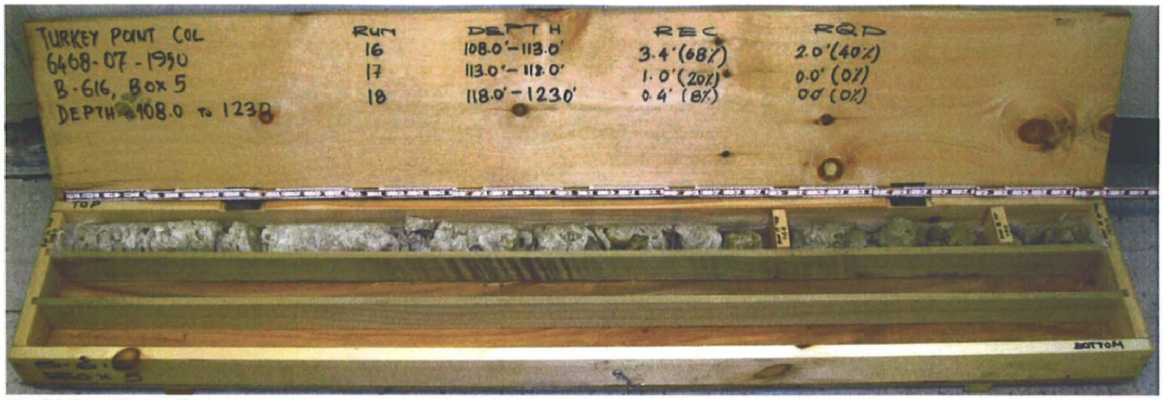
B-616 – Box 1

B-616 – Box 2

B-616 – Box 3



B-616 – Box 4


TURKEY POINT COL
6468-07-1950
B-616, Box 5
DEPTH 108.0 to 123.0
RUN
16
17
18
DEPTH
108.0'-113.0'
113.0'-118.0'
118.0'-123.0'
REC
3.4'(68%)
1.0'(20%)
0.4'(8%)
RQD
2.0'(40%)
0.0'(0%)
0.0'(0%)
BOTTOM

B-616 – Box 5

MACTEC

GEOTECHNICAL BORING LOG

Prepared By [illegible] Date 5-30-08
Checked By [illegible] Date 5-30-08

BECHTEL PROJECT NO.: 25409	MACTEC PROJECT NO.: 6468-07-1950	COUNTY: Miami-Dade	GEOLOGIST: H. Lyatuu
SITE DESCRIPTION: Turkey Point COL	DRILL MACHINE: CME-550 (ATL)	DRILLER: L. Carter/ J. Landeros	GROUND WATER (ft)
BORING NO.: B-617	DRILL METHOD: Mud Rotary/ Core	SAMPLE METHODS: SPT/Core	0 HR. NA
GROUND ELEV.: -1.4 ft (NAVD88)	NORTHING: 397,288 US ft (NAD83/90)	EASTING: 876,722 US ft (NAD83/90)	24 HR. NA
TOTAL DEPTH: 126.1 ft	BORING DIAMETER: 4" to 31.0', 3" to 126.1'	CASING DEPTH: 4" to 31.0', 3" to 120.0'	HAMMER (ID):140 lb. Auto (MEC-03)
DATE STARTED: 3/13/08	COMPLETED: 3/19/08	CORE SIZE: HQ3	BITS USED: 4" & 3" Roller Cones

ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (0 20 40 60 80 100)	SAMP. NO	MOI	LOG	SOIL AND ROCK DESCRIPTION
-1.4					Ground Surface				-1.4 0.0
-1.4 / -3.9	0.0 / 2.5	WOR	WOR	WOR	WOR 0	617-1			MUCK, pale brown (10YR6/3), very soft, wet, few fine grained sand, mostly organic, strong HCl reaction -3.4 2.0
-6.4	5.0	WOH	4	6	10	617-2			LIMESTONE, boundstone, white (10YR8/1),very soft, wet, strong HCl reaction, oolitic (Miami Formation) 5.0ft: fossiliferous
-8.9	7.5	8	6	6	12	617-3			
-11.4	10.0	13	6	6	12	617-4			
-13.9	12.5	5	5	24	29	617-5			10ft: soft
-16.4	15.0	3	7	12	19	617-6			12.5ft: very soft
-20.9	19.5	18	13	30	43	617-7			15.0ft: white (2.5Y8/1), medium hard
-25.9	24.5	5	5	5	10	617-8			19.5ft: very soft -25.4 24.0
-30.9	29.5	1	5	7	12	617-9			LIMESTONE, boundstone, white (10YR8/1), mottled very pale brown (10YR7/4), and gray (10YR3/1), very soft, wet, trace recrystallized calcite, strong HCl reaction (Upper Fort Thompson Formation)
-31.8	30.4	20	50/0.4		70/0.9	617-10			
-34.7	33.3					RUN-1			25.0ft: loss of circulation 29.5ft hard 30.4ft: Switch sampling method to coring
-39.7	38.3					RUN-2			30.4ft: white (10YR8/1), hard, indurated, coralline, fossiliferous, strong HCl reaction, few vugs
-44.7	43.3					RUN-3			
-49.7	48.3					RUN-4			43.3ft: white (10YR8/1), to 45.5ft then gray (10YR6/1), to 47.7ft, trace recrystallized calcite -49.1 47.7
-54.7	53.3					RUN-5			LIMESTONE, boundstone, white (10YR8/1) and (2.5Y8/1), hard, indurated, trace to few vugs, fossiliferous, strong HCl reaction (Lower Fort Thompson Formation)
-59.7	58.3					RUN-6			53.3ft: moderately hard to hard, moderately indurated to indurated
-64.7	63.3					RUN-7			
-69.7	68.3					RUN-8			63.3ft: moderately hard, moderately indurated
-74.7	73.3					RUN-9			68.3ft: moderately hard to hard, moderately indurated to indurated
						RUN-10			73.3ft: hard, indurated

SEE LEGEND FOR ROCK HARDNESS CRITERIA BASED ON SPT DATA

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

MACTEC

BECHTEL PROJECT NO.: 25409	MACTEC PROJECT NO.: 6468-07-1950	COUNTY: Miami-Dade	GEOLOGIST: H. Lyatuu
SITE DESCRIPTION: Turkey Point COL	DRILL MACHINE: CME-550 (ATL)	DRILLER: L. Carter/ J. Landeros	GROUND WATER (ft)
BORING NO.: B-617	DRILL METHOD: Mud Rotary/ Core	SAMPLE METHODS: SPT/Core	0 HR. NA
GROUND ELEV.: -1.4 ft (NAVD88)	NORTHING: 397,288 US ft (NAD83/90)	EASTING: 876,722 US ft (NAD83/90)	24 HR. NA
TOTAL DEPTH: 126.1 ft	BORING DIAMETER: 4" to 31.0', 3" to 126.1'	CASING DEPTH: 4" to 31.0', 3" to 120.0'	HAMMER (ID):140 lb. Auto (MEC-03)
DATE STARTED: 3/13/08	COMPLETED: 3/19/08	CORE SIZE: HQ3	BITS USED: 4" & 3" Roller Cones

ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 20 40 60 80 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
-76.2					Continued from previous page				
-79.7	78.3								LIMESTONE, boundstone, white (10YR8/1) and (2.5Y8/1), hard, indurated, trace to few vugs, fossiliferous, strong HCl reaction (Lower Fort Thompson Formation) *(continued)*
-81.7	80.3					RUN-11			
						RUN-12			
-84.7	83.3								
						RUN-13			
-89.7	88.3								
						RUN-14			
-94.7	93.3								
						RUN-15			
-99.7	98.3								
						RUN-16			98.3ft: little shell molds and casts
-104.7	103.3								
						RUN-17			
-109.7	108.3								
						RUN-18			108.3ft: hard to moderately hard, indurated to moderately indurated, trace shell molds and casts
-114.7	113.3								
						RUN-19			-115.4 113.3ft: hard, indurated 114.0
-120.2	118.8								Silty SAND (SM), light gray (7.5YR7/1), medium dense, wet, fine grained sand, strong HCl reaction (Tamiami Formation)
		4	17	11	28	617-11			118.8ft: Switch sampling method to SPT
-126.0	124.6								
		4	4	3	7	617-12			-127.5 124.6ft: very pale brown (10YR7/6), loose, weak HCl reaction 126.1
									Boring Terminated at Elevation -127.5 ft

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

MACTEC

BECHTEL PROJECT NO.: 25409	MACTEC PROJECT NO.: 6468-07-1950	COUNTY: Miami-Dade	GEOLOGIST: H. Lyatuu
SITE DESCRIPTION: Turkey Point COL	DRILL MACHINE: CME-550 (ATL)	DRILLER: L. Carter/ J. Landeros	GROUND WATER (ft)
BORING NO.: B-617	DRILL METHOD: Mud Rotary/ Core	SAMPLE METHODS: SPT/Core	0 HR. NA
GROUND ELEV.: -1.4 ft (NAVD88)	NORTHING: 397,288 US ft (NAD83/90)	EASTING: 876,722 US ft (NAD83/90)	24 HR. NA
TOTAL DEPTH: 126.1 ft	CASING DEPTH: 4" to 31.0', 3" to 120.0'		HAMMER (ID): 140 lb. Auto (MEC-03)
DATE STARTED: 3/13/08	COMPLETED: 3/19/08	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) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS
										Begin Coring @ 30.4 ft
-31.8	30.4	2.9	1:37	(2.9)	(2.7)	RUN-1	(16.5)	(15.2)		LIMESTONE, boundstone, white (10YR8/1), mottled very pale brown (10YR7/4), and gray (10YR3/1), very soft, wet, trace recrystallized calcite, strong HCl reaction (Upper Fort Thompson Formation)
-34.7	33.3		1:52 0:49/0.9	100%	93%		95%	88%		
		5.0	1:24	(4.4)	(4.2)	RUN-2				25.0ft: loss of circulation *(continued)*
			1:18	88%	84%					30.4ft: white (10YR8/1), hard, indurated, coralline, fossiliferous, strong HCl reaction, few vugs
			1:23							
			1:36							
-39.7	38.3		1:09							
		5.0	1:44	(5.0)	(5.0)	RUN-3				
			1:51	100%	100%					
			2:03							
			1:40							
-44.7	43.3		1:56							
		5.0	1:49	(4.7)	(3.8)	RUN-4				43.3ft: white (10YR8/1), to 45.5ft then gray (10YR6/1), to 47.7ft, trace recrystallized calcite
			3:23	94%	76%					
			2:19							
			2:37							-49.1 47.7
-49.7	48.3		2:15							
		5.0	1:11	(4.6)	(4.3)	RUN-5	(52.0)	(33.0)		LIMESTONE, boundstone, white (10YR8/1) and (2.5Y8/1), hard, indurated, trace to few vugs, fossiliferous, strong HCl reaction (Lower Fort Thompson Formation)
			1:10	92%	86%		78%	50%		
			1:18							
			1:17							
-54.7	53.3		1:15							
		5.0	0:36	(3.8)	(3.0)	RUN-6				53.3ft: moderately hard to hard, moderately indurated to indurated
			2:05	76%	60%					
			0:58							
			1:10							
-59.7	58.3		1:10							
		5.0	1:01	(4.7)	(4.2)	RUN-7				
			0:58	94%	84%					
			1:20							
			1:18							
-64.7	63.3		1:07							
		5.0	0:48	(3.5)	(1.7)	RUN-8				63.3ft: moderately hard, moderately indurated
			0:52	70%	34%					
			1:08							
			0:38							
-69.7	68.3		0:25							
		5.0	0:37	(3.5)	(1.8)	RUN-9				68.3ft: moderately hard to hard, moderately indurated to indurated
			0:55	70%	36%					
			1:00							
			1:49							
-74.7	73.3		2:11							
		5.0	0:36	(1.5)	(0.0)	RUN-10				73.3ft: hard, indurated
			0:24	30%	0%					
			0:33							
			1:06							
-79.7	78.3		1:15							
		2.0	1:35	(2.0)	(0.8)	RUN-11				
-81.7	80.3		2:01	100%	40%					
		3.0	0:36	(2.8)	(2.0)	RUN-12				
			1:15	93%	67%					
-84.7	83.3		1:40							
		5.0	0:10	(3.5)	(0.8)	RUN-13				
			0:14	70%	16%					
			0:20							
			0:28							
-89.7	88.3		1:35							
		5.0	1:03	(4.3)	(2.6)	RUN-14				
			1:13	86%	52%					
			1:11							
			1:18							
-94.7	93.3		0:52							
		5.0	0:38	(3.5)	(2.1)	RUN-15				
			0:10	70%	42%					
			0:10							
			0:40							
-99.7	98.3		1:01							
		5.0	0:45	(5.0)	(3.6)	RUN-16				98.3ft: little shell molds and casts
			0:57	100%	72%					
			0:47							
			1:00							
-104.7	103.3		1:02							
		5.0	0:53	(5.0)	(4.1)	RUN-17				
			0:55							

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

MACTEC

BECHTEL PROJECT NO.: 25409	MACTEC PROJECT NO.: 6468-07-1950	COUNTY: Miami-Dade	GEOLOGIST: H. Lyatuu
SITE DESCRIPTION: Turkey Point COL	DRILL MACHINE: CME-550 (ATL)	DRILLER: L. Carter/ J. Landeros	GROUND WATER (ft)
BORING NO.: B-617	DRILL METHOD: Mud Rotary/ Core	SAMPLE METHODS: SPT/Core	0 HR. NA
GROUND ELEV.: -1.4 ft (NAVD88)	NORTHING: 397,288 US ft (NAD83/90)	EASTING: 876,722 US ft (NAD83/90)	24 HR. NA
TOTAL DEPTH: 126.1 ft	CASING DEPTH: 4" to 31.0', 3" to 120.0'		HAMMER (ID): 140 lb. Auto (MEC-03)
DATE STARTED: 3/13/08	COMPLETED: 3/19/08	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) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS
										Continued from previous page
-109.7	108.3		0:38 0:42 0:58	100%	82%					LIMESTONE, boundstone, white (10YR8/1) and (2.5Y8/1), hard, indurated, trace to few vugs, fossiliferous, strong HCl reaction (Lower Fort Thompson Formation) *(continued)* 108.3ft: hard to moderately hard, indurated to moderately indurated, trace shell molds and casts
-114.7	113.3	5.0	0:23 0:35 0:52 0:53 0:32	(3.4) 68%	(1.5) 30%	RUN-18				
-119.7	118.3	5.0	0:11 0:23 0:08 0:06 0:08	(0.4) 8%	(0.0) 0%	RUN-19	(0.0) 0%	(NA)		-115.4 113.3ft: hard, indurated 114.0 Silty SAND (SM), light gray (7.5YR7/1), medium dense, wet, fine grained sand, strong HCl reaction (Tamiami Formation) -119.7 118.3
										Coring Terminated at Elevation -119.7

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