MACTEC

BECHTEL PROJECT NO.: 25409	MACTEC PROJECT NO.: 6468-07-1950	COUNTY: Miami-Dade	GEOLOGIST: J. Liles	
SITE DESCRIPTION: Turkey Point COL	DRILL MACHINE: CME-550 (Miller)	DRILLER: R. White/ J. Dugger/ C. White	GROUND WATER (ft)	
BORING NO.: B-631	DRILL METHOD: Mud Rotary/ Core	SAMPLE METHODS: SPT/Core	0 HR.	NA
GROUND ELEV.: -1.2 ft (NAVD88)	NORTHING: 396,655 US ft (NAD83/90)	EASTING: 876,514 US ft (NAD83/90)	24 HR.	NA
TOTAL DEPTH: 100.8 ft	BORING DIAMETER: 4" to 33.5', 3" to 100.8'	CASING DEPTH: 4" to 33.5'	HAMMER (ID):140 lb. Auto (M06)	
DATE STARTED: 4/30/08	COMPLETED: 5/2/08	CORE SIZE: HQ3	BITS USED: 2 7/8" Roller Cone	

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				
-77.0	75.8					RUN-9			LIMESTONE, boundstone, white (2.5Y8/1), moderately hard to hard, moderately indurated to indurated, little vugs, fossiliferous, trace shell molds and casts, strong HCl reaction (Lower Fort Thompson Formation) *(continued)*
-82.0	80.8					RUN-10			
-85.0									83.8
-87.0	85.8								POORLY GRADED SAND (SP), white (2.5Y8/1), wet, fine grained sand, strong HCl reaction
-87.5									86.3
-88.3	87.1	2	34	50/0.3	84/0.8	631-12			LIMESTONE, boundstone, white (2.5Y8/1), moderately hard to hard, moderately indurated to indurated, strong HCl reaction, trace fine sand, few vugs
-92.0	90.8					RUN-11			90.8ft: hard, indurated
-97.0	95.8					RUN-12			95.8ft: moderately hard to hard, friable to indurated, trace shell molds and casts
-102.0						RUN-13			100.8
									Boring Terminated at Elevation -102.0 ft

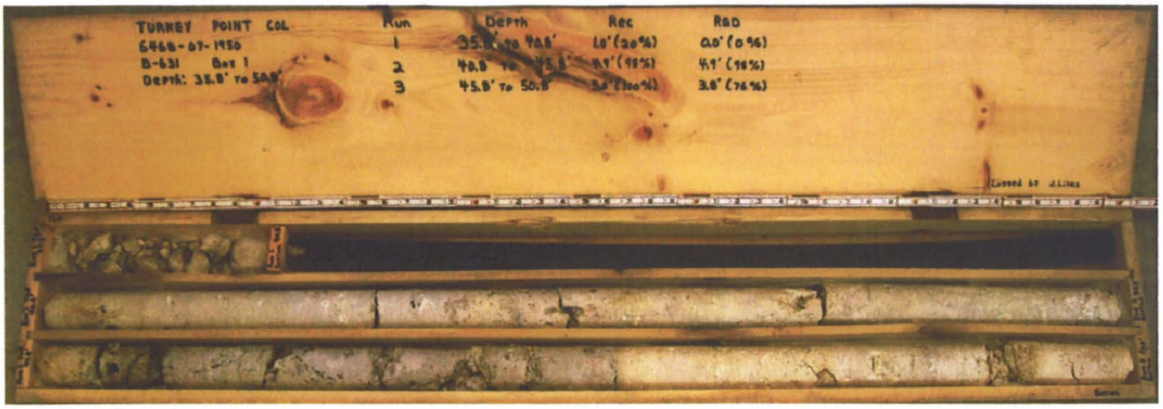
TURKEY POINT COL BORE TURKEY POINT.GPJ TURKEY POINT COL.GDT 5/30/08

MACTEC

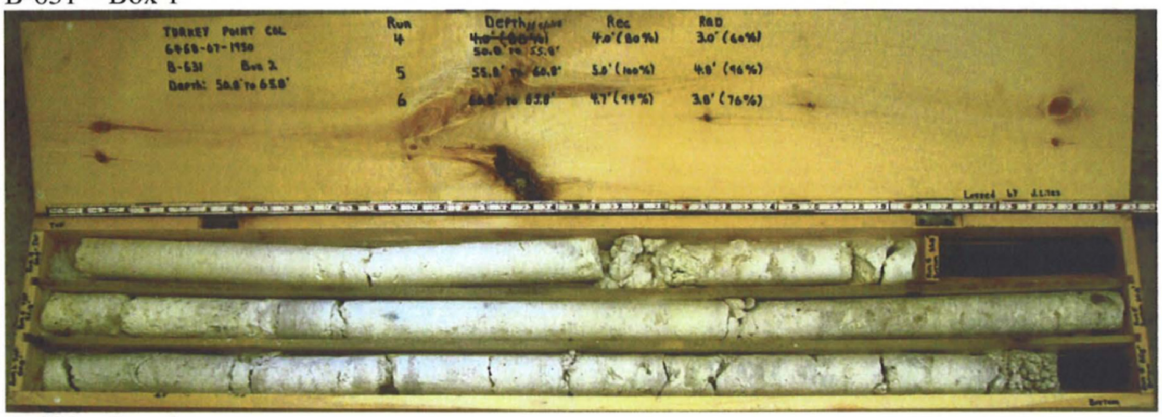
BECHTEL PROJECT NO.: 25409	MACTEC PROJECT NO.: 6468-07-1950	COUNTY: Miami-Dade	GEOLOGIST: J. Liles
SITE DESCRIPTION: Turkey Point COL	DRILL MACHINE: CME-550 (Miller)	DRILLER: R. White/ J. Dugger/ C. White	GROUND WATER (ft)
BORING NO.: B-631	DRILL METHOD: Mud Rotary/ Core	SAMPLE METHODS: SPT/Core	0 HR. NA
GROUND ELEV.: -1.2 ft (NAVD88)	NORTHING: 396,655 US ft (NAD83/90)	EASTING: 876,514 US ft (NAD83/90)	24 HR. NA
TOTAL DEPTH: 100.8 ft	CASING DEPTH: 4" to 33.5'		HAMMER (ID): 140 lb. Auto (M06)
DATE STARTED: 4/30/08	COMPLETED: 5/2/08	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 @ 35.8 ft
-37.0	35.8	5.0	1:39 1:35 2:37 2:58 2:46	(1.0) 20%	(0.0) 0%	RUN-1	(8.5) 67%	(6.3) 50%		LIMESTONE, boundstone, white (2.5Y8/1), hard, wet, trace fine grained sand, strong HCl reaction (Upper Fort Thompson Formation) *(continued)* 35.8ft: (2.5Y8/1), hard, indurated, strong HCl reaction, fossiliferous
-42.0	40.8									
		5.0	2:09 1:36 1:33 1:49 2:01	(4.9) 98%	(4.9) 98%	RUN-2				40.8ft: recrystallized calcite, coralline
-47.0	45.8									
		5.0	1:36 2:28 1:54 2:06 1:27	(5.0) 100%	(3.8) 76%	RUN-3				45.8ft: light gray (10YR7/1) to 48.4ft, moderately hard to hard, moderately indurated to indurated
-52.0	50.8						(28.3) 80%	(17.6) 50%		-49.6 48.4 LIMESTONE, boundstone, white (2.5Y8/1), moderately hard to hard, moderately indurated to indurated, little vugs, fossiliferous, trace shell molds and casts, strong HCl reaction (Lower Fort Thompson Formation) 50.8ft: medium hard to moderately hard, friable to moderately indurated, few vugs
		5.0	2:11 1:39 0:31 0:47 1:14	(4.0) 80%	(3.0) 60%	RUN-4				
-57.0	55.8									
		5.0	1:32 2:03 1:49 2:01 1:45	(5.0) 100%	(4.8) 96%	RUN-5				55.8ft: moderately hard to hard, moderately indurated to indurated
-62.0	60.8									
		5.0	1:50 1:18 1:23 1:06 0:27	(4.7) 94%	(3.8) 76%	RUN-6				60.8ft: medium hard to hard, friable to moderately indurated 65.3ft: 0.3ft-thick sand lense
-67.0	65.8									
		5.0	1:50 1:09 0:32 0:31 1:07	(4.6) 92%	(1.6) 32%	RUN-7				65.8ft: medium hard to moderately hard, little to some fine grained sand
-72.0	70.8									
		5.0	4:23 1:37 1:52 1:17 1:45	(3.8) 76%	(2.0) 40%	RUN-8				
-77.0	75.8									
		5.0	0:35 0:50 1:13 0:13 0:09	(1.7) 34%	(0.0) 0%	RUN-9				
-82.0	80.8									
		5.0	0:40 1:22 0:59 0:08 0:08	(2.1) 42%	(0.0) 0%	RUN-10				-85.0 83.8
-87.0	85.8						(0.0) 0%	(NA)		POORLY GRADED SAND (SP), white (2.5Y8/1), wet, fine grained sand, strong HCl reaction
			N=84/0.8			*631-12*				-87.5 86.3
-88.3	87.1	3.7	1:57/0.7 1:23 1:16 1:00	(2.8) 76%	(0.4) 11%	RUN-11	(9.7) 67%	(3.0) 21%		LIMESTONE, boundstone, white (2.5Y8/1), moderately hard to hard, moderately indurated to indurated, strong HCl reaction, trace fine sand, few vugs
-92.0	90.8									
		5.0	1:33 1:29 1:01 1:11 1:31	(2.0) 40%	(0.4) 8%	RUN-12				90.8ft: hard, indurated
-97.0	95.8									
		5.0	0:39 1:25 1:37 1:36 1:05	(4.9) 98%	(2.2) 44%	RUN-13				95.8ft: moderately hard to hard, friable to indurated, trace shell molds and casts
-102.0	100.8									-102.0 100.8 Coring Terminated at Elevation -102.0

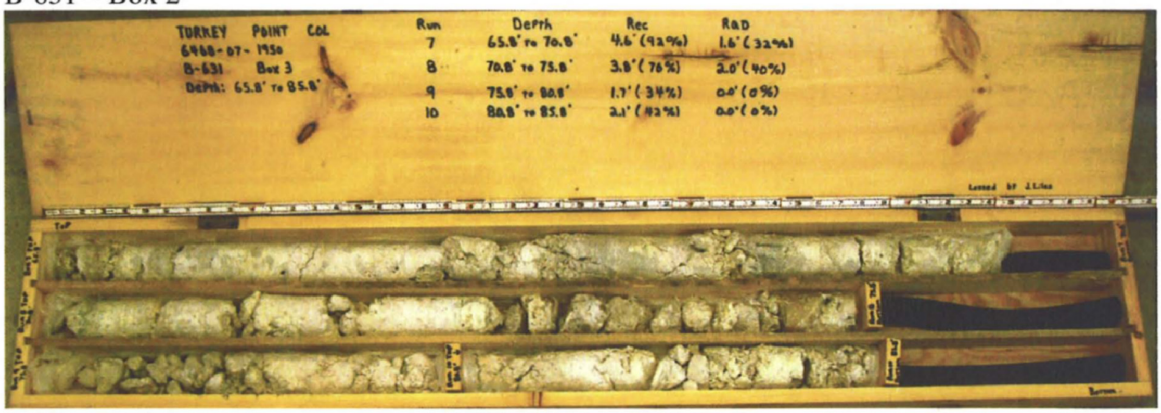
TURKEY POINT COL CORE TURKEY POINT.GPJ TURKEY POINT COL.GDT 5/30/08



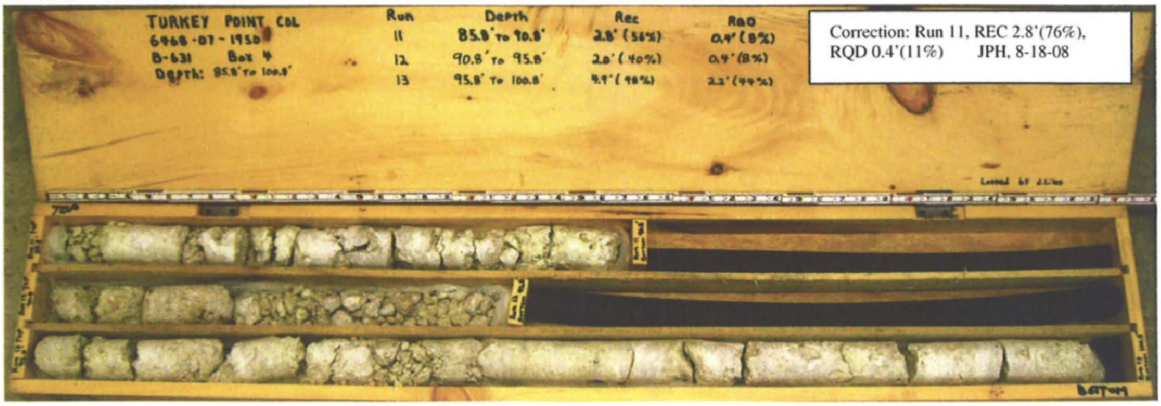
B-631 – Box 1



B-631 – Box 2



B-631 – Box 3



B-631 – Box 4

MACTEC

GEOTECHNICAL BORING LOG

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

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

SHEET 1 OF 2

BECHTEL PROJECT NO.: 25409	MACTEC PROJECT NO.: 6468-07-1950	COUNTY: Miami-Dade	GEOLOGIST: J. Liles
SITE DESCRIPTION: Turkey Point COL	DRILL MACHINE: CME-550 (Miller)	DRILLER: R. White/ J. Dugger/ B. Green	GROUND WATER (ft)
BORING NO.: B-632	DRILL METHOD: Mud Rotary/ Core	SAMPLE METHODS: SPT/Core	0 HR. NA
GROUND ELEV.: -1.6 ft (NAVD88)	NORTHING: 396,432 US ft (NAD83/90)	EASTING: 876,737 US ft (NAD83/90)	24 HR. NA
TOTAL DEPTH: 100.3 ft	BORING DIAMETER: 4" to 33.6', 3" to 100.3'	CASING DEPTH: 4" to 33.6'	HAMMER (ID):140 lb. Auto (M06)
DATE STARTED: 5/4/08	COMPLETED: 5/5/08	CORE SIZE: HQ3	BITS USED: 2 7/8" Roller Cone

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
-1.6					Ground Surface				
-1.6	0.0	WOH	WOH	WOH	WOH 0	632-1			MUCK, very dark grayish brown (2.5Y3/2), very soft, wet, strong HCl reaction
-4.1	2.5	WOH	1	6	7	632-2A&B			
-5.1									3.5
-6.7	5.1	6	7	5	SEE LEGEND FOR ROCK HARDNESS CRITERIA BASED ON SPT DATA 12	632-3			LIMESTONE, boundstone, pale yellow (2.5Y8/2), very soft, wet, strong HCl reaction, trace fine grained sand, oolitic (Miami Formation)
-9.0	7.4	20	50/0.1		70/0.6	632-4			5.1ft: little sand
-11.6	10.0	6	5	6	11	632-5			7.4ft: hard
-14.0	12.4	5	13	12	25	632-6			12.1ft: soft, trace sand
-16.6	15.0	17	19	16	35	632-7			15.0ft: medium hard
-23.7	22.1	3	3	1	4	632-8			22.1ft: very soft
-27.6									26.0
-28.5	26.9	7	25	48	73	632-9			LIMESTONE, boundstone, white (2.5Y8/1), hard, wet, strong HCl reaction, trace fine grained sand (Upper Fort Thompson Formation)
-33.7	32.1	3	22	5	27	632-10			32.1ft: soft
-36.9	35.3	9	21	30	51	632-11			35.3ft: moderately hard, little fine to medium grained sand
-38.4	36.8					RUN-1			36.8ft: Switch sampling method to coring 36.8ft: hard, indurated, some vugs, recrystallized calcite, coralline
-42.9	41.3					RUN-2			41.3ft: trace vugs
-47.9	46.3					RUN-3			46.3 to 48.1ft: gray (2.5Y6/1)
-49.7									48.1
-52.9	51.3					RUN-4			LIMESTONE, boundstone, white (2.5Y8/1), hard, indurated, few vugs, strong HCl reaction, recrystallized calcite (Lower Fort Thompson Formation) 51.3ft: medium hard to moderately hard, friable to moderately indurated, trace vugs, fossiliferous
-57.9	56.3					RUN-5			56.3ft: trace to few fine grained sand
-62.9	61.3					RUN-6			61.3ft: medium hard to hard, friable to indurated
-67.9	66.3					RUN-7			66.3ft: trace shell molds
-72.9	71.3					RUN-8			71.3ft: moderately hard to hard, moderately indurated to indurated 73.0 to 76.0ft: soft zone, possible sand interbed

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: J. Liles
SITE DESCRIPTION: Turkey Point COL	DRILL MACHINE: CME-550 (Miller)	DRILLER: R. White/ J. Dugger/ B. Green	GROUND WATER (ft)
BORING NO.: B-632	DRILL METHOD: Mud Rotary/ Core	SAMPLE METHODS: SPT/Core	0 HR. NA
GROUND ELEV.: -1.6 ft (NAVD88)	NORTHING: 396,432 US ft (NAD83/90)	EASTING: 876,737 US ft (NAD83/90)	24 HR. NA
TOTAL DEPTH: 100.3 ft	BORING DIAMETER: 4" to 33.6', 3" to 100.3'	CASING DEPTH: 4" to 33.6'	HAMMER (ID):140 lb. Auto (M06)
DATE STARTED: 5/4/08	COMPLETED: 5/5/08	CORE SIZE: HQ3	BITS USED: 2 7/8" Roller Cone

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
-76.4					Continued from previous page				
-77.9	76.3					RUN-9			LIMESTONE, boundstone, white (2.5Y8/1), hard, indurated, few vugs, strong HCl reaction, recrystallized calcite (Lower Fort Thompson Formation) *(continued)* 76.3ft: some vugs. trace shell molds and casts
-82.9	81.3					RUN-10			81.3ft: few vugs 83.0 to 84.0ft: soft zone, possible sand interbed
-87.9	86.3					RUN-11			86.3ft: medium hard to hard, friable to indurated, few shell molds and casts
-92.9	91.3					RUN-12			91.3ft: some vugs, few to little shell molds and casts
-97.9	96.3					RUN-13			96.3ft: moderately hard to hard, moderately indurated to indurated, little vugs
-101.9	100.3								Boring Terminated at Elevation -101.9 ft

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

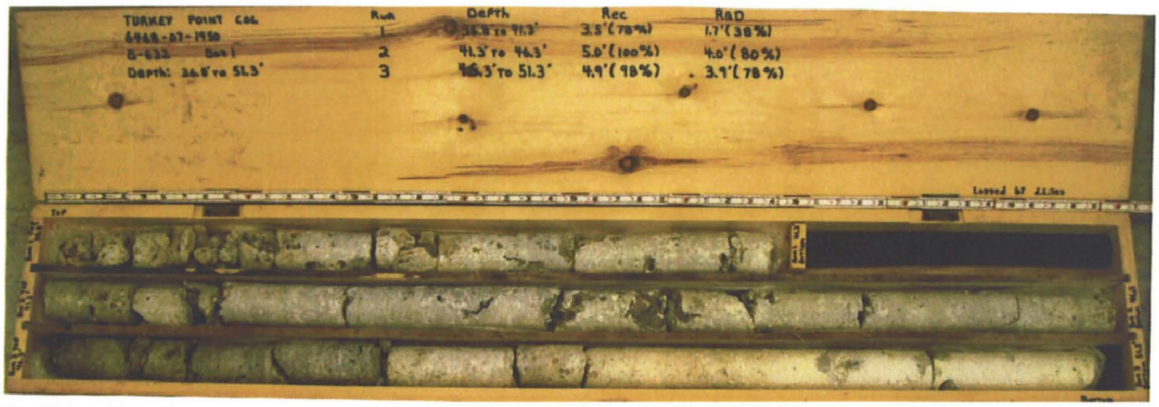
MACTEC

SHEET 1 OF 1

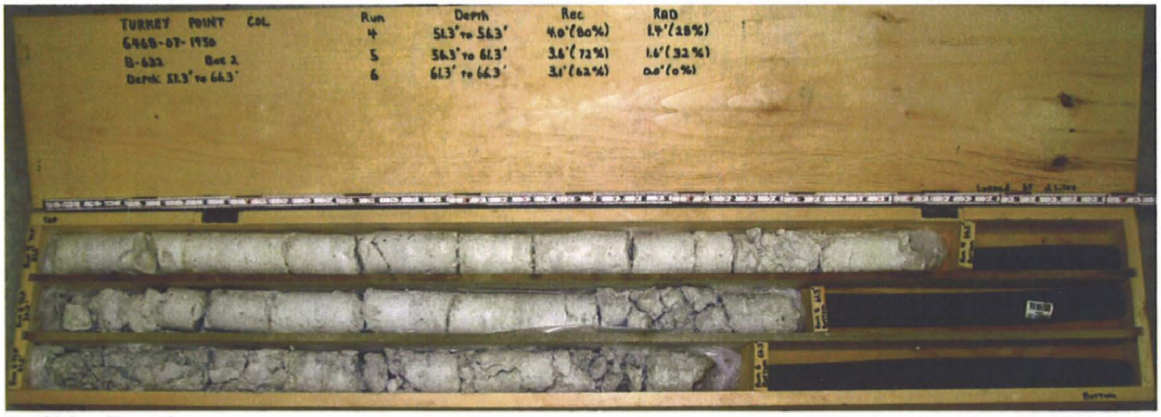
BECHTEL PROJECT NO.: 25409	MACTEC PROJECT NO.: 6468-07-1950	COUNTY: Miami-Dade	GEOLOGIST: J. Liles
SITE DESCRIPTION: Turkey Point COL	DRILL MACHINE: CME-550 (Miller)	DRILLER: R. White/ J. Dugger/ B. Green	GROUND WATER (ft)
BORING NO.: B-632	DRILL METHOD: Mud Rotary/ Core	SAMPLE METHODS: SPT/Core	0 HR. NA
GROUND ELEV.: -1.6 ft (NAVD88)	NORTHING: 396,432 US ft (NAD83/90)	EASTING: 876,737 US ft (NAD83/90)	24 HR. NA
TOTAL DEPTH: 100.3 ft	CASING DEPTH: 4" to 33.6'		HAMMER (ID): 140 lb. Auto (M06)
DATE STARTED: 5/4/08	COMPLETED: 5/5/08	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 @ 36.8 ft
-38.4	36.8	4.5	1:39 0:30 3:28 3:13 0:49/0.5	(3.5) 78%	(1.7) 38%	RUN-1	(10.3) 91%	(6.9) 61%		LIMESTONE, boundstone, white (2.5Y8/1), hard, wet, strong HCl reaction, trace fine grained sand (Upper Fort Thompson Formation) *(continued)* 36.8ft: hard, indurated, some vugs, recrystallized calcite, coralline
-42.9	41.3									
-47.9	46.3	5.0	2:18 1:30 1:59 2:01 2:19	(5.0) 100%	(4.0) 80%	RUN-2				41.3ft: trace vugs
-49.7	48.1	5.0	2:04 3:03 1:55 1:54 1:35	(4.9) 98%	(3.9) 78%	RUN-3				46.3 to 48.1ft: gray (2.5Y6/1)
-52.9	51.3						(39.9) 76%	(15.3) 29%		LIMESTONE, boundstone, white (2.5Y8/1), hard, indurated, few vugs, strong HCl reaction, recrystallized calcite (Lower Fort Thompson Formation)
-57.9	56.3	5.0	1:55 1:20 0:55 0:23 0:29	(4.0) 80%	(1.4) 28%	RUN-4				51.3ft: medium hard to moderately hard, friable to moderately indurated, trace vugs, fossiliferous
-62.9	61.3	5.0	0:51 1:00 0:40 0:30 0:31	(3.6) 72%	(1.6) 32%	RUN-5				56.3ft: trace to few fine grained sand
-67.9	66.3	5.0	0:44 0:55 0:24 0:09 0:37	(3.1) 62%	(0.0) 0%	RUN-6				61.3ft: medium hard to hard, friable to indurated
-72.9	71.3	5.0	0:57 1:38 0:32 1:01 1:00	(3.7) 74%	(1.7) 34%	RUN-7				66.3ft: trace shell molds 71.3ft: moderately hard to hard, moderately indurated to indurated
-77.9	76.3	5.0	1:52 0:42 0:05 0:03 0:22	(1.7) 34%	(0.4) 8%	RUN-8				73.0 to 76.0ft: soft zone, possible sand interbed
-82.9	81.3	5.0	1:53 1:37 1:23 1:30 0:37	(4.8) 96%	(3.5) 70%	RUN-9				76.3ft: some vugs, trace shell molds and casts
-87.9	86.3	5.0	0:29 0:44 0:15 0:41 1:06	(3.8) 76%	(0.4) 8%	RUN-10				81.3ft: few vugs 83.0 to 84.0ft: soft zone, possible sand interbed
-92.9	91.3	5.0	1:27 1:44 0:38 0:52 1:04	(3.5) 70%	(0.8) 16%	RUN-11				86.3ft: medium hard to hard, friable to indurated, few shell molds and casts
-97.9	96.3	5.0	1:05 0:40 0:49 0:47 0:42	(4.7) 94%	(1.7) 34%	RUN-12				91.3ft: some vugs, few to little shell molds and casts
-101.9	100.3	4.0	0:44 0:43 1:05 0:53	(3.9) 98%	(1.1) 28%	RUN-13				96.3ft: moderately hard to hard, moderately indurated to indurated, little vugs
										Coring Terminated at Elevation -101.9

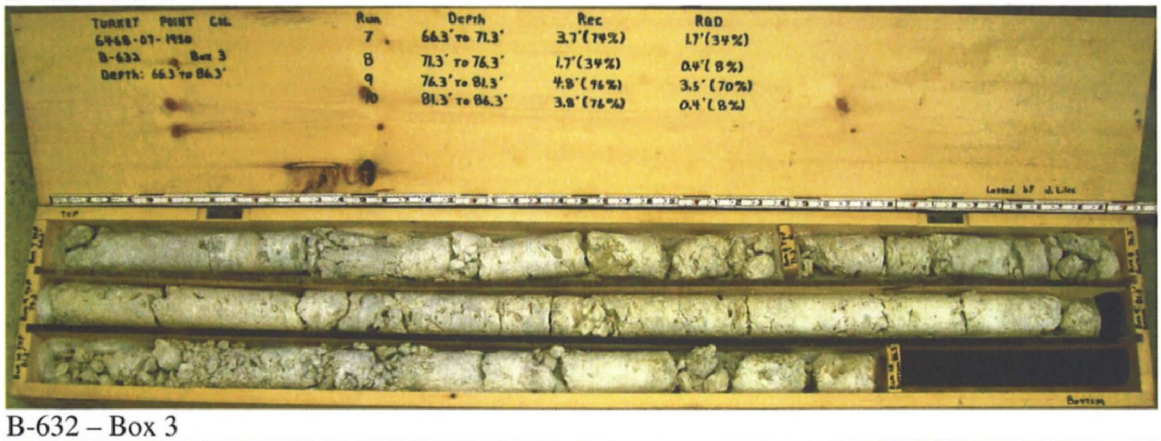
TURKEY POINT COL CORE TURKEY POINT.GPJ TURKEY POINT COL.GDT 5/30/08



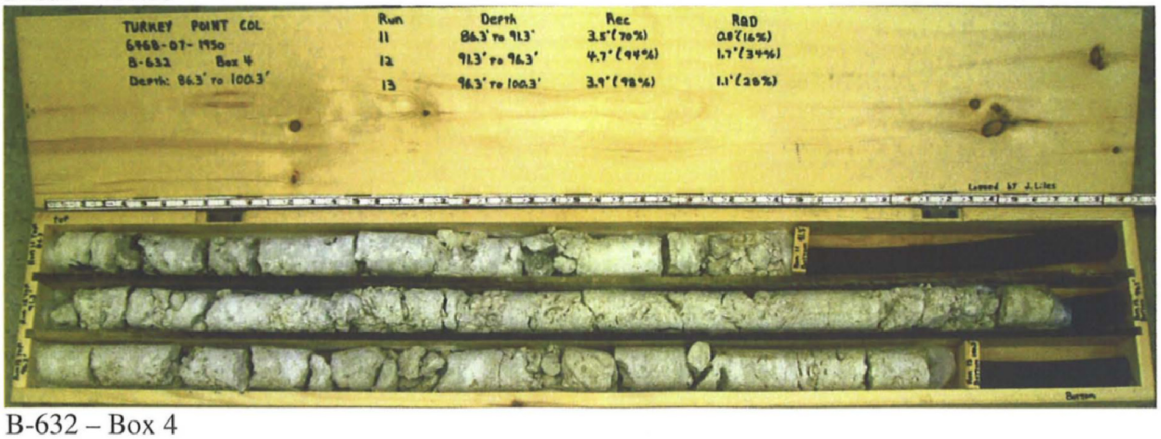
B-632 – Box 1



B-632 – Box 2



B-632 – Box 3



B-632 – Box 4

MACTEC

GEOTECHNICAL BORING LOG

Prepared By JPM Date 8-19-08

Checked By SJL Date 8/19/08

BECHTEL PROJECT NO.: 25409	MACTEC PROJECT NO.: 6468-07-1950	COUNTY: Miami-Dade	GEOLOGIST: S. Lehman
SITE DESCRIPTION: Turkey Point COL	DRILL MACHINE: CME-55 Marsh Buggy	DRILLER: P. Pitts/ B. Carrasco	GROUND WATER (ft)
BORING NO.: B-633	DRILL METHOD: Mud Rotary/ Core	SAMPLE METHODS: SPT/Core	0 HR. NA
GROUND ELEV.: -1.5 ft (NAVD88)	NORTHING: 396,113 US ft (NAD83/90)	EASTING: 876,994 US ft (NAD83/90)	24 HR. NA
TOTAL DEPTH: 100.4 ft	BORING DIAMETER: 4" to 100.4"	CASING DEPTH: 4" to 28.4'	HAMMER (ID):140 lb. Auto (MEC-425)
DATE STARTED: 5/13/08	COMPLETED: 5/15/08	CORE SIZE: HQ3	BITS USED: 3 7/8" Roller Cone

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	WOR	WOR	WOR	WOR	633-1			-1.5 0.0 MUCK, very dark grayish brown (2.5Y3/2), very soft, wet, strong HCl reaction, organics, trace shell fragments
-5.0	3.5								-4.5 3.0 LIMESTONE, boundstone, white (2.5Y8/1), very soft, friable, wet, strong HCl reaction, oolitic (Miami Formation)
-7.5	6.0	9	5	7	12	633-2			SEE LEGEND FOR ROCK HARDNESS CRITERIA BASED ON SPT DATA
-10.0	8.5	4	15	50/0.4	65/0.9	633-3			6.0ft: hard, friable to indurated
-12.5	11.0	3	5	3	8	633-4			8.5ft: very soft, friable
-15.0	13.5	6	50/0.3		56/0.8	633-5			11.0ft: hard
-20.0	18.5	9	9	17	26	633-6			13.5ft: soft, moderately indurated
-25.0	23.5	17	8	8	16	633-7			18.5ft: very soft
-30.0	28.5	11	9	9	18	633-8			23.5ft: friable to moderately indurated
-35.0	33.5	7	6	19	25	633-9			-27.5 26.0 LIMESTONE, boundstone, white (2.5Y8/1), soft, wet, moderately indurated, strong HCl reaction, fossiliferous, coralline (Upper Fort Thompson Formation)
-36.3	34.8	36	23	50/0.3	73/0.8	633-10			33.5ft: hard, indurated
-37.3	35.8					RUN-1			34.8ft: Switch sampling method to SPT
-42.3	40.8					RUN-2			34.8ft: few vugs 35.8ft: little vugs, recrystallized calcite
-47.3	45.8					RUN-3			
-52.3	50.8					RUN-4			45.8ft: light gray (10Y7/1), few vugs, to 47.8ft
-57.3	55.8					RUN-5			-49.3 47.8 LIMESTONE, boundstone, white (2.5Y8/1), hard, indurated, fossiliferous, few vugs, strong HCl reaction (Lower Fort Thompson Formation) 50.8ft: white (2.5Y8/1), to light gray (2.5Y7/1)
-62.3	60.8					RUN-6			55.8ft: white (2.5Y8/1), shell molds
-67.3	65.8					RUN-7			
-72.3	70.8					RUN-8			65.8ft: moderately indurated to indurated, little vugs
						RUN-8			70.8ft: indurated, trace vugs

TURKEY POINT COL BORE TURKEY POINT.GPJ TURKEY POINT COL.GDT 8/18/08

MACTEC

BECHTEL PROJECT NO.: 25409	MACTEC PROJECT NO.: 6468-07-1950	COUNTY: Miami-Dade	GEOLOGIST: S. Lehman
SITE DESCRIPTION: Turkey Point COL	DRILL MACHINE: CME-55 Marsh Buggy	DRILLER: P. Pitts/ B. Carrasco	GROUND WATER (ft)
BORING NO.: B-633	DRILL METHOD: Mud Rotary/ Core	SAMPLE METHODS: SPT/Core	0 HR. NA
GROUND ELEV.: -1.5 ft (NAVD88)	NORTHING: 396,113 US ft (NAD83/90)	EASTING: 876,994 US ft (NAD83/90)	24 HR. NA
TOTAL DEPTH: 100.4 ft	BORING DIAMETER: 4" to 100.4"	CASING DEPTH: 4" to 28.4'	HAMMER (ID):140 lb. Auto (MEC-425)
DATE STARTED: 5/13/08	COMPLETED: 5/15/08	CORE SIZE: HQ3	BITS USED: 3 7/8" Roller Cone

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				
-77.3	75.8					RUN-10			LIMESTONE, boundstone, white (2.5Y8/1), hard, indurated, fossiliferous, few vugs, strong HCl reaction (Lower Fort Thompson Formation) *(continued)*
-82.3	80.8					RUN-11			75.8ft: few vugs 80.8ft: trace vugs
-87.3	85.8					RUN-12			85.8ft: moderately hard to hard, moderately indurated to indurated, few to little vugs
-92.3	90.8					RUN-13			90.5ft: hard, indurated, trace vugs
-97.3	95.8					RUN-14			95.8ft: moderately hard, moderately indurated
-101.9	100.4								Boring Terminated at Elevation -101.9 ft

TURKEY POINT COL BORE TURKEY POINT GPJ TURKEY POINT COL.GDT 8/18/08

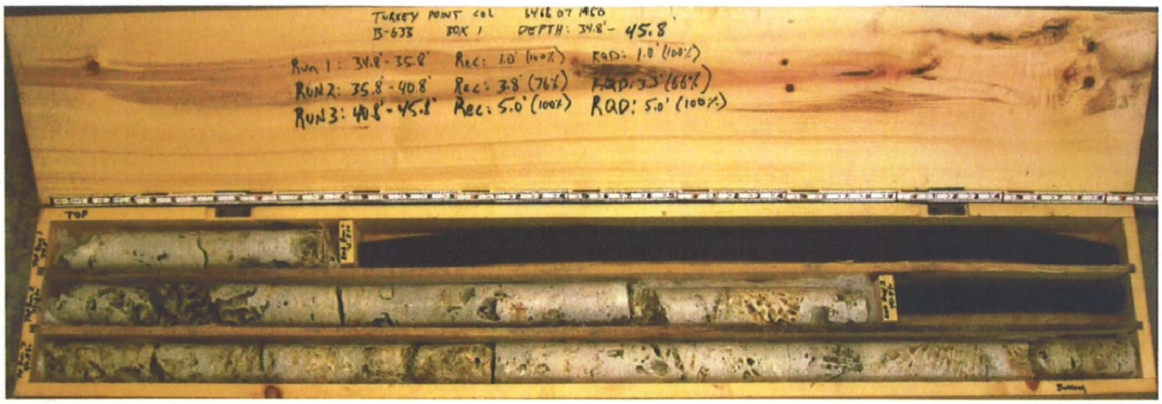
MACTEC

SHEET 1 OF 1

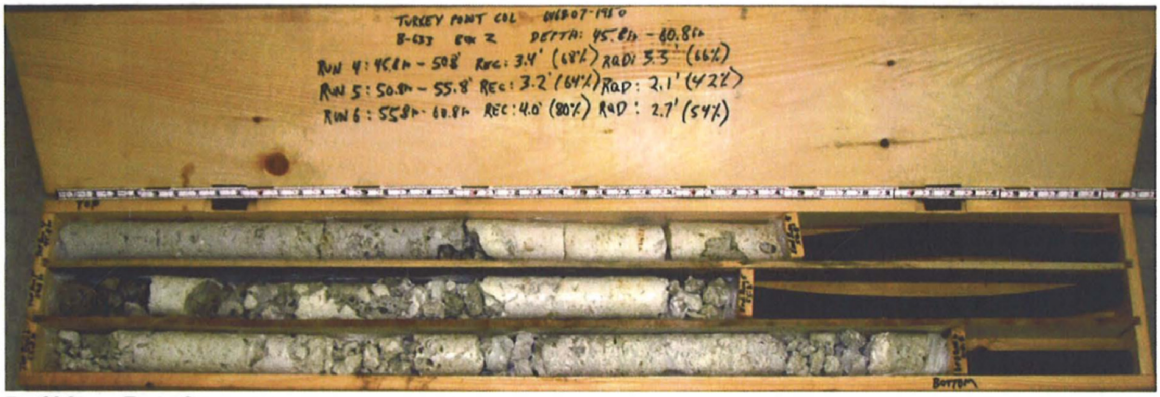
BECHTEL PROJECT NO.: 25409	MACTEC PROJECT NO.: 6468-07-1950	COUNTY: Miami-Dade	GEOLOGIST: S. Lehman	
SITE DESCRIPTION: Turkey Point COL	DRILL MACHINE: CME-55 Marsh Buggy	DRILLER: P. Pitts/ B. Carrasco	GROUND WATER (ft)	
BORING NO.: B-633	DRILL METHOD: Mud Rotary/ Core	SAMPLE METHODS: SPT/Core	0 HR.	NA
GROUND ELEV.: -1.5 ft (NAVD88)	NORTHING: 396,113 US ft (NAD83/90)	EASTING: 876,994 US ft (NAD83/90)	24 HR.	NA
TOTAL DEPTH: 100.4 ft	CASING DEPTH: 4" to 28.4'		HAMMER (ID): 140 lb. Auto (MEC-425)	
DATE STARTED: 5/13/08	COMPLETED: 5/15/08	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 @ 34.8 ft
-36.3	34.8	1.0	8:11	(1.0) 100%	(1.0) 100%	RUN-1	(11.8) 91%	(11.2) 86%		LIMESTONE, boundstone, white (2.5Y8/1), soft, wet, moderately indurated, strong HCl reaction, fossiliferous, coralline (Upper Fort Thompson Formation) *(continued)*
-37.3	35.8	5.0	8:00 8:20 11:51 10:02 5:33	(3.8) 76%	(3.3) 66%	RUN-2				34.8ft: few vugs 35.8ft: little vugs, recrystallized calcite
-42.3	40.8	5.0	24.59 17.44 9:25 6:54 5:58	(5.0) 100%	(5.0) 100%	RUN-3				
-47.3	45.8	5.0	8:16 5:04 3:43 4:03 3:09	(3.4) 68%	(3.3) 66%	RUN-4				45.8ft: light gray (10Y7/1), few vugs, to 47.8ft
									-49.3	47.8
-52.3	50.8	5.0	4:27 1:11 3:30 1:17 1:10	(3.2) 64%	(2.1) 42%	RUN-5	(32.8) 62%	(17.6) 33%		LIMESTONE, boundstone, white (2.5Y8/1), hard, indurated, fossiliferous, few vugs, strong HCl reaction (Lower Fort Thompson Formation) 50.8ft: white (2.5Y8/1), to light gray (2.5Y7/1)
-57.3	55.8	5.0	4:22 2:27 2:46 1:10 3:09	(4.0) 80%	(2.7) 54%	RUN-6				55.8ft: white (2.5Y8/1), shell molds
-62.3	60.8	5.0	3:28 8:10 4:10 0:58 1:04	(2.7) 54%	(2.2) 44%	RUN-7				
-67.3	65.8	5.0	3:44 5:37 3:56 2:12 3:55	(1.9) 38%	(0.0) 0%	RUN-8				65.8ft: moderately indurated to indurated, little vugs
-72.3	70.8	5.0	3:23 3:21 3:04 3:25 3:58	(1.7) 34%	(0.6) 12%	RUN-9				70.8ft: indurated, trace vugs
-77.3	75.8	5.0	7:01 9:45 5:59 8:15 3:18	(3.9) 78%	(1.6) 32%	RUN-10				75.8ft: few vugs
-82.3	80.8	5.0	6:19 6:50 3:10 5:30 1:47	(2.8) 56%	(1.0) 20%	RUN-11				80.8ft: trace vugs
-87.3	85.8	5.0	3:11 6:20 4:14 3:45 3:00	(4.3) 86%	(2.8) 56%	RUN-12				85.8ft: moderately hard to hard, moderately indurated to indurated, few to little vugs
-92.3	90.8	5.0	3:10 1:50 0:55 2:05 1:41	(3.7) 74%	(1.7) 34%	RUN-13				90.5ft: hard, indurated, trace vugs
-97.3	95.8	4.6	1:08 0:28 3:31 3:33 3:40/0.6	(3.2) 70%	(1.5) 33%	RUN-14				95.8ft: moderately hard, moderately indurated
-101.9	100.4								-101.9	100.4
										Coring Terminated at Elevation -101.9

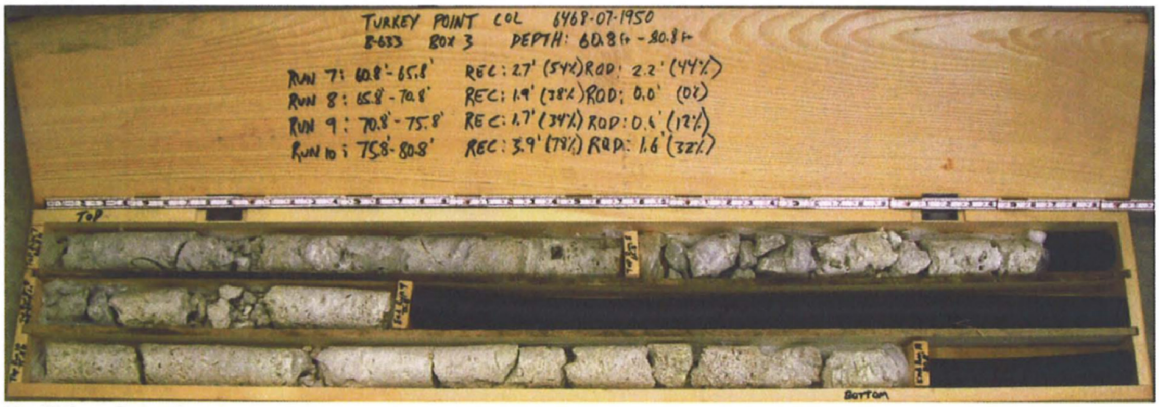
TURKEY POINT COL CORE TURKEY POINT GPJ TURKEY POINT COL.GDT 8/18/08



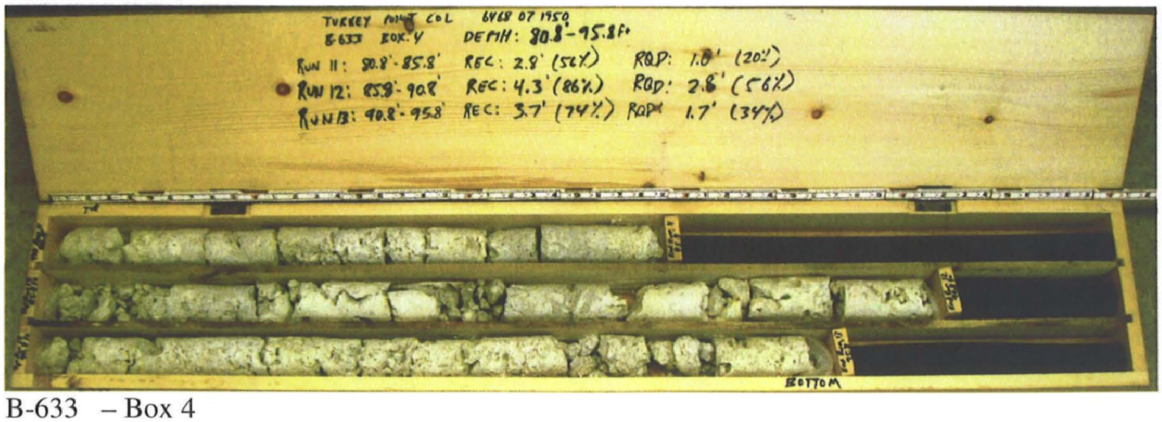
B-633 – Box 1



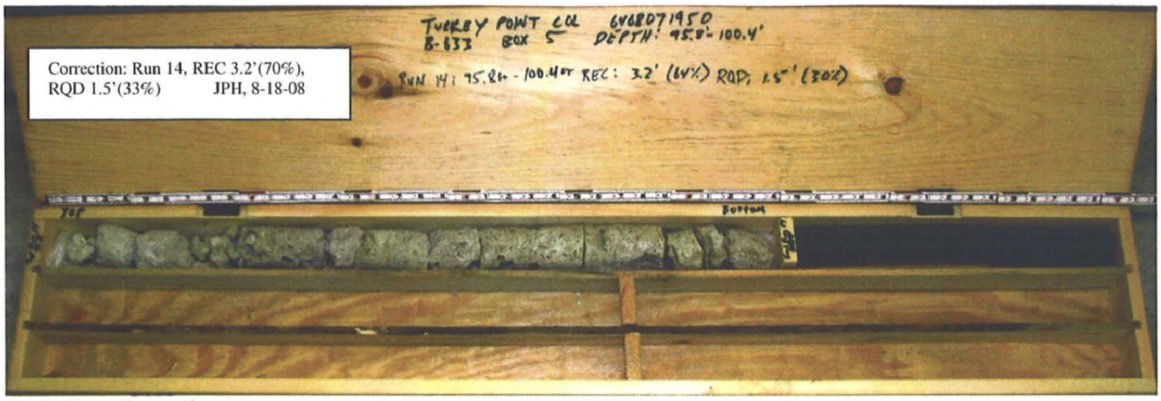
B-633 – Box 2



B-633 – Box 3



B-633 – Box 4


Correction: Run 14, REC 3.2'(70%),
RQD 1.5'(33%) JPH, 8-18-08
TURKEY POINT COL 6468071950
B-633 BOX 5 DEPTH: 95.8'-100.4'
RUN 14: 95.8' - 100.4' REC: 3.2' (64%) RQD: 1.5' (30%)
Bottom

B-633 – Box 5

MACTEC

GEOTECHNICAL BORING LOG

Prepared By: [illegible] Date: 7-10-08

Checked By: [illegible] Date: 7-10-08

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 Marsh Buggy	DRILLER: D. White/ R. Hall	GROUND WATER (ft)
BORING NO.: B-634	DRILL METHOD: Mud Rotary/ Core	SAMPLE METHODS: SPT/Core	0 HR. NA
GROUND ELEV.: -0.7 ft (NAVD88)	NORTHING: 395,758 US ft (NAD83/90)	EASTING: 876,677 US ft (NAD83/90)	24 HR. NA
TOTAL DEPTH: 127.5 ft	BORING DIAMETER: 4" to 30.0', 3" to 127.5'	CASING DEPTH: 4" to 30.0', 3" to 126.0'	HAMMER (ID):140 lb. Auto (893)
DATE STARTED: 4/7/08	COMPLETED: 4/9/08	CORE SIZE: HQ3	BITS USED: 2 15/16" Tricone

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
-0.7					Ground Surface				
-0.7	0.0	WOH	WOH	WOH	WOH 0	634-1			-0.7 0.0 MUCK, very dark gray (7.5YR3/1), very soft, wet, trace fine grained sand, trace shell fragments, strong HCl reaction
-3.2	2.5	1	1	2	3	634-2			2.5ft: soft, weak HCl reaction
-5.7	5.0	4	3	3	6	634-3			-5.2 4.5 LIMESTONE, boundstone, white (10YR8/1), very soft, wet, trace shell fragments, strong HCl reaction, oolitic (Miami Formation)
-8.2	7.5	17	25	10	35	634-4			7.5ft: white (10YR8/10), to gray (10YR6/1), medium hard
-10.7	10.0	6	6	6	12	634-5			10.0ft: white (10YR8/1), very soft
-13.2	12.5	12	9	7	16	634-6			
-15.7	15.0	6	12	13	25	634-7			15.0ft: soft
-19.5	18.8	44	21	10	31	634-8			18.8ft: white (2.5Y8/1), medium hard
-24.5	23.8	10	3	4	7	634-9			23.8ft: white (10YR8/1), soft
-27.7									-27.7 27.0 LIMESTONE, boundstone, white (10YR8/1), hard, wet, fossiliferous, trace fine grained sand, strong HCl reaction (Upper Fort Thompson Formation)
-29.5	28.8								
-30.9	30.2	14	38	50/0.4	88/0.9	634-10			30.2ft: Switch sampling method to coring
-32.0	31.3					RUN-1			30.2ft: white (10YR8/1), soft to hard, friable to indurated, fossiliferous, strong HCl reaction, few vugs
-37.2	36.5					RUN-2			31.3ft: moderately hard, moderately indurated, cemented sand layers, coralline
-42.2	41.5					RUN-3			36.5ft: hard, indurated, locally interconnected vugs
-47.2	46.5					RUN-4			41.5ft: few vugs
-52.2	51.5					RUN-5			-52.2 51.5 LIMESTONE, boundstone, white (7.5YR8/1), moderately hard, moderately indurated, trace shell molds and casts (Lower Fort Thompson Formation)
-57.2	56.5					RUN-6			56.5ft: white (2.5Y8/1)
-62.2	61.5					RUN-7			61.5ft: white (7.5YR8/1), hard, indurated
-67.2	66.5					RUN-8			66.5ft: white (10YR8/1) 66.5 to 76.5ft: interbedded sand layers
-72.2	71.5					RUN-9			71.5ft: moderately hard, moderately indurated
						RUN-10			

SEE LEGEND FOR ROCK HARDNESS CRITERIA BASED ON SPT DATA

TURKEY POINT COL BORE TURKEY POINT.GPJ TURKEY POINT COL.GDT 7/10/08

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 Marsh Buggy	DRILLER: D. White/ R. Hall	GROUND WATER (ft)
BORING NO.: B-634	DRILL METHOD: Mud Rotary/ Core	SAMPLE METHODS: SPT/Core	0 HR. NA
GROUND ELEV.: -0.7 ft (NAVD88)	NORTHING: 395,758 US ft (NAD83/90)	EASTING: 876,677 US ft (NAD83/90)	24 HR. NA
TOTAL DEPTH: 127.5 ft	BORING DIAMETER: 4" to 30.0', 3" to 127.5'	CASING DEPTH: 4" to 30.0', 3" to 126.0'	HAMMER (ID):140 lb. Auto (893)
DATE STARTED: 4/7/08	COMPLETED: 4/9/08	CORE SIZE: HQ3	BITS USED: 2 15/16" Tricone

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
-75.5					Continued from previous page				
-77.2	76.5								LIMESTONE: boundstone, white (7.5YR8/1), moderately hard, moderately indurated, trace shell molds and casts (Lower Fort Thompson Formation) *(continued)*
-78.7	78.0	3	9	11	20	634-11A&B			
						RUN-11			
-82.2	81.5					RUN-12			81.5ft: medium hard
-87.2	86.5					RUN-13			86.5ft: little shell molds and casts
-92.2	91.5					RUN-14			
-97.2	96.5					RUN-15			
-102.2	101.5					RUN-16			101.5ft: mostly shell molds and casts
-107.2	106.5					RUN-17			
-112.2	111.5					RUN-18			111.5ft: trace shell molds and casts
-115.7	115.0								
-117.2	116.5	8	9	5	14	634-12			Silty SAND (SM), light gray (10YR7/2), medium dense, wet, interbedded friable sandy limestone lenses (Tamiami Formation) 116.5ft: Switch sampling method to SPT
-126.7	126.0	4	4	5	9	634-13			126.0ft: loose
-128.2	127.5								Boring Terminated at Elevation -128.2 ft

TURKEY POINT COL BORE TURKEY POINT.GPJ TURKEY POINT COL.GDT 7/10/08

MACTEC

SHEET 1 OF 2

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 Marsh Buggy	DRILLER: D. White/ R. Hall	GROUND WATER (ft)
BORING NO.: B-634	DRILL METHOD: Mud Rotary/ Core	SAMPLE METHODS: SPT/Core	0 HR. NA
GROUND ELEV.: -0.7 ft (NAVD88)	NORTHING: 395,758 US ft (NAD83/90)	EASTING: 876,677 US ft (NAD83/90)	24 HR. NA
TOTAL DEPTH: 127.5 ft	CASING DEPTH: 4" to 30.0', 3" to 126.0'		HAMMER (ID): 140 lb. Auto (893)
DATE STARTED: 4/7/08	COMPLETED: 4/9/08	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 @ 30.2 ft
-30.9	30.2	1.3	1:20	(0.4)	(0.0)	RUN-1	(15.2)	(5.1)		LIMESTONE, boundstone, white (10YR8/1), hard, wet, fossiliferous, trace fine grained sand, strong HCl reaction (Upper Fort Thompson Formation) *(continued)*
-32.2	31.5	5.0	0:20/0.3	31%	0%	*RUN-2*	71%	24%		30.2ft: white (10YR8/1), soft to hard, friable to indurated, fossiliferous, strong HCl reaction, few vugs
			1:02	(3.0)	(1.3)	RUN-2				31.3ft: moderately hard, moderately indurated, cemented sand layers, coralline
			1:00	60%	26%					36.5ft: hard, indurated, locally interconnected vugs
			1:08							
			1:56							
-37.2	36.5		2:02							
		5.0	1:52	(4.8)	(3.0)	RUN-3				
			1:52	96%	60%					
			1:28							
			1:12							
-42.2	41.5		1:19							
		5.0	1:00	(3.9)	(0.4)	RUN-4				41.5ft: few vugs
			1:30	78%	8%					
			0:59							
			1:12							
-47.2	46.5		1:34							
		5.0	1:15	(3.1)	(0.4)	RUN-5				
			1:20	62%	8%					
			1:35							
			0:45							
-52.2	51.5		0:55							-52.2 51.5
		5.0	1:12	(3.4)	(0.9)	RUN-6	(30.6)	(4.6)		LIMESTONE, boundstone, white (7.5YR8/1), moderately hard, moderately indurated, trace shell molds and casts (Lower Fort Thompson Formation)
			1:20	68%	18%		48%	7%		
			0:52							
			1:15							
-57.2	56.5		0:46							
		5.0	0:48	(2.7)	(0.8)	RUN-7				56.5ft: white (2.5Y8/1)
			0:48	54%	16%					
			2:00							
			2:45							
-62.2	61.5		2:21							
		5.0	1:10	(3.0)	(0.0)	RUN-8				61.5ft: white (7.5YR8/1), hard, indurated
			0:41	60%	0%					
			1:10							
			0:33							
-67.2	66.5		0:50							
		5.0	0:45	(1.0)	(0.0)	RUN-9				66.5ft: white (10YR8/1)
			0:10	20%	0%					66.5 to 76.5ft: interbedded sand layers
			0:10							
			0:06							
-72.2	71.5		0:08							
		5.0	0:28	(0.8)	(0.0)	RUN-10				71.5ft: moderately hard, moderately indurated
			0:17	16%	0%					
			0:40							
			0:10							
-77.2	76.5		0:10							
			N=20			*634-11A&B*				
-78.7	78.0	3.5	2:00	(1.8)	(0.4)	RUN-11				
			0:47	51%	11%					
-82.2	81.5		0:56							
		5.0	0:33/0.5	(2.4)	(0.4)	RUN-12				81.5ft: medium hard
			0:40	48%	8%					
			0:20							
			0:22							
			0:15							
-87.2	86.5		0:15							
		5.0	0:36	(1.2)	(0.0)	RUN-13				86.5ft: little shell molds and casts
			0:36	24%	0%					
			0:16							
			0:56							
-92.2	91.5		1:06							
		5.0	1:10	(3.2)	(1.4)	RUN-14				
			0:58	64%	28%					
			0:25							
			0:40							
-97.2	96.5		0:35							
		5.0	0:21	(2.0)	(0.0)	RUN-15				
			0:28	40%	0%					
			0:15							
			0:25							
-102.2	101.5		0:16							
		5.0	0:25	(4.2)	(0.7)	RUN-16				101.5ft: mostly shell molds and casts
			0:44	84%	14%					
			0:43							

TURKEY POINT COL CORE TURKEY POINT.GPJ TURKEY POINT COL.GDT 7/10/08