APPENDICES

APPENDIX A

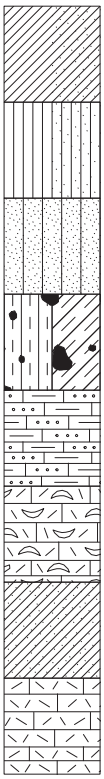
BORING LOGS

KEY TO SYMBOLS

CLIENT FPL **PROJECT NAME** Turkey Point Units 6 and 7 Site

PROJECT NUMBER 13-5054 **PROJECT LOCATION** Homestead, Florida

LITHOLOGIC SYMBOLS



(CL)-S: Lean Clay with Sand

(ML)-S: Silt with Sand

(SM): Silty Sand

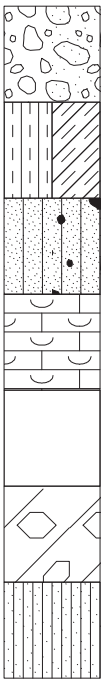
G(OL/OH): Gravelly Organic Soil

MUDSTONE: mudstone

PACKSTONE: Packstone

S(CL): Sandy Lean Clay

WACKESTONE: Crystaline Limestone



(GW)-S: Well-graded Gravel with Sand

(OL/OH): Organic Soil

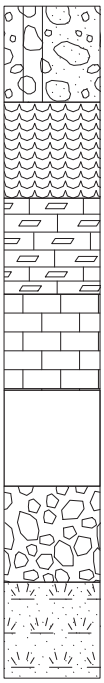
(SM)-G: Silty Sand with Gravel

GRAINSTONE: Grainstone

NO RECOVERY: No Recovery

ROADBASE: Roadbase

S(ML): Sandy Silt



(GW-GM)-S: Well-graded Gravel with Silt and Sand

(PT): Peat

BOUNDSTONE: Boundstone

LIMESTONE: Limestone bedrock

NO SAMPLE: No Sample Taken

ROCKFILL

TOPSOIL: Topsoil

Abbreviations and Acronyms

%REC	Percent recovery of sample collected.
%RQD	Percent of Rock Quality Designation value.
(10Y 6/2) Pale Olive	Munsell Color Chart Designations.
CPT	Cone Penetration Testing.
in.	Inches.
FD-1	Fracture Density.
ft.	Feet.
HCl	Hydrochloric acid.
N1/N2	(N) Value, represents the sum of blow counts over a specified interval during SPT sampling.
NWD4	Drill bit size (outside diameter of 2.980 inches) used for conventional coring.
PQ	Drill bit size (outside diameter of 4.827 inches) used for wireline coring.
R.D.	Relative Dip.
R-1	Core run identification number.
S-1	SPT sample identification number.
SC-1	Special Care Sample identification number.
SPT	Standard Penetration Testing.
ST-1	Shelby Tube sample identification number.
USCS Symbol	Unified Soil Classification System Symbol as per ASTM D-2487: lower case - Field description. UPPER CASE - Result of Laboratory Analysis.
(W5) Moderately Weathered	Weathering Descriptor.
WOR	Weight of Rod.

Paul C. Rizzo Associates, Inc.
ENGINEERS/CONSULTANTS/CM

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500 Penn Center Blvd. Suite 100, Pittsburgh, PA 15235
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Boring R-6-1a

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 397115.74 ft E. 876594.72 ft
GROUND SURFACE ELEVATION: -0.07 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-1.0	1.0					0.0-3.0 ft Road base layer.		0 - 3 ft. boring was destructively drilled with 5 inch mud rotary bit. Measured water level varied within one foot of ground surface. Core loss due to soft sandy loose zones. 3.0 - 121.8 ft., PQ Wireline Coring.
-2.0	2.0							
-3.0	3.0					3.0-4.6 ft Sandy organic soil, dusky yellowish brown (10YR 2/2) and pale brown (5YR 5/2), organic odor, wet, Spongy consistency, with Plant material, (Peat/Muck)	ol/oh	
-4.0	4.0	R-1	74% (53%)					
-5.0	5.0					4.6-11.8 ft GRAINSTONE, calcareous, hard to moderately soft, slightly to moderately weathered, fine sand to very coarse sand particles, vuggy to pitted, max size: 1 in., very pale orange (10YR 8/2) and light bluish gray (5B 7/1), massive bedded, strong reaction to HCl, moist, lower contact is conformable and gradational, Zones of loose sandy limestone in competent hard sandy limestone. Some shells and shell fragments. [Miami Limestone]		
-6.0	6.0							
-7.0	7.0							
-8.0	8.0							
-9.0	9.0	R-2	35% (12%)					
-10.0	10.0							
-11.0	11.0			FD0				
-12.0	12.0					11.8-27.5 ft PACKSTONE, calcareous, hard to moderately soft, slightly to moderately weathered, clay to very coarse sand particles, vuggy to pitted, max size: 1.5 in., white (N9) and light bluish gray (5B 7/1), massive bedded, R.D. = 30°, strong reaction to HCl, moist, lower contact is conformable and gradational, Zones of loose sandy limestone in competent hard micrite packstone. gray (N4) angular micritic limestone clasts in wackestone matrix (breccia) from 18.3-18.7 ft. [Miami Limestone]		
-13.0	13.0							
-14.0	14.0	R-3	96% (8%)					Abundant voids allow for common breakage of brittle core to rubble and small segments. Possible fractures.
-15.0	15.0							
-16.0	16.0							
-17.0	17.0							
-18.0	18.0	R-4	88% (10%)					
-19.0	19.0			FD2				

DATE STARTED: 8/26/13
DATE FINISHED: 8/29/13
FIELD GEOLOGIST: Doug Raszewski
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ
DRILLING CO. Huss Drilling

NOTES: Boring is angled 15 degrees toward bearing 318. Depth on log is measured depth in boring.

APPROVED BY: EOT

DRILLER: Anthony Hudson

DRILL RIG: DR-5

HAMMER ID:

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Boring R-6-1a

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COORDINATES
N. 397115.74 ft E. 876594.72 ft
GROUND SURFACE ELEVATION: -0.07 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-20.0	21.0	R-4	88% (10%)			19.9-20.1 ft Joint, R.D. = 30°, very closely to widely spaced, slightly open; filling: not healed, fresh; surface: moderately rough, planar, fresh, hard. Fracture set #1.		
-21.0	22.0					11.8-27.5 ft PACKSTONE, calcareous, hard to moderately soft, slightly to moderately weathered, clay to very coarse sand particles, vuggy to pitted, max size: 1.5 in., white (N9) and light bluish gray (5B 7/1), massive bedded, R.D. = 30°, strong reaction to HCl, moist, lower contact is conformable and gradational, Zones of loose sandy limestone in competent hard micrite packstone. gray (N4) angular micritic limestone clasts in wackestone matrix (breccia) from 18.3-18.7 ft. [Miami Limestone]		R-5 is mostly rubble. lost loose sand. Driller reports many soft sandy pockets.
-22.0	23.0							
-23.0	24.0	R-5	48% (0%)			20.8-21 ft Joint, R.D. = 30°, very closely to widely spaced, slightly open; filling: not healed, fresh; surface: moderately rough, planar, fresh, hard.		
-24.0	25.0							
-25.0	26.0							
-26.0	27.0							
-27.0	28.0					27.3-27.7 ft Joint, R.D. = 60°, very closely to widely spaced, slightly open; filling: not healed, fresh; surface: moderately rough, planar, fresh, hard. Fracture set #1.		
-28.0	29.0	R-6	94% (58%)	FD2		27.5-48.6 ft WACKESTONE, calcareous, interbedded, hard to moderately hard, fresh to moderately weathered, clay to fine sand particles, vuggy to cavities, max size: 4.0 in., white (N9) to light gray (N7), moderately to thickly bedded, closely to widely fractured, weak reaction to HCl, moist, lower contact is conformable and gradational, 1-4 inch voids present. Occasional shells/fossils and moldic porosity. Voids are coated with calcite crystal overgrowth below about 35 feet. Subvertical curved solution cavity. [Key Largo Limestone]		Many vugs and vesicles 28.7-31.0 ft.
-29.0	30.0							
-30.0	31.0							
-31.0	32.0					interbedded with BOUNDSTONE, calcareous, moderately soft to hard, fresh to slightly weathered, pitted to cavities, max size: 3.6 in., white (N9) to light gray (N7), thinly to moderately bedded, closely to widely fractured, R.D. = 30° to 45°, weak reaction to HCl, moist, lower contact is conformable and gradational, Calcite overgrowth filling fractures and voids below 42.0 ft. [Key Largo Limestone]		
-32.0	33.0							SC-1: 33.0-33.7 ft.
-33.0	34.0	R-7	90% (38%)			28.9-34.3 ft Abundant voids allows for much mechanical breakage of core. Possible fractures.		
-34.0	35.0					33.5-34.1 ft Joint, R.D. = 45°, very closely to widely spaced, moderately open; filling: not healed, slightly weathered; surface: rough, planar, slightly weathered, hard.		Calcite crystals coating void surfaces below ~35.0 ft.
-35.0	36.0							Lost circulation.
-36.0	37.0							
-37.0	38.0	R-8	98% (44%)			37.7-38.1 ft Joint, R.D. = 35°, moderately to widely spaced, slightly open; filling: not healed, fresh; surface: rough, planar, fresh, hard.		
-38.0	39.0			FD6				

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DRILLING CO. Huss Drilling

NOTES: Boring is angled 15 degrees toward bearing 318. Depth on log is measured depth in boring.

APPROVED BY: EOT

DRILLER: Anthony Hudson

DRILL RIG: DR-5

HAMMER ID:

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Boring R-6-1a

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 397115.74 ft E. 876594.72 ft
GROUND SURFACE ELEVATION: -0.07 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-39.0	41.0	R-8	98% (44%)			39.7-40 ft Joint, R.D. = 45°, moderately to widely spaced, slightly open; filling: not healed, fresh; surface: rough, planar, fresh, hard.		
-40.0	42.0			FD6		27.5-48.6 ft WACKESTONE, calcareous, interbedded, hard to moderately hard, fresh to moderately weathered, clay to fine sand particles, vuggy to cavities, max size: 4.0 in., white (N9) to light gray (N7), moderately to thickly bedded, closely to widely fractured, weak reaction to HCl, moist, lower contact is conformable and gradational, 1-4 inch voids present. Occasional shells/fossils and moldic porosity. Voids are coated with calcite crystal overgrowth below about 35 feet. Subvertical curved solution cavity. [Key Largo Limestone]		
-41.0	43.0							
-42.0	44.0	R-9	94% (32%)			interbedded with BOUNDSTONE, calcareous, moderately soft to hard, fresh to slightly weathered, pitted to cavities, max size: 3.6 in., white (N9) to light gray (N7), thinly to moderately bedded, closely to widely fractured, R.D. = 30° to 45°, weak reaction to HCl, moist, lower contact is conformable and gradational, Calcite overgrowth filling fractures and voids below 42.0 ft. [Key Largo Limestone]		Abundant porosity and vugs in boundstone (calcite coated voids). 44 - 48ft, abundant calcite coated voids.
-43.0	45.0							
-44.0	46.0					40.4-40.8 ft Joint, R.D. = 55°, moderately to widely spaced, slightly open; filling: not healed, fresh; surface: rough, planar, fresh, hard.		
-45.0	47.0			FD0		42.1-42.4 ft Joint, R.D. = 40°, closely to widely spaced, open; filling: moderately healed, moderately thick calcite, fresh, moderately hard; surface: rough, planar, fresh to slightly weathered, hard; In boundstone bed.		SC-2: 47.0-47.6 ft.
-46.0	48.0					42.5-43 ft Joint, R.D. = 45°, closely to widely spaced, open; filling: partly healed, thin calcite, fresh, moderately hard; surface: rough, planar, fresh to slightly weathered, hard; In boundstone bed.		
-47.0	49.0	R-10	96% (46%)			42.7-43.1 ft Joint, R.D. = 45°, closely to widely spaced, open; filling: partly healed, thin calcite, fresh, moderately hard; surface: rough, planar, fresh to slightly weathered, hard; In boundstone bed.		
-48.0	50.0							SC-3: 50.0-50.6 ft.
-49.0	51.0			FD7		48.6-50.9 ft WACKESTONE, calcareous, hard to very hard, fresh to slightly weathered, clay to fine sand particles, vuggy to pitted, max size: 0.5 in., medium gray (N5) to light gray (N7), thickly bedded, strong reaction to HCl, moist, lower contact is conformable and gradational, this layer is the transition to the Fort Thompson Formation. Larger voids coated with calcite. Common shell molds. [Key Largo Limestone]		
-50.0	52.0					49.4-49.5 ft Joint, R.D. = 10°; filling: not healed, hard (H3); surface: moderately rough, planar.		
-51.0	53.0					50.6-51.5 ft Fracture zone, R.D. = 30°, very closely spaced; filling: totally healed, moderately thin calcite, fresh to slightly weathered, moderately soft; surface: rough, planar, fresh to slightly weathered, hard.		
-52.0	54.0	R-11	100% (92%)					
-53.0	55.0					50.9-119.8 ft GRAINSTONE, calcareous, hard to very soft, fresh to moderately weathered, very coarse sand to silt particles, pitted to vuggy, max size: 1.0 in., white (N9) to very light gray (N8), massive, strong reaction to HCl, moist, shells and shell fragments. Most vugs are moldic porosity. From 51.9 - 52.5 ft, core broken with loose sand. From 54.7 - 59.4 ft, common shell molds. From 62.9 - 73.0, Abundant soft sandy zones (potentially unidentified fractures). Very soft pockets become present from approximately 64.0- 80.0 ft. From 87.3 - 91.8 ft, abundant shell molds. Below 112.3 ft, small to medium (1/16 - 1/2") shell molds common in core recovered. [Fort Thompson Formation]		
-54.0	56.0			FD0				
-55.0	57.0							
-56.0	58.0	R-12	100% (88%)			with layers of PACKSTONE, calcareous, moderately soft to hard, fresh to slightly weathered, clay to granule particles, cavities to pitted, max size: 2.0 in., white (N9) to very light gray (N8), very thickly to thickly bedded, strong reaction to HCl, moist, lower contact is conformable and gradational, [Fort Thompson Formation]		SC-4: 58.3-59.4 ft.
-57.0	59.0							

DATE STARTED: 8/26/13
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NOTES: Boring is angled 15 degrees toward bearing 318. Depth on log is measured depth in boring.

APPROVED BY: EOT

DRILLER: Anthony Hudson

DRILL RIG: DR-5

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Boring R-6-1a

PROJECT: Turkey Point Units 6 and 7 Site
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COORDINATES
N. 397115.74 ft E. 876594.72 ft
GROUND SURFACE ELEVATION: -0.07 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-59.0	61.0	R-12	100% (88%)			50.9-119.8 ft GRAINSTONE, calcareous, hard to very soft, fresh to moderately weathered, very coarse sand to silt particles, pitted to vuggy, max size: 1.0 in., white (N9) to very light gray (N8), massive, strong reaction to HCl, moist, shells and shell fragments. Most vugs are moldic porosity. From 51.9 - 52.5 ft, core broken with loose sand. From 54.7 - 59.4 ft, common shell molds. From 62.9 - 73.0, Abundant soft sandy zones (potentially unidentified fractures). Very soft pockets become present from approximately 64.0- 80.0 ft. From 87.3 - 91.8 ft, abundant shell molds. Below 112.3 ft, small to medium (1/16 - 1/2") shell molds common in core recovered. [Fort Thompson Formation] with layers of PACKSTONE, calcareous, moderately soft to hard, fresh to slightly weathered, clay to granule particles, cavities to pitted, max size: 2.0 in., white (N9) to very light gray (N8), very thickly to thickly bedded, strong reaction to HCl, moist, lower contact is conformable and gradational, [Fort Thompson Formation]		
-60.0	62.0							
-61.0	63.0							
-62.0	64.0	R-13	64% (36%)					
-63.0	65.0							Mechanical breakage of core at weak zones.
-64.0	66.0			FD0				
-65.0	67.0							Core Run R-14 yielded no recovery; Driller states that pressure gague never moved and felt like a void. Extremly low recovery from 66.5 - 111.8 ft due to problems with inner barrel.
-66.0	68.0							
-67.0	69.0	R-14	0% (0%)					Could not get inner barrel down to depth due to loose material from R-14. sandy material on core catcher. air lifting and flush out could not get packed material loose below ~69 ft.
-68.0	70.0							
-69.0	71.0							71.5 - 73.0 ft: unsampled.
-70.0	72.0							Ultimately had to drill out packed sand with 2 3/8" tricone. drilled to 73.0 ft.
-71.0	73.0							
-72.0	74.0			FD3				Drilling with only polymer in drilling mud.
-73.0	75.0	R-15	84% (16%)			75.2-75.5 ft Joint, R.D. = 40°, very widely spaced, slightly open; filling: not healed, fresh; surface: rough, planar, fresh, hard.		
-74.0	76.0							
-75.0	77.0							
-76.0	78.0	R-16	40% (0%)	FD3				
-77.0	79.0							Loose sand pocket

DATE STARTED: 8/26/13
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GROUND SURFACE ELEVATION: -0.07 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-78.0	81.0	R-16	40% (0%)			50.9-119.8 ft GRAINSTONE, calcareous, hard to very soft, fresh to moderately weathered, very coarse sand to silt particles, pitted to vuggy, max size: 1.0 in., white (N9) to very light gray (N8), massive, strong reaction to HCl, moist, shells and shell fragments. Most vugs are moldic porosity. From 51.9 - 52.5 ft, core broken with loose sand. From 54.7 - 59.4 ft, common shell molds. From 62.9 - 73.0, Abundant soft sandy zones (potentially unidentified fractures). Very soft pockets become present from approximately 64.0- 80.0 ft. From 87.3 - 91.8 ft, abundant shell molds. Below 112.3 ft, small to medium (1/16 - 1/2") shell molds common in core recovered. [Fort Thompson Formation] with layers of PACKSTONE, calcareous, moderately soft to hard, fresh to slightly weathered, clay to granule particles, cavities to pitted, max size: 2.0 in., white (N9) to very light gray (N8), very thickly to thickly bedded, strong reaction to HCl, moist, lower contact is conformable and gradational, [Fort Thompson Formation]		~79.5-81.5 ft. no recovery.
-79.0	82.0							
-80.0	83.0							
-81.0	84.0	R-17	26% (0%)					
-82.0	85.0							
-83.0	86.0							
-84.0	87.0							
-85.0	88.0					87.3-91.8 ft Abundant shell molds.		
-86.0	89.0	R-18	34% (26%)					
-87.0	90.0			FD3				
-88.0	91.0							
-89.0	92.0							
-90.0	93.0	R-19	0% (0%)					
-91.0	94.0							
-92.0	95.0							Barrel gets locked up. Begin adding quick-gel to drilling fluid to bring up loose material.
-93.0	96.0	R-20	0% (0%)					
-94.0	97.0							
-95.0	98.0	R-21	0% (0%)					
-96.0	99.0							

DATE STARTED: 8/26/13
DATE FINISHED: 8/29/13
FIELD GEOLOGIST: Doug Raszewski
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ
DRILLING CO. Huss Drilling

NOTES: Boring is angled 15 degrees toward bearing 318. Depth on log is measured depth in boring.

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Boring R-6-1a

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GROUND SURFACE ELEVATION: -0.07 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-97.0	101.0	R-21	0% (0%)			50.9-119.8 ft GRAINSTONE, calcareous, hard to very soft, fresh to moderately weathered, very coarse sand to silt particles, pitted to vuggy, max size: 1.0 in., white (N9) to very light gray (N8), massive, strong reaction to HCl, moist, shells and shell fragments. Most vugs are moldic porosity. From 51.9 - 52.5 ft, core broken with loose sand. From 54.7 - 59.4 ft, common shell molds. From 62.9 - 73.0, Abundant soft sandy zones (potentially unidentified fractures). Very soft pockets become present from approximately 64.0- 80.0 ft. From 87.3 - 91.8 ft, abundant shell molds. Below 112.3 ft, small to medium (1/16 - 1/2") shell molds common in core recovered. [Fort Thompson Formation] with layers of PACKSTONE, calcareous, moderately soft to hard, fresh to slightly weathered, clay to granule particles, cavities to pitted, max size: 2.0 in., white (N9) to very light gray (N8), very thickly to thickly bedded, strong reaction to HCl, moist, lower contact is conformable and gradational, [Fort Thompson Formation]		Drilling only with polymer again.
-98.0	102.0							
-99.0	103.0							
-100.0	104.0	R-22	6% (0%)					
-101.0	105.0							
-102.0	106.0			FD3				
-103.0	107.0							
-104.0	108.0							
-105.0	109.0	R-23	2% (0%)					
-106.0	110.0							Core breakage due to soft sand zones.
-107.0	111.0							
-108.0	112.0							111.8 - 112.3 ft took SPT to sample lost material. Shows that material is rock and recovery problem is with core barrel.
-109.0	113.0							
-110.0	114.0	R-24	87% (76%)					SC-5: 114.7-115.0 ft.
-111.0	115.0					114.7-115 ft Joint, R.D. = 50°, discontinuous, one end visible; filling: totally healed, moderately thin calcite, fresh, moderately soft; surface: smooth, planar, fresh, soft; Does not completely cross the core.		
-112.0	116.0			FD1				
-113.0	117.0							
-114.0	118.0	R-25	100% (40%)					
-115.0	119.0							Bottom 1.0 ft. of Fort Thompson Formation is mostly soft sand.

DATE STARTED: 8/26/13
DATE FINISHED: 8/29/13
FIELD GEOLOGIST: Doug Raszewski
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ
DRILLING CO. Huss Drilling

NOTES: Boring is angled 15 degrees toward bearing 318. Depth on log is measured depth in boring.

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ENGINEERS/CONSULTANTS/CM

Paul C. Rizzo Associates, Inc
500 Penn Center Blvd. Suite 100, Pittsburgh, PA 15235
www.rizzoassoc.com

Boring R-6-1a

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 397115.74 ft E. 876594.72 ft
GROUND SURFACE ELEVATION: -0.07 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-117.0	121.0					119.8-121.8 ft Not recovered. Upper Tamiami Formation.		Bottom of Fort Thompson Formation is at 119.8 ft. The bottom 2.0 ft of R-25 was extremley soft, indicating top of Upper Tamiami Formation. This material was not recovered.
						---- Bottom of Boring at 121.80 ft.----		

DATE STARTED: 8/26/13
DATE FINISHED: 8/29/13
FIELD GEOLOGIST: Doug Raszewski
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ
DRILLING CO. Huss Drilling

NOTES: Boring is angled 15 degrees toward bearing 318. Depth on log is measured depth in boring.

APPROVED BY: EOT

DRILLER: Anthony Hudson

DRILL RIG: DR-5

HAMMER ID:

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ENGINEERS/CONSULTANTS/CM

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Boring R-6-1a-A

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 397112.22 ft E. 876590.79 ft
GROUND SURFACE ELEVATION: -0.09 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-1.0	1.0					0.0-3.0 ft Crushed stone (Road base Layer). Lost recovery of material from 1.7 - 3.0ft.		Measured water level varied within one foot of ground surface. 0 - 1.7ft was destructively drilled with 5 inch mud rotary bit. 1.7 - 111.9 ft., PQ wireline coring.
-2.0	2.0							
-3.0	3.0					3.0-5.0 ft Peat, blackish red (5R 2/2) to grayish red (10R 4/2), organic odor, moist, strong HCl reaction, Plastic to Spongy consistency, some celulose, (Peat/Muck)	ol/oh	
-4.0	4.0	R-1	62% (27%)					
-5.0	5.0					5.0-11.9 ft GRAINSTONE, calcareous, hard to very soft (H7), slightly to moderately weathered, fine sand to very coarse sand particles, vuggy to pitted, max size: 1 in., very pale orange (10YR 8/2) and very light gray (N8), massive bedded, strong reaction to HCl, moist, lower contact is conformable and gradational, Zones of loose sandy limestone in competent hard sandy limestone. Some shells and shell fragments. From 7.6 - 8.9 and 10.4 - 11.9ft, very soft and crumbley material. [Miami Limestone]		
-6.0	6.0							
-7.0	7.0							
-8.0	8.0							
-9.0	9.0	R-2	94% (76%)					
-10.0	10.0			FD0				
-11.0	11.0							
-12.0	12.0					11.9-29.5 ft PACKSTONE, calcareous, hard to moderately soft, slightly to moderately weathered, clay to very coarse sand particles, vuggy to pitted, max size: 1.5 in., white (N9) and light bluish gray (5B 7/1), massive bedded, strong reaction to HCl, moist, lower contact is conformable and gradational, Zones of loose sandy limestone in competent hard micrite packstone. gray (N4) angular micritic limestone clasts present in wackestone from 18.2-20.0 ft. From 22.0 - 25.0 ft, soft loose sandy zones. Zones of high void density break mechanically into rubble with ease. From 13.0 - 18.5 ft, very broken and brittle material due to abundant voids. [Miami Limestone]		
-13.0	13.0							
-14.0	14.0	R-3	98% (54%)					
-15.0	15.0							
-16.0	16.0							
-17.0	17.0							
-18.0	18.0	R-4	94% (86%)					
-19.0	19.0			FD4		19.5- ft Random fracture, R.D. = 20°, slightly open; filling: not healed,		

DATE STARTED: 8/29/13
DATE FINISHED: 9/3/13
FIELD GEOLOGIST: Doug Raszewski
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ
DRILLING CO. Huss Drilling

NOTES: Boring is angled 15 degrees toward bearing 305. Depth is measured depth in boring.

APPROVED BY: EOT

DRILLER: Anthony Hudson

DRILL RIG: DR-5

HAMMER ID:

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ENGINEERS/CONSULTANTS/CM

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Boring R-6-1a-A

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 397112.22 ft E. 876590.79 ft
GROUND SURFACE ELEVATION: -0.09 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-20.0	21.0	R-4	94% (86%)			slightly weathered; surface: rough, undulating, slightly weathered, hard.		
-21.0	22.0							
-22.0	23.0							
-23.0	24.0	R-5	54% (22%)			11.9-29.5 ft PACKSTONE, calcareous, hard to moderately soft, slightly to moderately weathered, clay to very coarse sand particles, vuggy to pitted, max size: 1.5 in., white (N9) and light bluish gray (5B 7/1), massive bedded, strong reaction to HCl, moist, lower contact is conformable and gradational, Zones of loose sandy limestone in competent hard micrite packstone. gray (N4) angular micritic limestone clasts present in wackestone from 18.2-20.0 ft. From 22.0 - 25.0 ft, soft loose sandy zones. Zones of high void density break mechanically into rubble with ease. From 13.0 - 18.5 ft, very broken and brittle material due to abundant voids. [Miami Limestone]		
-24.0	25.0							
-25.0	26.0							
-26.0	27.0					20.1-20.2 ft Random fracture, R.D. = 20°, slightly open; filling: not healed, slightly weathered; surface: rough, undulating, slightly weathered, hard.		
-27.0	28.0			FD4		23.4-24.4 ft R.D. = 60°, tight; filling: very thin; surface: rough, planar.		
-28.0	29.0					25.0-28.0 ft Multiple voids.		
-29.0	30.0	R-6	88% (68%)			29.5-49.3 ft WACKESTONE, calcareous, interbedded, moderately hard to hard, fresh to moderately weathered, clay to fine sand particles, vuggy to cavities, typical diameter: 0.4 in., max size: 6.0 in., white (N9) to light gray (N7), moderately to thickly bedded, strong reaction to HCl, wet, lower contact is conformable and gradational, Wackstone to boundstone (coral). 1-4 inch voids present. Occasional shells/fossils and moldic porosity. Voids are coated with calcite crystals below about 35 feet. From 30 - 36, 39 - 41 and 45 - 47ft, high void density. Minor clay coatings above 35.0ft. [Key Largo Limestone]		
-30.0	31.0							
-31.0	32.0					interbedded with BOUNDSTONE, calcareous, moderately soft to hard, fresh to slightly weathered, pitted to cavities, max size: 6.0 in., white (N9) to light gray (N7), thinly to moderately bedded, weak reaction to HCl, moist, lower contact is conformable and gradational, Calcite filling fractures and voids below 42.0 ft. Much mechanical breakage of core in zones of high void density. [Key Largo Limestone]		
-32.0	33.0							
-33.0	34.0	R-7	100% (100%)					
-34.0	35.0					33.1-33.2 ft Joint, R.D. = 0°, moderately to widely spaced; filling: not healed, moderately thin recrystalized calcite, slightly weathered, moderately soft; surface: rough, undulating, slightly weathered.		
-35.0	36.0					34.2-34.3 ft Joint, R.D. = 0-10°, moderately spaced, slightly open; filling: not healed, calcite, fresh, moderately soft; surface: rough, planar, fresh; Recrystalized calcite coated.		
-36.0	37.0			FD0		34.5-35 ft Joint, R.D. = 45°, moderately spaced, slightly open; filling: not healed, moderately thin recrystalized calcite, fresh, moderately soft; surface: rough, planar, fresh.		
-37.0	38.0	R-8	94% (88%)			35.5-35.6 ft Joint, tight; filling: partly healed, calcite; surface: moderately rough; curved.		
-38.0	39.0							

DATE STARTED: 8/29/13
DATE FINISHED: 9/3/13
FIELD GEOLOGIST: Doug Raszewski
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ
DRILLING CO. Huss Drilling

NOTES: Boring is angled 15 degrees toward bearing 305. Depth is measured depth in boring.

APPROVED BY: EOT

DRILLER: Anthony Hudson

DRILL RIG: DR-5

HAMMER ID:

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ENGINEERS/CONSULTANTS/CM

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Boring R-6-1a-A

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 397112.22 ft E. 876590.79 ft
GROUND SURFACE ELEVATION: -0.09 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-39.0	41.0	R-8	94% (88%)			29.5-49.3 ft WACKESTONE, calcareous, interbedded, moderately hard to hard, fresh to moderately weathered, clay to fine sand particles, vuggy to cavities, typical diameter: 0.4 in., max size: 6.0 in., white (N9) to light gray (N7), moderately to thickly bedded, strong reaction to HCl, wet, lower contact is conformable and gradational, Wackstone to boundstone (coral). 1-4 inch voids present. Occasional shells/fossils and moldic porosity. Voids are coated with calcite crystals below about 35 feet. From 30 - 36, 39 - 41 and 45 - 47ft, high void density. Minor clay coatings above 35.0ft. [Key Largo Limestone]		
-40.0	42.0					interbedded with BOUNDSTONE, calcareous, moderately soft to hard, fresh to slightly weathered, pitted to cavities, max size: 6.0 in., white (N9) to light gray (N7), thinly to moderately bedded, weak reaction to HCl, moist, lower contact is conformable and gradational, Calcite filling fractures and voids below 42.0 ft. Much mechanical breakage of core in zones of high void density. [Key Largo Limestone]		
-41.0	43.0							
-42.0	44.0							
-43.0	45.0	R-9	96% (96%)	FD0				
-44.0	46.0							
-45.0	47.0							
-46.0	48.0							
-47.0	49.0					48.4-48.7 ft R.D. = 50°, moderately spaced; filling: partly healed, calcite; surface: rough, planar, moderately hard.		
-48.0	50.0	R-10	86% (86%)			49.1-49.3 ft R.D. = 45°, widely spaced, slightly open; filling: moderately healed, thin calcite, moderately soft; surface: rough, undulating.		
-49.0	51.0			FD4		49.3-52.9 ft GRAINSTONE, calcareous, moderately hard to moderately soft, fresh to moderately weathered, very coarse sand to silt particles, pitted to vuggy, max size: 1.0 in., white (N9) to very light gray (N8), massive, strong reaction to HCl, wet, Shells are mostly dissolved. Most vugs are moldic porosity. From 52.6 - 52.9, abundant shell molds. [Fort Thompson Formation]		
-50.0	52.0					51.6- ft R.D. = 0°, moderately spaced; filling: not healed, very thin calcite, soft; surface: smooth, planar, moderately hard.		
-51.0	53.0							Mechanical breaks at soft zones in core.
-52.0	54.0	R-11	96% (96%)			52.9-65.5 ft WACKESTONE, calcareous, moderately hard (H4), moderately to slightly weathered, silt to very fine sand particles, pitted, typical diameter: 0.2 in., max size: 1.0 in., white (N9) to very light gray (N8), massive, strong reaction to HCl, wet, Shells are mostly dissolved. Most vugs are moldic porosity. Lower contact is gradual. [Fort Thompson Formation]		
-53.0	55.0							
-54.0	56.0			FD0				
-55.0	57.0							
-56.0	58.0	R-12	96% (78%)					
-57.0	59.0							

DATE STARTED: 8/29/13
DATE FINISHED: 9/3/13
FIELD GEOLOGIST: Doug Raszewski
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ
DRILLING CO. Huss Drilling

NOTES: Boring is angled 15 degrees toward bearing 305. Depth is measured depth in boring.

APPROVED BY: EOT

DRILLER: Anthony Hudson

DRILL RIG: DR-5

HAMMER ID:

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Boring R-6-1a-A

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 397112.22 ft E. 876590.79 ft
GROUND SURFACE ELEVATION: -0.09 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-59.0	61.0	R-12	96% (78%)			52.9-65.5 ft WACKESTONE, calcareous, moderately hard (H4), moderately to slightly weathered, silt to very fine sand particles, pitted, typical diameter: 0.2 in., max size: 1.0 in., white (N9) to very light gray (N8), massive, strong reaction to HCl, wet, Shells are mostly dissolved. Most vugs are moldic porosity. Lower contact is gradual. [Fort Thompson Formation] 60.7-61.1 ft Joint.		
-60.0	62.0							
-61.0	63.0							
-62.0	64.0	R-13	100% (90%)					
-63.0	65.0							
-64.0	66.0					65.5-111.9 ft GRAINSTONE, calcareous, hard to soft, fresh to slightly weathered, very coarse sand to silt particles, pitted to cavities, max size: 5.0 in., white (N9) to very light gray (N8), massive bedded, strong reaction to HCl, wet, lower contact is gradational, Shells are mostly dissolved. Most vugs are moldic porosity. Voids up to 2 inches big from 91.9-94.0 ft. with remnants of sand filling. Pits and vugs aid in mechanical breakage of core. From 81.9 - 83.1, high void density, broken. From 85.8 - 87.9 and 96.0 - 103.0ft, abundant shell molds. [Fort Thompson Formation] with layers of PACKSTONE, calcareous, moderately soft to hard, fresh to slightly weathered, clay to granule particles, vuggy to pitted, max size: 2.0 in., white (N9) to very light gray (N8), very thickly to thickly bedded, strong reaction to HCl, moist, lower contact is conformable and gradational, [Fort Thompson Formation]		
-65.0	67.0							R-14: Low recovery due to loose sand from ~67-71.5 ft. run only took ~2 minutes. Zero resistance from 66.9 - 71.9 ft.
-66.0	68.0							
-67.0	69.0	R-14	14% (0%)					
-68.0	70.0			FD1				
-69.0	71.0							
-70.0	72.0							
-71.0	73.0							SC-1: 72.6-73.5 ft.
-72.0	74.0	R-15	86% (58%)					
-73.0	75.0					75.0 ft Soft sandy pockets from 75 - 77ft (likely fractured). 75.2-75.5 ft Joint, R.D. = 40°, moderately open; filling: not healed; surface: rough, planar, slightly weathered, moderately hard to hard; Core mechanically broken within interpreted fractured interval.		
-74.0	76.0							
-75.0	77.0							
-76.0	78.0	R-16	90% (70%)			78.0 ft Very broken, loose sand present from 78.0 - 79.4 ft..		
-77.0	79.0							

DATE STARTED: 8/29/13
DATE FINISHED: 9/3/13
FIELD GEOLOGIST: Doug Raszewski
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ
DRILLING CO. Huss Drilling

NOTES: Boring is angled 15 degrees toward bearing 305. Depth is measured depth in boring.

APPROVED BY: EOT

DRILLER: Anthony Hudson

DRILL RIG: DR-5

HAMMER ID:

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Boring R-6-1a-A

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 397112.22 ft E. 876590.79 ft
GROUND SURFACE ELEVATION: -0.09 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-78.0	81.0	R-16	90% (70%)			65.5-111.9 ft GRAINSTONE, calcareous, hard to soft, fresh to slightly weathered, very coarse sand to silt particles, pitted to cavities, max size: 5.0 in., white (N9) to very light gray (N8), massive bedded, strong reaction to HCl, wet, lower contact is gradational, Shells are mostly dissolved. Most vugs are moldic porosity. Voids up to 2 inches big from 91.9-94.0 ft. with remnants of sand filling. Pits and vugs aid in mechanical breakage of core. From 81.9 - 83.1, high void density, broken. From 85.8 - 87.9 and 96.0 - 103.0ft, abundant shell molds. [Fort Thompson Formation]		
-79.0	82.0							
-80.0	83.0							
-81.0	84.0	R-17	96% (78%)	FD1		with layers of PACKSTONE, calcareous, moderately soft to hard, fresh to slightly weathered, clay to granule particles, vuggy to pitted, max size: 2.0 in., white (N9) to very light gray (N8), very thickly to thickly bedded, strong reaction to HCl, moist, lower contact is conformable and gradational, [Fort Thompson Formation]		
-82.0	85.0					80.5-80.7 ft Joint, R.D. = 25°, moderately open; filling: not healed; surface: rough, planar, slightly weathered, moderately hard to hard; Core mechanically broken within interpreted fractured interval.		
-83.0	86.0					83.1-83.3 ft Joint, R.D. = 40°, slightly open; filling: partly healed, moderately thin sandy mud, slightly weathered, soft; surface: rough, planar, slightly to slightly weathered, moderately hard to hard; Core mechanically broken within interpreted fractured interval.		
-84.0	87.0							
-85.0	88.0			FD5		87.9-88.2 ft Joint, R.D. = 40°, slightly open; filling: partly healed, moderately thin sandy mud, slightly weathered, soft; surface: rough, planar, slightly to slightly weathered, moderately hard to hard; Core mechanically broken within interpreted fractured interval.		From 87.9 - 90.0 ft, Core very broken (mechanically) due to fractures and soft zones.
-86.0	89.0	R-18	90% (50%)			88.7- ft Joint, R.D. = 35°, moderately open; filling: not healed; surface: rough, planar, slightly weathered, moderately hard to hard; Core mechanically broken within interpreted fractured interval.		
-87.0	90.0					89- ft Joint, R.D. = 35°, moderately open; filling: not healed; surface: rough, planar, slightly weathered, moderately hard to hard; Core mechanically broken within interpreted fractured interval.		
-88.0	91.0							
-89.0	92.0			FD0		90.0 ft Abundant large vugs (1 - 2 inches) with remnant sand coating, often broken from 90.0 - 96.0 ft.		
-90.0	93.0							
-91.0	94.0	R-19	94% (82%)					
-92.0	95.0					94.9-95.2 ft Joint, R.D. = 30°, slightly open; filling: not healed; surface: rough, undulating, slightly weathered, moderately hard to hard; Core mechanically broken within interpreted fractured interval.		
-93.0	96.0			FD4		95.6-95.8 ft Joint, R.D. = 30°, slightly open; filling: not healed; surface: rough, undulating, slightly weathered, moderately hard to hard; Core mechanically broken within interpreted fractured interval.		SC-2: 95.7-96.5 ft.
-94.0	97.0							
-95.0	98.0	R-20	100% (100%)			97.7-97.9 ft Joint, R.D. = 45°, one end visible, slightly open; filling: not healed; surface: rough, planar, slightly weathered, moderately hard to hard; terminates at large shell mold.		
-96.0	99.0			FD0				

DATE STARTED: 8/29/13
DATE FINISHED: 9/3/13
FIELD GEOLOGIST: Doug Raszewski
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ
DRILLING CO. Huss Drilling

NOTES: Boring is angled 15 degrees toward bearing 305. Depth is measured depth in boring.

APPROVED BY: EOT

DRILLER: Anthony Hudson

DRILL RIG: DR-5

HAMMER ID:

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ENGINEERS/CONSULTANTS/CM

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Boring R-6-1a-A

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 397112.22 ft E. 876590.79 ft
GROUND SURFACE ELEVATION: -0.09 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-97.0						65.5-111.9 ft GRAINSTONE, calcareous, hard to soft, fresh to slightly weathered, very coarse sand to silt particles, pitted to cavities, max size: 5.0 in., white (N9) to very light gray (N8), massive bedded, strong reaction to HCl, wet, lower contact is gradational, Shells are mostly dissolved. Most vugs are moldic porosity. Voids up to 2 inches big from 91.9-94.0 ft. with remnants of sand filling. Pits and vugs aid in mechanical breakage of core. From 81.9 - 83.1, high void density, broken. From 85.8 - 87.9 and 96.0 - 103.0ft, abundant shell molds. [Fort Thompson Formation]		
	101.0	R-20	100% (100%)					
-98.0								
	102.0							
-99.0								
	103.0							
-100.0						with layers of PACKSTONE, calcareous, moderately soft to hard, fresh to slightly weathered, clay to granule particles, vuggy to pitted, max size: 2.0 in., white (N9) to very light gray (N8), very thickly to thickly bedded, strong reaction to HCl, moist, lower contact is conformable and gradational, [Fort Thompson Formation]		Large shell (up to 4") moldic porosity from 103.3 - 105.0ft.
	104.0							
-101.0		R-21	90% (90%)					
	105.0							
-102.0								
	106.0			FD0				
-103.0								From 106.5 - 111.9ft, Abundant small-med moldic porosity.
	107.0							
-104.0								
	108.0							
-105.0								SC-3: 108.6-109.7 ft.
	109.0	R-22	100% (100%)					
-106.0								
	110.0							
-107.0								
	111.0							
-108.0						---- Bottom of Boring at 111.90 ft.----		

DATE STARTED: 8/29/13
DATE FINISHED: 9/3/13
FIELD GEOLOGIST: Doug Raszewski
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ
DRILLING CO. Huss Drilling

NOTES: Boring is angled 15 degrees toward bearing 305. Depth is measured depth in boring.

APPROVED BY: EOT

DRILLER: Anthony Hudson

DRILL RIG: DR-5

HAMMER ID:

Paul C. Rizzo Associates, Inc.
ENGINEERS/CONSULTANTS/CM

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500 Penn Center Blvd. Suite 100, Pittsburgh, PA 15235
www.rizzoassoc.com

Boring R-6-1b

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 396966.10 ft E. 876609.04 ft
GROUND SURFACE ELEVATION: -0.03 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-1.0	1.0					0.0-2.5 ft Road base layer.		0 - 2.5 ft, boring was destructively drilled using 5 inch mud rotary bit. 2.5 - 14.5 ft SPT sampling. Measured water level varied within one foot of ground surface. S-1: No blow counts, reached two ft interval by weight of rods (WOR) only.
-2.0	2.0							
-3.0	3.0	S-1	0 0%			2.5-5.3 ft Gravelly organic soil, 60% fines, low plasticity; 40% gravel, fine to coarse, subrounded, medium hardness; maximum grain size = 2.5 in., wet, strong HCl reaction, Spongy consistency, weak cementation, with organics, with Wood, (Peat/Muck layer).	ol/oh	
-4.0	4.0							
-5.0	5.0	S-2	7-10-18-17 N1(28) N2(35) 70%			5.3-12.5 ft LIMESTONE, calcareous, soft to moderately hard, moderately (W5) weathered to intensely (W7) weathered, clay to fine sand particles, very light gray (N8) to white (N9), strong reaction to HCl, Limestone with weakly cemented silt matrix, mostly washed out during drilling. [Miami Limestone]		
-6.0	6.0							
-7.0	7.0	S-3	3-8-10-7 N1(18) N2(17) 60%					
-8.0	8.0							
-9.0	9.0	S-4	3-5-1-7 N1(6) N2(8) 30%					
-10.0	10.0							
-11.0	11.0	S-5	2-7-5-5 N1(12) N2(10) 50%					
-12.0	12.0							
-13.0	13.0	S-6	25-24-27-21 N1(51) N2(48) 70%	FD0		12.5-26.6 ft GRAINSTONE, calcareous, moderately soft to moderately hard, moderately (W5) weathered to intensely (W7) weathered, clay to fine sand particles, pitted to vuggy, max size: 1.5 in., very light gray (N8) to white (N9), strong reaction to HCl, lower contact is gradational, From 25.0 - 26.5ft, high intensity of voids. [Miami Limestone]		
-14.0	14.0							
-15.0	15.0	R-1	100% (85%)					14.5 - 120 ft. PQ wireline coring.
-16.0	16.0							
-17.0	17.0							
-18.0	18.0	R-2	37% (31%)					
-19.0	19.0							

DATE STARTED: 9/11/13
DATE FINISHED: 10/4/13
FIELD GEOLOGIST: Jason Lee
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ, SPT, ST, NWD4
DRILLING CO. Huss Drilling

NOTES:

APPROVED BY: EOT

DRILLER: Eddie Palmer

DRILL RIG: DR-16

HAMMER ID:

Paul C. Rizzo Associates, Inc.
ENGINEERS/CONSULTANTS/CM

Paul C. Rizzo Associates, Inc
500 Penn Center Blvd. Suite 100, Pittsburgh, PA 15235
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Boring R-6-1b

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 396966.10 ft E. 876609.04 ft
GROUND SURFACE ELEVATION: -0.03 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-21.0	21.0	R-3	35% (0%)			12.5-26.6 ft GRAINSTONE, calcareous, moderately soft to moderately hard, moderately (W5) weathered to intensely (W7) weathered, clay to fine sand particles, pitted to vuggy, max size: 1.5 in., very light gray (N8) to white (N9), strong reaction to HCl, lower contact is gradational, From 25.0 - 26.5ft, high intensity of voids. [Miami Limestone]		
-22.0	22.0	R-4	100% (0%)					
-23.0	23.0							
-24.0	24.0	R-5	100% (100%)					SC-1a: 23.7-24.3ft. SC-1b: 24.3-25.2ft.
-25.0	25.0							
-26.0	26.0							
-27.0	27.0	R-6	94% (86%)			26.6-47.6 ft PACKSTONE, calcareous, moderately hard, slightly weathered, silt to fine sand particles, pitted to cavities, max size: 2.0 in., light gray (N7) with very light gray (N8), weak reaction to HCl, lower contact is gradational, Grades from Miami Limestone to Key Largo Limestone, 26.3-26.9ft. Cavity: 37.0 - 37.5ft. [Key Largo Limestone]		
-28.0	28.0							SC-2: 28.15-29.2ft.
-29.0	29.0							Lost circulation at 29ft.
-30.0	30.0			FD0				Drilled from 30.0-35.0ft with NWD4 conventional core barrel. Followed by pressuremeter testing in this interval, and then overdrilled with PQ core barrel.
-31.0	31.0							
-32.0	32.0	R-7	54% (26%)					
-33.0	33.0							
-34.0	34.0							
-35.0	35.0							
-36.0	36.0							
-37.0	37.0	R-8	84% (76%)					
-38.0	38.0							
-39.0	39.0							

DATE STARTED: 9/11/13
DATE FINISHED: 10/4/13
FIELD GEOLOGIST: Jason Lee
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ, SPT, ST, NWD4
DRILLING CO. Huss Drilling

APPROVED BY: EOT

DRILLER: Eddie Palmer

NOTES:

DRILL RIG: DR-16
HAMMER ID:

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Boring R-6-1b

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 396966.10 ft E. 876609.04 ft
GROUND SURFACE ELEVATION: -0.03 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-41.0	41.0					26.6-47.6 ft PACKSTONE, calcareous, moderately hard, slightly weathered, silt to fine sand particles, pitted to cavities, max size: 2.0 in., light gray (N7) with very light gray (N8), weak reaction to HCl, lower contact is gradational, Grades from Miami Limestone to Key Largo Limestone, 26.3-26.9ft. Cavity: 37.0 - 37.5ft. [Key Largo Limestone]		From 40.0-45.0ft, NWD4 conventional coring used for pressuremeter testing interval. Overdrilled with PQ barrel.
-42.0	42.0							
		R-9	36% (28%)					
-43.0	43.0							Lost circulation at 43.0 ft.
-44.0	44.0							
-45.0	45.0							
-46.0	46.0							
-47.0	47.0							
		R-10	96% (62%)					
-48.0	48.0					47.6-49.1 ft PACKSTONE, calcareous, moderately soft to moderately hard, slightly weathered, clay to fine sand particles, vuggy, max size: 0.5 in., light gray (N7), weak reaction to HCl, Grades to Fort Thompson Formation 47.2-49.1ft. [Fort Thompson Formation]		
-49.0	49.0							SC-3: 47.2 - 48.6ft.
-50.0	50.0			FD0		49.1-58.6 ft PACKSTONE, calcareous, moderately soft, slightly weathered, clay to very fine sand particles, vuggy, max size: 0.5 in., very light gray (N8) to white (N9), From 49.1 - 51.0ft, interval of high void density. [Fort Thompson Formation]		
-51.0	51.0	R-11	100% (100%)					
-52.0	52.0							
-53.0	53.0							
		R-12	100% (100%)					
-54.0	54.0							
-55.0	55.0							
-56.0	56.0							
-57.0	57.0							
		R-13	92% (92%)					
-58.0	58.0							
-59.0	59.0							

DATE STARTED: 9/11/13
DATE FINISHED: 10/4/13
FIELD GEOLOGIST: Jason Lee
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ, SPT, ST, NWD4
DRILLING CO. Huss Drilling

APPROVED BY: EOT

DRILLER: Eddie Palmer

NOTES:

DRILL RIG: DR-16

HAMMER ID:

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ENGINEERS/CONSULTANTS/CM

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Boring R-6-1b

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 396966.10 ft E. 876609.04 ft
GROUND SURFACE ELEVATION: -0.03 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-61.0	61.0					58.6-63.0 ft GRAINSTONE, calcareous, moderately soft, slightly (W3) weathered, very fine sand to fine sand particles, pitted, very light gray (N8), [Fort Thompson Formation] with layers of PACKSTONE, moderately soft, slightly to moderately weathered, very fine sand to fine sand particles, [Fort Thompson Formation]		
-62.0	62.0	R-14	86% (44%)					
-63.0	63.0			FD0		63.0-98.1 ft GRAINSTONE, calcareous, moderately soft, slightly to moderately weathered, silt to medium sand particles, vuggy to pitted, max size: 3.0 in., very light gray (N8), weak reaction to HCl, lower contact is gradational, Contains intervals of loose sand, 85-87ft. Sections of core recovered as gravel fragments. From 83.2 - 83.8ft, void spaces contain calcite overgrowth. Moldic porosity. [Fort Thompson Formation]		
-64.0	64.0							
-65.0	65.0							
-66.0	66.0					66-68 ft Joint, R.D. = 90°; filling: totally healed, thick calcite, slightly weathered, moderately soft; surface: slightly rough, planar, slightly weathered; Near vertical.		Soft zone, 66 - 66.7ft.
-67.0	67.0			FD1				
-68.0	68.0	R-15	54% (32%)					Soft zone, 68 - 70ft.
-69.0	69.0							
-70.0	70.0							
-71.0	71.0	R-16	70% (0%)					
-72.0	72.0							
-73.0	73.0	R-17	100% (60%)					
-74.0	74.0			FD0				
-75.0	75.0	R-18	100% (0%)					
-76.0	76.0							
-77.0	77.0							Tool drop: 77.0 - 78.0ft.
-78.0	78.0	R-19	57% (24%)					
-79.0	79.0							

DATE STARTED: 9/11/13
DATE FINISHED: 10/4/13
FIELD GEOLOGIST: Jason Lee
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ, SPT, ST, NWD4
DRILLING CO. Huss Drilling

APPROVED BY: EOT

DRILLER: Eddie Palmer

NOTES:

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Boring R-6-1b

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 396966.10 ft E. 876609.04 ft
GROUND SURFACE ELEVATION: -0.03 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
		R-20	100% (60%)			63.0-98.1 ft GRAINSTONE, calcareous, moderately soft, slightly to moderately weathered, silt to medium sand particles, vuggy to pitted, max size: 3.0 in., very light gray (N8), weak reaction to HCl, lower contact is gradational, Contains intervals of loose sand, 85-87ft. Sections of core recovered as gravel fragments. From 83.2 - 83.8ft, void spaces contain calcite overgrowth. Moldic porosity. [Fort Thompson Formation]		SC-4a: 81.0 - 81.7ft.
-81.0	81.0							
-82.0	82.0							SC-4b: 81.7 - 82.3ft.
-83.0	83.0	R-21	100% (100%)					
-84.0	84.0							
-85.0	85.0							Soft zone from 85 - 87ft depth. Grab sample collected.
-86.0	86.0							
-87.0	87.0	R-22	82% (32%)					
-88.0	88.0							
-89.0	89.0							
-90.0	90.0	R-23	100% (90%)	FD0				
-91.0	91.0							
-92.0	92.0	R-24	80% (20%)					
-93.0	93.0							
-94.0	94.0	R-25	100% (100%)					
-95.0	95.0							
-96.0	96.0							
-97.0	97.0							
-98.0	98.0	R-26	100% (100%)					
-99.0	99.0							

DATE STARTED: 9/11/13
DATE FINISHED: 10/4/13
FIELD GEOLOGIST: Jason Lee
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ, SPT, ST, NWD4
DRILLING CO. Huss Drilling

APPROVED BY: EOT

DRILLER: Eddie Palmer

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Boring R-6-1b

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 396966.10 ft E. 876609.04 ft
GROUND SURFACE ELEVATION: -0.03 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-101.0	101.0	R-26				98.1-100.8 ft PACKSTONE, calcareous, moderately soft (H5), moderately (W5) weathered, silt to medium sand particles, pitted to vuggy, light gray (N7) to very light gray (N8), weak reaction to HCl, Sections of core recovered as gravel sized fragments. Moldic Porosity. [Fort Thompson Formation]		
-102.0	102.0							
-103.0	103.0	R-27	100% (100%)			100.8-111.0 ft GRAINSTONE, calcareous, moderately soft (H5), moderately (W5) weathered, silt to medium sand particles, pitted to vuggy, light gray (N7) to very light gray (N8), weak reaction to HCl, Moldic Porosity. [Fort Thompson Formation]		
-104.0	104.0							
-105.0	105.0							
-106.0	106.0							
-107.0	107.0	R-28	84% (84%)					
-108.0	108.0							
-109.0	109.0							
-110.0	110.0			FD0				
-111.0	111.0					111.0-120.5 ft PACKSTONE, calcareous, moderately soft (H5), moderately (W5) weathered to intensely (W7) weathered, silt to medium sand particles, pitted to vuggy, light gray (N7) to white (N9), weak reaction to HCl, Moldic Porosity. Grades to Upper Tamiami Formation from 116.5 to 117.5ft depth. [Fort Thompson Formation]		
-112.0	112.0	R-29	78% (70%)					
-113.0	113.0							
-114.0	114.0							
-115.0	115.0							
-116.0	116.0							
-117.0	117.0	R-30	58% (40%)					Softer material at 117.5 ft, contact with Upper Tamiami Formation.
-118.0	118.0							
-119.0	119.0							

DATE STARTED: 9/11/13
DATE FINISHED: 10/4/13
FIELD GEOLOGIST: Jason Lee
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ, SPT, ST, NWD4
DRILLING CO. Huss Drilling

APPROVED BY: EOT

DRILLER: Eddie Palmer

NOTES:

DRILL RIG: DR-16

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Boring R-6-1b

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 396966.10 ft E. 876609.04 ft
GROUND SURFACE ELEVATION: -0.03 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
				FD0				From 120 ft. to total depth, a combination of ST and SPT sampling, and destructive over-drilling using a 5 inch mud rotary bit were used to advance the boring. Intervals sampled by SPT were destructively over-drilled, with 5 inch mud rotary bit, to ream out the boring in preparation for ST sampling. At 121 ft, (N) values may be affected by the presence of coarse gravel in the samples collected by SPT sampling.
-121.0	121.0	S-7	19-18-33-35 N1(51) N2(68) 85%			120.5-122.5 ft Silty sand, 70% sand, fine, subrounded; 25% fines, low plasticity, slow dilatancy, low toughness; 5% gravel, fine to medium, subangular, flat and elongated, medium hardness; very light gray (N8) with light gray (N7), moist, weak HCl reaction, weak cementation, [Upper Tamiami Formation]	sm	
-122.0	122.0							
-123.0	123.0	S-8	9-10-9-14 N1(19) N2(23) 95%			122.5-128.0 ft Silty sand, 50% sand, fine, subrounded; 45% fines, low plasticity, slow dilatancy, low toughness; 5% gravel, fine to medium, subangular, flat and elongated, medium hardness; very light gray (N8), moist, weak HCl reaction, weak cementation, [Upper Tamiami Formation]	sm	
-124.0	124.0							
-125.0	125.0	S-9	7-9-19-13 N1(28) N2(32) 70%					
-126.0	126.0							
-127.0	127.0	S-10	10-5-9-7 N1(14) N2(16) 93%					
-128.0	128.0							
-129.0	129.0	S-11	8-8-9-13 N1(17) N2(22) 93%			128.0-140.0 ft Sandy silt, 60% fines, medium plasticity, slow dilatancy, low toughness; 40% sand, fine, subrounded; pale olive (10Y 6/2), peices of organic material seen in sample., soft consistency, weak cementation, [Upper Tamiami Formation]	ml	
-130.0	130.0							
-131.0	131.0	S-12	4-5-10-15 N1(15) N2(25) 95%					
-132.0	132.0							
-133.0	133.0	S-13	10-15-10-12 N1(25) N2(22) 85%					
-134.0	134.0							
-135.0	135.0	ST-1	74%					
-136.0	136.0							
-137.0	137.0							A 3-inch split spoon was used to create pockets for Pressuremeter testing at various intervals as noted.
-138.0	138.0	S-1(3inch)	55%					
-139.0	139.0	S-2(3inch)	55%					

DATE STARTED: 9/11/13
DATE FINISHED: 10/4/13
FIELD GEOLOGIST: Jason Lee
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ, SPT, ST, NWD4
DRILLING CO. Huss Drilling

APPROVED BY: EOT

DRILLER: Eddie Palmer

NOTES:

DRILL RIG: DR-16
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Boring R-6-1b

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 396966.10 ft E. 876609.04 ft
GROUND SURFACE ELEVATION: -0.03 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
		S-2(3inch)				140.0-156.0 ft SILTY SAND, 60% sand, fine, subrounded; 30% fines, low plasticity, slow dilatancy, medium toughness; 10% gravel, fine to medium, subrounded, medium hardness; pale olive (10Y 6/2), moist, strong HCl reaction, weak cementation, with shells, Shell fragments and gravel throughout. [Upper Tamiami Formation] with layers of silt with sand, 80% fines, medium plasticity, slow dilatancy, low toughness; 15% sand, fine, subrounded; 5% gravel; pale olive (10Y 6/2), moist, strong HCl reaction, weak cementation, shells, Sandy silt. [Upper Tamiami Formation]	SM	
-141.0	141.0							
		S-3(3inch)	65%					
-142.0	142.0							
-143.0	143.0	S-14	16-17-17-22 N1(34) N2(39) 80%					
-144.0	144.0							
-145.0	145.0							
-146.0	146.0	ST-2	41%					
-147.0	147.0							
-148.0	148.0	ST-3	71%					
-149.0	149.0							
-150.0	150.0	S-15	10-16-23-41 N1(39) N2(64) 100%					
-151.0	151.0							
-152.0	152.0							From 151.8 -157.8 ft, a 3-inch diameter split spoon was used to create a pocket for pressure meter testing.
-153.0	153.0	S-4(3inch)	90%					
-154.0	154.0							
-155.0	155.0	S-5(3inch)	90%					
-156.0	156.0					156.0-218.3 ft SANDY SILT, 70% fines, medium plasticity, slow dilatancy, medium toughness; 30% sand, fine, subrounded; pale olive (10Y 6/2), moist, strong HCl reaction, medium stiff to stiff consistency, weak cementation, trace shells, Sand/silt ratio varies from 10/90 to 30/70 throughout. At 200 - 218.3ft depth, sand/silt ratio is 30/70. [Lower Tamiami Formation]	ML	
-157.0	157.0	S-6(3inch)	90%					
-158.0	158.0							
-159.0	159.0	S-16	8-14-24-47 N1(38) N2(71) 100%					
		ST-4						

DATE STARTED: 9/11/13
DATE FINISHED: 10/4/13
FIELD GEOLOGIST: Jason Lee
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ, SPT, ST, NWD4
DRILLING CO. Huss Drilling

APPROVED BY: EOT

DRILLER: Eddie Palmer

NOTES:

DRILL RIG: DR-16
HAMMER ID:

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Boring R-6-1b

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 396966.10 ft E. 876609.04 ft
GROUND SURFACE ELEVATION: -0.03 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-161.0	161.0	ST-4	85%			156.0-218.3 ft SANDY SILT, 70% fines, medium plasticity, slow dilatancy, medium toughness; 30% sand, fine, subrounded; pale olive (10Y 6/2), moist, strong HCl reaction, medium stiff to stiff consistency, weak cementation, trace shells, Sand/silt ratio varies from 10/90 to 30/70 throughout. At 200 - 218.3ft depth, sand/silt ratio is 30/70. [Lower Tamiami Formation]	ML	
-162.0	162.0							
-163.0	163.0							
-164.0	164.0	ST-5	89%					
-165.0	165.0							
-166.0	166.0	S-17	5-9-17-38 N1(26) N2(55) 100%					
-167.0	167.0							
-168.0	168.0	ST-6	93%					
-169.0	169.0							
-170.0	170.0							
-171.0	171.0	ST-7	56%					
-172.0	172.0							
-173.0	173.0	S-18	8-12-21-44 N1(33) N2(65) 100%					
-174.0	174.0							
-175.0	175.0							
-176.0	176.0	ST-8	96%					
-177.0	177.0							
-178.0	178.0	ST-9	96%					
-179.0	179.0							

DATE STARTED: 9/11/13
DATE FINISHED: 10/4/13
FIELD GEOLOGIST: Jason Lee
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DRILLING METHOD: Mud Rotary, PQ, SPT, ST, NWD4
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Boring R-6-1b

PROJECT: Turkey Point Units 6 and 7 Site
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COORDINATES
N. 396966.10 ft E. 876609.04 ft
GROUND SURFACE ELEVATION: -0.03 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-181.0	181.0	S-19	2-5-15-37 N1(20) N2(52) 100%			156.0-218.3 ft SANDY SILT, 70% fines, medium plasticity, slow dilatancy, medium toughness; 30% sand, fine, subrounded; pale olive (10Y 6/2), moist, strong HCl reaction, medium stiff to stiff consistency, weak cementation, trace shells, Sand/silt ratio varies from 10/90 to 30/70 throughout. At 200 - 218.3ft depth, sand/silt ratio is 30/70. [Lower Tamiami Formation]	ML	
-182.0	182.0							
-183.0	183.0	ST-10	78%					
-184.0	184.0							
-185.0	185.0							
-186.0	186.0	ST-11	100%					
-187.0	187.0							
-188.0	188.0	S-20	2-9-19-45 N1(28) N2(64) 100%					
-189.0	189.0							
-190.0	190.0							
-191.0	191.0	ST-12	81%					
-192.0	192.0							
-193.0	193.0	ST-13	100%					
-194.0	194.0							
-195.0	195.0	S-21	4-13-32-50 N1(45) N2(82) 100%					
-196.0	196.0							
-197.0	197.0							
-198.0	198.0	ST-14	96%					
-199.0	199.0							
		ST-15						

DATE STARTED: 9/11/13
DATE FINISHED: 10/4/13
FIELD GEOLOGIST: Jason Lee
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ, SPT, ST, NWD4
DRILLING CO. Huss Drilling

APPROVED BY: EOT

DRILLER: Eddie Palmer

NOTES:

DRILL RIG: DR-16
HAMMER ID:

Paul C. Rizzo Associates, Inc.
ENGINEERS/CONSULTANTS/CM

Paul C. Rizzo Associates, Inc
500 Penn Center Blvd. Suite 100, Pittsburgh, PA 15235
www.rizzoassoc.com

Boring R-6-1b

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 396966.10 ft E. 876609.04 ft
GROUND SURFACE ELEVATION: -0.03 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-201.0	201.0	ST-15	85%			156.0-218.3 ft SANDY SILT, 70% fines, medium plasticity, slow dilatancy, medium toughness; 30% sand, fine, subrounded; pale olive (10Y 6/2), moist, strong HCl reaction, medium stiff to stiff consistency, weak cementation, trace shells, Sand/silt ratio varies from 10/90 to 30/70 throughout. At 200 - 218.3ft depth, sand/silt ratio is 30/70. [Lower Tamiami Formation]	ML	
-202.0	202.0							
-203.0	203.0	S-22	3-6-20-49 N1(26) N2(69) 100%					
-204.0	204.0							
-205.0	205.0	ST-16	100%					
-206.0	206.0							
-207.0	207.0							
-208.0	208.0	ST-17	100%					
-209.0	209.0							
-210.0	210.0	S-23	6-13-31-50 N1(44) N2(81) 100%					
-211.0	211.0							
-212.0	212.0							
-213.0	213.0	ST-18	85%					
-214.0	214.0							
-215.0	215.0	ST-19	96%					
-216.0	216.0							
-217.0	217.0							
-218.0	218.0	S-24	6-11-33-50/4 N1(44) N2(50/4) 100%					
-219.0	219.0	ST-20	78%				SM	

DATE STARTED: 9/11/13
DATE FINISHED: 10/4/13
FIELD GEOLOGIST: Jason Lee
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ, SPT, ST, NWD4
DRILLING CO. Huss Drilling

APPROVED BY: EOT

DRILLER: Eddie Palmer

NOTES:

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Boring R-6-1b

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 396966.10 ft E. 876609.04 ft
GROUND SURFACE ELEVATION: -0.03 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-221.0	221.0	ST-20	78%			218.3-243.7 ft SILTY SAND, fine to medium, soft hardness; 60% sand, fine, subrounded; 40% fines, low plasticity, medium toughness; maximum grain size = 0.2 in., pale olive (10Y 6/2), dry, strong HCl reaction, medium dense to dense consistency, moderate cementation, trace shells, Trace gravel clasts (shell fragments). Material from 224 - 232.7ft is more dense than the surrounding layers. [Peace River Formation]		
-222.0	222.0							
-223.0	223.0	ST-21	81%			with layers of poorly graded sand, 90% sand, fine to medium, subrounded; 10% gravel, fine, subangular, flat and elongated; maximum grain size = 0.3 in., moist, strong HCl reaction, loose to medium dense consistency, weak cementation, trace shells, [Peace River Formation]		
-224.0	224.0							
-225.0	225.0	ST-22	76%					
-226.0	226.0							
-227.0	227.0	S-25	8-11-23-50/5 N1(34) N2(50/5) 100%					
-228.0	228.0							
-229.0	229.0	ST-23	78%				SM	
-230.0	230.0							
-231.0	231.0							
-232.0	232.0	ST-24	94%					
-233.0	233.0							
-234.0	234.0	ST-25	89%					
-235.0	235.0							
-236.0	236.0	S-26	18-22-29-50/5 N1(51) N2(50/5) 100%					
-237.0	237.0							
-238.0	238.0	ST-26	68%					
-239.0	239.0							
		ST-27						

DATE STARTED: 9/11/13
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DRILLING CO. Huss Drilling

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Boring R-6-1b

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 396966.10 ft E. 876609.04 ft
GROUND SURFACE ELEVATION: -0.03 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-241.0	241.0	ST-27	80%			218.3-243.7 ft SILTY SAND, fine to medium, soft hardness; 60% sand, fine, subrounded; 40% fines, low plasticity, medium toughness; maximum grain size = 0.2 in., pale olive (10Y 6/2), dry, strong HCl reaction, medium dense to dense consistency, moderate cementation, trace shells, Trace gravel clasts (shell fragments). Material from 224 - 232.7ft is more dense than the surrounding layers. [Peace River Formation]	SM	
-242.0	242.0							
-243.0	243.0	ST-28	96%			with layers of poorly graded sand, 90% sand, fine to medium, subrounded; 10% gravel, fine, subangular, flat and elongated; maximum grain size = 0.3 in., moist, strong HCl reaction, loose to medium dense consistency, weak cementation, trace shells, [Peace River Formation]		
-244.0	244.0							
-245.0	245.0					243.7-248.0 ft Silty sand, 70% sand, fine to medium, subangular, flat and elongated; 30% fines, non plastic, low toughness; maximum grain size = 0.2 in., light gray (N7) with very light gray (N8), moist, medium dense consistency, weak cementation, trace shells, [Peace River Formation]	sm	
-246.0	246.0	S-27	12-20-27-28 N1(47) N2(55) 100%					
-247.0	247.0							
-248.0	248.0	ST-29	89%			248.0-272.5 ft SILTY SAND, 70% sand, fine, subrounded; 20% fines, low plasticity, medium toughness; 10% gravel, fine to medium, soft hardness; maximum grain size = 0.2 in., pale olive (10Y 6/2), dry, strong HCl reaction, medium dense to dense consistency, moderate cementation, with shells, Gravel clasts are shells. [Peace River Formation]		
-249.0	249.0							
-250.0	250.0	ST-30	70%			with layers of poorly graded sand, 90% sand, fine to medium, subrounded; 10% gravel, fine, subangular, flat and elongated; maximum grain size = 0.3 in., moist, strong HCl reaction, loose to medium dense consistency, weak cementation, some shells, [Peace River Formation]		
-251.0	251.0							
-252.0	252.0	ST-31	67%					
-253.0	253.0							
-254.0	254.0	S-28	13-16-29-50/4 N1(45) N2(50/4) 100%				SM	
-255.0	255.0							
-256.0	256.0	ST-32	93%					
-257.0	257.0							
-258.0	258.0							
-259.0	259.0	ST-33	85%					

DATE STARTED: 9/11/13
DATE FINISHED: 10/4/13
FIELD GEOLOGIST: Jason Lee
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ, SPT, ST, NWD4
DRILLING CO. Huss Drilling

APPROVED BY: EOT

DRILLER: Eddie Palmer

NOTES:

DRILL RIG: DR-16
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Boring R-6-1b

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 396966.10 ft E. 876609.04 ft
GROUND SURFACE ELEVATION: -0.03 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
		ST-33				248.0-272.5 ft SILTY SAND, 70% sand, fine, subrounded; 20% fines, low plasticity, medium toughness; 10% gravel, fine to medium, soft hardness; maximum grain size = 0.2 in., pale olive (10Y 6/2), dry, strong HCl reaction, medium dense to dense consistency, moderate cementation, with shells, Gravel clasts are shells. [Peace River Formation]		
-261.0	261.0							
		ST-34	79%					
-262.0	262.0							
-263.0	263.0					with layers of poorly graded sand, 90% sand, fine to medium, subrounded; 10% gravel, fine, subangular, flat and elongated; maximum grain size = 0.3 in., moist, strong HCl reaction, loose to medium dense consistency, weak cementation, some shells, [Peace River Formation]		
		S-29	21-23-38-50/5 N1(61) N2(50/5) 100%					
-264.0	264.0							
-265.0	265.0							
-266.0	266.0	ST-35	68%				SM	
-267.0	267.0							
-268.0	268.0							
		ST-36	88%					
-269.0	269.0							
-270.0	270.0							
-271.0	271.0	ST-37	78%					
-272.0	272.0							
-273.0	273.0					272.5-291.0 ft Silt with sand, 80% fines, low plasticity; 20% sand, fine; pale olive (10Y 6/2), strong HCl reaction, medium dense to dense consistency, [Peace River Formation]		
		S-30	11-25-40-50/5 N1(65) N2(50/5) 100%					
-274.0	274.0							
-275.0	275.0							
		ST-38	100%					
-276.0	276.0						ml	
-277.0	277.0							
-278.0	278.0							
		ST-39	100%					
-279.0	279.0							
		ST-40						

DATE STARTED: 9/11/13
DATE FINISHED: 10/4/13
FIELD GEOLOGIST: Jason Lee
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ, SPT, ST, NWD4
DRILLING CO. Huss Drilling

APPROVED BY: EOT

DRILLER: Eddie Palmer

NOTES:

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Boring R-6-1b

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 396966.10 ft E. 876609.04 ft
GROUND SURFACE ELEVATION: -0.03 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-281.0	281.0	ST-40	100%			272.5-291.0 ft Silt with sand, 80% fines, low plasticity; 20% sand, fine; pale olive (10Y 6/2), strong HCl reaction, medium dense to dense consistency, [Peace River Formation]	SC	
-282.0	282.0							
-283.0	283.0	S-31	5-16-41-50/4 N1(57) N2(50/4) 100%					
-284.0	284.0							
-285.0	285.0	ST-41	93%				ml	
-286.0	286.0							
-287.0	287.0							
-288.0	288.0	ST-42	96%					
-289.0	289.0							
-290.0	290.0							
-291.0	291.0	ST-43	85%			291.0-313.0 ft Silty sand, 70% sand, fine; 30% fines, low plasticity; pale olive (10Y 6/2), strong HCl reaction, medium dense to dense consistency, [Peace River Formation]		
-292.0	292.0							
-293.0	293.0	S-32	16-27-47-50/4 N1(74) N2(50/4) 100%					
-294.0	294.0							
-295.0	295.0	ST-44	74%				sm	
-296.0	296.0							
-297.0	297.0							
-298.0	298.0	ST-45	81%					
-299.0	299.0							
		ST-46						

DATE STARTED: 9/11/13
DATE FINISHED: 10/4/13
FIELD GEOLOGIST: Jason Lee
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ, SPT, ST, NWD4
DRILLING CO. Huss Drilling

APPROVED BY: EOT

DRILLER: Eddie Palmer

NOTES:

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Boring R-6-1b

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 396966.10 ft E. 876609.04 ft
GROUND SURFACE ELEVATION: -0.03 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-301.0	301.0	ST-46	74%			291.0-313.0 ft Silty sand, 70% sand, fine; 30% fines, low plasticity; pale olive (10Y 6/2), strong HCl reaction, medium dense to dense consistency, [Peace River Formation]	SW-SM	
-302.0	302.0							
-303.0	303.0	S-33	24-25-38-50/4 N1(63) N2(50/4) 100%					
-304.0	304.0							
-305.0	305.0	ST-47	78%					
-306.0	306.0						sm	
-307.0	307.0							
-308.0	308.0	ST-48	70%					
-309.0	309.0							
-310.0	310.0	ST-49	84%					
-311.0	311.0							
-312.0	312.0	S-34	21-27-33-50/5 N1(60) N2(50/5) 100%					
-313.0	313.0					313.0-346.0 ft Silty sand, 70% sand, fine to medium; 30% fines, low plasticity, medium toughness; pale olive (10Y 6/2) with light gray (N7), strong HCl reaction, Sand/silt ratio varies from 70/30 to 60/40. [Peace River Formation] with layers of lean clay with sand/silt with sand, 90% fines, medium plasticity, slow dilatancy, low toughness; 10% sand, fine; strong HCl reaction, medium stiff to stiff consistency, Exist as lenses, average thickness is 1 inch. [Peace River Formation]		
-314.0	314.0	ST-50	75%					
-315.0	315.0							
-316.0	316.0							
-317.0	317.0	ST-51	71%				sm	
-318.0	318.0							
-319.0	319.0	ST-52	81%				SP-SM	

DATE STARTED: 9/11/13
DATE FINISHED: 10/4/13
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DRILLING CO. Huss Drilling

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COORDINATES
N. 396966.10 ft E. 876609.04 ft
GROUND SURFACE ELEVATION: -0.03 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
		S-35	40-50/5			313.0-346.0 ft Silty sand, 70% sand, fine to medium; 30% fines, low plasticity, medium toughness; pale olive (10Y 6/2) with light gray (N7), strong HCl reaction, Sand/silt ratio varies from 70/30 to 60/40. [Peace River Formation]		
		S-35	N1(50/5) 100%					
-321.0	321.0							
-322.0	322.0	ST-53	75%			with layers of lean clay with sand/silt with sand, 90% fines, medium plasticity, slow dilatancy, low toughness; 10% sand, fine; strong HCl reaction, medium stiff to stiff consistency, Exist as lenses, average thickness is 1 inch. [Peace River Formation]		
-323.0	323.0							
-324.0	324.0							
		ST-54	59%					
-325.0	325.0							
-326.0	326.0							
-327.0	327.0	ST-55	81%				SM	
-328.0	328.0	S-36	50/5 N1(50/5) 0%					
-329.0	329.0							
		ST-56	67%					
-330.0	330.0						sm	
-331.0	331.0							
		ST-57	68%					
-332.0	332.0							
-333.0	333.0							
-334.0	334.0	ST-58	85%					
-335.0	335.0							
		S-37	36-50/2 N1(50/2) 100%					
-336.0	336.0							
-337.0	337.0							
		ST-59	44%					
-338.0	338.0							
-339.0	339.0							
		ST-60	70%					

DATE STARTED: 9/11/13
DATE FINISHED: 10/4/13
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COORDINATES
N. 396966.10 ft E. 876609.04 ft
GROUND SURFACE ELEVATION: -0.03 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-341.0	341.0	ST-60	70%			313.0-346.0 ft Silty sand, 70% sand, fine to medium; 30% fines, low plasticity, medium toughness; pale olive (10Y 6/2) with light gray (N7), strong HCl reaction, Sand/silt ratio varies from 70/30 to 60/40. [Peace River Formation] with layers of lean clay with sand/silt with sand, 90% fines, medium plasticity, slow dilatancy, low toughness; 10% sand, fine; strong HCl reaction, medium stiff to stiff consistency, Exist as lenses, average thickness is 1 inch. [Peace River Formation]	SP-SM	
-342.0	342.0							
-343.0	343.0	ST-61	67%				sm	
-344.0	344.0	S-38	50/5 N1(50/5) 100%					
-345.0	345.0							
-346.0	346.0	ST-62	63%			346.0-348.8 ft Sandy lean clay, 70% fines, medium plasticity, low toughness; 30% sand, fine; pale olive (10Y 6/2) with light gray (N7), moist, strong HCl reaction, stiff consistency, [Peace River Formation]	cl	
-347.0	347.0							
-348.0	348.0							
-349.0	349.0	ST-63	59%			348.8-377.0 ft Silty sand, 70% sand, fine to medium, subrounded; 30% fines, low plasticity, low toughness; pale olive (10Y 6/2) with very light gray (N8), moist, strong HCl reaction, weak cementation, [Peace River Formation] with layers of lean clay with sand/silt with sand, 80% fines, medium plasticity; 20% sand, fine; 0% gravel; medium stiff to stiff consistency, Clay layers exist as lenses. [Peace River Formation]		Layer change based on recovery seen in bottom of shelby tube samples ST-62 and ST-63, top and bottom depths of this layer are estimated to be at the midpoint of both samples.
-350.0	350.0							
-351.0	351.0	ST-64	56%					
-352.0	352.0							
-353.0	353.0	S-39	50/5 N1(50/5) 100%					
-354.0	354.0							
-355.0	355.0	ST-65	56%				sm	
-356.0	356.0							
-357.0	357.0	ST-66	70%				SM	
-358.0	358.0							
-359.0	359.0	ST-67	59%				SP-SM	

DATE STARTED: 9/11/13
DATE FINISHED: 10/4/13
FIELD GEOLOGIST: Jason Lee
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ, SPT, ST, NWD4
DRILLING CO. Huss Drilling

NOTES:

APPROVED BY: EOT

DRILLER: Eddie Palmer

DRILL RIG: DR-16

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Boring R-6-1b

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 396966.10 ft E. 876609.04 ft
GROUND SURFACE ELEVATION: -0.03 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-361.0	361.0	ST-67	59%			348.8-377.0 ft Silty sand, 70% sand, fine to medium, subrounded; 30% fines, low plasticity, low toughness; pale olive (10Y 6/2) with very light gray (N8), moist, strong HCl reaction, weak cementation, [Peace River Formation] with layers of lean clay with sand/silt with sand, 80% fines, medium plasticity; 20% sand, fine; 0% gravel; medium stiff to stiff consistency, Clay layers exist as lenses. [Peace River Formation]	SP-SM	
-362.0	362.0	S-40	50/5 N1(50/5) 100%					
-363.0	363.0	ST-68	59%					
-364.0	364.0							
-365.0	365.0							
-366.0	366.0	ST-69	81%					
-367.0	367.0							
-368.0	368.0	ST-70	78%				sm	
-369.0	369.0							
-370.0	370.0	S-41	50/5 N1(50/5) 100%					
-371.0	371.0	ST-71	56%					
-372.0	372.0							
-373.0	373.0							
-374.0	374.0	ST-72	63%					
-375.0	375.0							
-376.0	376.0							
-377.0	377.0	ST-73	81%			377.0-415.5 ft Silty sand, 70% sand, fine to medium, subrounded; 30% fines, low plasticity, low toughness; pale olive (10Y 6/2) and very light gray (N8), moist, strong HCl reaction, weak cementation, Sand/silt ratio varies from 80/20 to 60/40. [Peace River Formation] with layers of lean clay with sand/silt with sand, 80% fines, medium plasticity; 20% sand, fine; 0% gravel; medium stiff to stiff consistency, Clay layers exist as lenses. [Peace River Formation]	sm	
-378.0	378.0							
-379.0	379.0	S-42	50/5 N1(50/5) 100%					
		ST-74	63%					

DATE STARTED: 9/11/13
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FIELD GEOLOGIST: Jason Lee
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DRILLING METHOD: Mud Rotary, PQ, SPT, ST, NWD4
DRILLING CO. Huss Drilling

NOTES:

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DRILLER: Eddie Palmer

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Boring R-6-1b

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 396966.10 ft E. 876609.04 ft
GROUND SURFACE ELEVATION: -0.03 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-381.0	381.0	ST-74	63%			377.0-415.5 ft Silty sand, 70% sand, fine to medium, subrounded; 30% fines, low plasticity, low toughness; pale olive (10Y 6/2) and very light gray (N8), moist, strong HCl reaction, weak cementation, Sand/silt ratio varies from 80/20 to 60/40. [Peace River Formation] with layers of lean clay with sand/silt with sand, 80% fines, medium plasticity; 20% sand, fine; 0% gravel; medium stiff to stiff consistency, Clay layers exist as lenses. [Peace River Formation]	SP-SM	
-382.0	382.0							
-383.0	383.0	ST-75	81%					
-384.0	384.0							
-385.0	385.0	ST-76	56%					
-386.0	386.0							
-387.0	387.0	S-43	45-50/2 N1(50/2) 100%					
-388.0	388.0							
-389.0	389.0	ST-77	63%					
-390.0	390.0						sm	
-391.0	391.0	ST-78	56%					
-392.0	392.0							
-393.0	393.0							
-394.0	394.0	ST-79	89%					
-395.0	395.0							
-396.0	396.0	S-44	25-50/5 N1(50/5) 89%					
-397.0	397.0							
-398.0	398.0	ST-80	81%					
-399.0	399.0							
		ST-81	52%					

DATE STARTED: 9/11/13
DATE FINISHED: 10/4/13
FIELD GEOLOGIST: Jason Lee
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ, SPT, ST, NWD4
DRILLING CO. Huss Drilling

NOTES:

APPROVED BY: EOT

DRILLER: Eddie Palmer

DRILL RIG: DR-16

HAMMER ID:

Paul C. Rizzo Associates, Inc.
ENGINEERS/CONSULTANTS/CM

Paul C. Rizzo Associates, Inc
500 Penn Center Blvd. Suite 100, Pittsburgh, PA 15235
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Boring R-6-1b

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 396966.10 ft E. 876609.04 ft
GROUND SURFACE ELEVATION: -0.03 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-401.0	401.0	ST-81	52%			377.0-415.5 ft Silty sand, 70% sand, fine to medium, subrounded; 30% fines, low plasticity, low toughness; pale olive (10Y 6/2) and very light gray (N8), moist, strong HCl reaction, weak cementation, Sand/silt ratio varies from 80/20 to 60/40. [Peace River Formation] with layers of lean clay with sand/silt with sand, 80% fines, medium plasticity; 20% sand, fine; 0% gravel; medium stiff to stiff consistency, Clay layers exist as lenses. [Peace River Formation]	SM	
-402.0	402.0							
-403.0	403.0	ST-82	70%					
-404.0	404.0							
-405.0	405.0	S-45	50/5 N1(50/5) 100%					
-406.0	406.0	ST-83	74%					
-407.0	407.0							
-408.0	408.0						sm	
-409.0	409.0	ST-84	85%					
-410.0	410.0							
-411.0	411.0							
-412.0	412.0	ST-85	78%					
-413.0	413.0							
-414.0	414.0	S-46	21-50/5 N1(50/5) 100%					
-415.0	415.0							
-416.0	416.0	ST-86	93%			415.5-458.0 ft Silty sand, 70% sand, fine to medium, subrounded; 30% fines, low plasticity, low toughness; light olive gray (5Y 5/2) and very light gray (N8), moist, strong HCl reaction, weak cementation, Sand/silt ratio varies from 80/20 to 70/30. [Peace River Formation] with layers of lean clay with sand/silt with sand, 80% fines, medium plasticity; 20% sand, fine; 0% gravel; medium stiff to stiff consistency, Clay layers exist as lenses. [Peace River Formation]		
-417.0	417.0							
-418.0	418.0	ST-87	85%				sm	
-419.0	419.0							
		ST-88						

DATE STARTED: 9/11/13
DATE FINISHED: 10/4/13
FIELD GEOLOGIST: Jason Lee
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ, SPT, ST, NWD4
DRILLING CO. Huss Drilling

NOTES:

APPROVED BY: EOT

DRILLER: Eddie Palmer

DRILL RIG: DR-16

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Boring R-6-1b

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 396966.10 ft E. 876609.04 ft
GROUND SURFACE ELEVATION: -0.03 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-421.0	421.0	ST-88	93%			415.5-458.0 ft Silty sand, 70% sand, fine to medium, subrounded; 30% fines, low plasticity, low toughness; light olive gray (5Y 5/2) and very light gray (N8), moist, strong HCl reaction, weak cementation, Sand/silt ratio varies from 80/20 to 70/30. [Peace River Formation]	SP-SM	
-422.0	422.0	S-47	44-50/4 N1(50/4) 88%			with layers of lean clay with sand/silt with sand, 80% fines, medium plasticity; 20% sand, fine; 0% gravel; medium stiff to stiff consistency, Clay layers exist as lenses. [Peace River Formation]		
-423.0	423.0							
-424.0	424.0	ST-89	89%					
-425.0	425.0							
-426.0	426.0							
-427.0	427.0	ST-90	96%					
-428.0	428.0							
-429.0	429.0							
-430.0	430.0	ST-91	96%				sm	
-431.0	431.0	S-48	32-50/4 N1(50/4) 88%					
-432.0	432.0							
-433.0	433.0	ST-92	63%					
-434.0	434.0							
-435.0	435.0							
-436.0	436.0	ST-93	85%					
-437.0	437.0							
-438.0	438.0							
-439.0	439.0	ST-94	89%					

DATE STARTED: 9/11/13
DATE FINISHED: 10/4/13
FIELD GEOLOGIST: Jason Lee
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ, SPT, ST, NWD4
DRILLING CO. Huss Drilling

NOTES:

APPROVED BY: EOT

DRILLER: Eddie Palmer

DRILL RIG: DR-16

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Boring R-6-1b

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 396966.10 ft E. 876609.04 ft
GROUND SURFACE ELEVATION: -0.03 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
		S-49	50 100%			415.5-458.0 ft Silty sand, 70% sand, fine to medium, subrounded; 30% fines, low plasticity, low toughness; light olive gray (5Y 5/2) and very light gray (N8), moist, strong HCl reaction, weak cementation, Sand/silt ratio varies from 80/20 to 70/30. [Peace River Formation] with layers of lean clay with sand/silt with sand, 80% fines, medium plasticity; 20% sand, fine; 0% gravel; medium stiff to stiff consistency, Clay layers exist as lenses. [Peace River Formation]		
-441.0	441.0							
-442.0	442.0	ST-95	100%					
-443.0	443.0							
-444.0	444.0							
-445.0	445.0	ST-96	81%					
-446.0	446.0							
-447.0	447.0	ST-97	78%				SM	
-448.0	448.0							
-449.0	449.0	S-50	16-40-50/5 N1(50/5) 100%				sm	
-450.0	450.0							
-451.0	451.0	ST-98	52%					
-452.0	452.0							
-453.0	453.0							
-454.0	454.0	ST-99	89%					
-455.0	455.0							
-456.0	456.0							
-457.0	457.0	ST-100	70%					
-458.0	458.0					457.0-458.0 ft Grades to Dolomitic starting at approximately 457.0ft depth.		
-459.0	459.0	S-51	20-32-44-50/5 N1(76) N2(50/5) 89%				sm	

DATE STARTED: 9/11/13
DATE FINISHED: 10/4/13
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CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ, SPT, ST, NWD4
DRILLING CO. Huss Drilling

APPROVED BY: EOT

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Boring R-6-1b

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 396966.10 ft E. 876609.04 ft
GROUND SURFACE ELEVATION: -0.03 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-461.0	461.0	ST-101	52%			458.0-461.3 ft Silty sand, 70% sand, fine to medium, subrounded; 30% fines, low plasticity, low toughness; pale olive (10Y 6/2) with very light gray (N8), moist, weak HCl reaction, weak cementation, Dolomitic. [Arcadia Formation]	sm	
-462.0	462.0					with layers of lean clay with sand/silt with sand, 80% fines, medium plasticity; 20% sand, fine; 0% gravel; medium stiff to stiff consistency, Clay layers exist as lenses.	sm	
-463.0	463.0	ST-102	93%			461.3-463.4 ft Silty sand with gravel, 60% sand, fine to coarse; 30% fines, low plasticity; 10% gravel, fine, subrounded, hard hardness; greenish black (5GY 2/1), weak HCl reaction, weak cementation, [Arcadia Formation]		
-464.0	464.0					463.4-464.1 ft GRAINSTONE, dolomitic, moderately hard (H4) to moderately soft (H5), moderately (W5) weathered, clay to very fine sand particles, brownish gray (5YR 4/1), weak reaction to HCl, HCL reaction is delayed. Moldic porosity. Layer contains clay lenses/nodules with medium plasticity, low toughness, dry. Color is light olive gray (5Y 5/2). Contains trace amount of fine grained sand. [Arcadia Formation]		
						---- Bottom of Boring at 464.10 ft.----		

DATE STARTED: 9/11/13
DATE FINISHED: 10/4/13
FIELD GEOLOGIST: Jason Lee
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ, SPT, ST, NWD4
DRILLING CO. Huss Drilling

APPROVED BY: EOT

DRILLER: Eddie Palmer

NOTES:

DRILL RIG: DR-16

HAMMER ID:

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Boring R-6-2

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 396967.24 ft E. 876648.22 ft
GROUND SURFACE ELEVATION: -0.06 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-1.0	1.0					0.0-2.17 ft Road base layer.		0 - 2.17 ft, destructively drilled using (2 7/8 inch and 2 15/16 inch) mud rotary bits. Measured water level varied within one foot of ground surface. 2.17 - 8.17 ft., SPT sampling.
-2.0	2.0							
-3.0	3.0		1-1-0-1 N1(1) N2(1) 0%			2.17-4.17 ft Very soft consistency, (MUCK) Sample not recovered.		
-4.0	4.0							
-5.0	5.0	S-1	1-1-2-4 N1(3) N2(6) 55%			4.17-5.8 ft Silty sand with gravel, 60% sand, fine to coarse, angular, spherical, soft; 25% fines, non plastic, low dry strength; 15% gravel, fine, angular, spherical, soft hardness; maximum grain size = 0.75 in., very pale orange (10YR 8/2) to yellowish gray (5Y 7/2), no odor, wet, strong HCl reaction, very loose consistency, trace roots	sm	
-6.0	6.0						ol/oh	
-7.0	7.0	S-2	7-7-8-7 N1(15) N2(15) 75%			5.8-6.17 ft Organic soil, 95% fines, medium plasticity; 5% sand, fine; grayish brown (5YR 3/2) to very dusky red (10R 2/2), organic odor, wet, strong HCl reaction, plasic consistency, peat is more spongy than fibrous, trace amount of very fine sand.	sm	
-8.0	8.0						sm	
-9.0	9.0					6.17-7.17 ft Silty sand with gravel, 50% sand, fine to coarse, angular, spherical, medium; 25% gravel, fine to medium, angular, spherical, medium hardness; 25% fines, non plastic, no dry strength; maximum grain size = 1.0 in., very pale orange (10YR 8/2) to yellowish gray (5Y 7/2), no odor, wet, strong HCl reaction, medium dense consistency, trace roots, [Miami Limestone]		8.17 - 46.0 ft, destructively drilled using (2 7/8 inch and 2 15/16 inch) mud rotary bits.
-10.0	10.0							
-11.0	11.0					7.17-8.17 ft Silty sand with gravel, 45% sand, fine to coarse, angular, spherical, medium; 30% gravel, fine to medium, angular, spherical, soft hardness; 25% fines, non plastic; maximum grain size = 1.25 in., very pale orange (10YR 8/2), no odor, wet, strong HCl reaction, medium dense consistency, trace roots, [Miami Limestone]		
-12.0	12.0							
-13.0	13.0					8.17-46.0 ft No Sample Recovered.		
-14.0	14.0							
-15.0	15.0							
-16.0	16.0							
-17.0	17.0							
-18.0	18.0							
-19.0	19.0							

DATE STARTED: 8/13/13
DATE FINISHED: 9/10/13
FIELD GEOLOGIST: Rolando Benitez
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ, SPT, NWD4
DRILLING CO. Huss Drilling

APPROVED BY: EOT
DRILLER: Eddie Palmer

NOTES:

DRILL RIG: DR-18
HAMMER ID:

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Boring R-6-2

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 396967.24 ft E. 876648.22 ft
GROUND SURFACE ELEVATION: -0.06 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
						8.17-46.0 ft No Sample Recovered.		
-21.0	21.0							
-22.0	22.0							
-23.0	23.0							
-24.0	24.0							
-25.0	25.0							From 25.0 - 27.0 ft, loss of circulation.
-26.0	26.0							
-27.0	27.0							
-28.0	28.0							
-29.0	29.0							
-30.0	30.0							
-31.0	31.0							
-32.0	32.0							
-33.0	33.0							
-34.0	34.0							
-35.0	35.0							
-36.0	36.0							
-37.0	37.0							
-38.0	38.0							
-39.0	39.0							

DATE STARTED: 8/13/13
DATE FINISHED: 9/10/13
FIELD GEOLOGIST: Rolando Benitez
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DRILLING METHOD: Mud Rotary, PQ, SPT, NWD4
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NOTES:

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GROUND SURFACE ELEVATION: -0.06 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-41.0	41.0					8.17-46.0 ft No Sample Recovered.		
-42.0	42.0							
-43.0	43.0							
-44.0	44.0							
-45.0	45.0							
-46.0	46.0							
-47.0	47.0					46.0-48.0 ft BOUNDSTONE, clastic, moderately hard, moderately weathered, very fine sand to silt particles, vuggy to pitted, typical diameter: 0.25 in., max size: 1.0 in., very light gray (N8) to light gray (N7), strong reaction to HCl, wet, Calcareous. [Key Largo Limestone]		46.0 - 112.0 ft., A combination of destructive drilling using (2 7/8 inch and 2 15/16 inch) mud rotary bits and NWD4 conventional coring were used to create pockets for pressuremeter testing.
-48.0	48.0	R-1	76% (66%)			48.0-51.0 ft GRAINSTONE, fossiliferous, moderately hard to hard, moderately weathered, fine sand to silt particles, pitted, typical diameter: 0.20 in., max size: 0.5 in., very light gray (N8) to light gray (N7), very widely fractured, R.D. = 0° to 45°, strong reaction to HCl, wet, Calcareous, abundant moldic porosity. Fractures are healed. [Fort Thompson Formation]		
-49.0	49.0			FD1				
-50.0	50.0							
-51.0	51.0					51.0-61.5 ft GRAINSTONE, fossiliferous, moderately soft to moderately hard, moderately to intensely weathered, fine sand to silt particles, pitted, typical diameter: 0.20 in., max size: 0.4 in., white (N9) to very light gray (N8), strong reaction to HCl, wet, Calcareous, abundant moldic porosity. [Fort Thompson Formation]		
-52.0	52.0							
-53.0	53.0	R-2	86% (76%)					
-54.0	54.0							
-55.0	55.0							
-56.0	56.0							
-57.0	57.0							Tool drop from 56.5 to 57.0 ft.
-58.0	58.0	R-3	66% (38%)					
-59.0	59.0							

DATE STARTED: 8/13/13
DATE FINISHED: 9/10/13
FIELD GEOLOGIST: Rolando Benitez
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ, SPT, NWD4
DRILLING CO. Huss Drilling

APPROVED BY: EOT

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NOTES:

DRILL RIG: DR-18

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Boring R-6-2

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 396967.24 ft E. 876648.22 ft
GROUND SURFACE ELEVATION: -0.06 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-61.0	61.0	R-3						Softer material throughout core run R-4 (61 - 66 ft).
-62.0	62.0					61.5-66.0 ft GRAINSTONE, fossiliferous, moderately soft, moderately to intensely weathered, fine sand to silt particles, pitted, typical diameter: 0.1 in., max size: 0.5 in., white (N9) to very light gray (N8), strong reaction to HCl, wet, Calcareous, abundant moldic porosity. Softer than upper layer; recovered mostly as loose medium gravel fragments. [Fort Thompson Formation]		
-63.0	63.0	R-4	38% (0%)					
-64.0	64.0							
-65.0	65.0							
-66.0	66.0					66.0-70.0 ft No Sample Recovered.		
-67.0	67.0							
-68.0	68.0							
-69.0	69.0							
-70.0	70.0					70.0-75.0 ft GRAINSTONE, fossiliferous, moderately soft, moderately to intensely weathered, fine sand to silt particles, pitted, typical diameter: 0.2 in., max size: 0.5 in., white (N9) to very light gray (N8), strong reaction to HCl, wet, Calcareous, abundant moldic porosity. Recovered mostly as short pieces of core and loose medium gravel fragments [Fort Thompson Formation]		
-71.0	71.0							
-72.0	72.0	R-5	30% (14%)					
-73.0	73.0							
-74.0	74.0							
-75.0	75.0					75.0-80.0 ft No Sample Recovered.		
-76.0	76.0							
-77.0	77.0							
-78.0	78.0							
-79.0	79.0							

DATE STARTED: 8/13/13
DATE FINISHED: 9/10/13
FIELD GEOLOGIST: Rolando Benitez
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PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 396967.24 ft E. 876648.22 ft
GROUND SURFACE ELEVATION: -0.06 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-81.0	81.0	R-6	8% (0%)			80.0-85.0 ft GRAINSTONE, fossiliferous, moderately soft, moderately to intensely weathered, medium sand to very fine sand particles, pitted, typical diameter: 0.1 in., max size: 0.4 in., white (N9) to very light gray (N8), strong reaction to HCl, wet, Calcareous, abundant moldic porosity. Recovered mostly as medium gravel fragments [Fort Thompson Formation]		
-82.0	82.0							
-83.0	83.0							
-84.0	84.0							
-85.0	85.0					85.0-100.0 ft No Sample Recovered.		
-86.0	86.0							
-87.0	87.0							
-88.0	88.0							
-89.0	89.0							
-90.0	90.0							
-91.0	91.0							
-92.0	92.0							
-93.0	93.0							
-94.0	94.0							
-95.0	95.0							
-96.0	96.0							
-97.0	97.0							
-98.0	98.0							
-99.0	99.0							

DATE STARTED: 8/13/13
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GROUND SURFACE ELEVATION: -0.06 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-101.0	101.0					100.0-112.0 ft GRAINSTONE, fossiliferous, moderately soft, moderately to intensely weathered, medium sand to very fine sand particles, pitted, typical diameter: 0.1 in., max size: 0.4 in., white (N9) to very light gray (N8), strong reaction to HCl, wet, Calcareous, abundant moldic porosity. [Fort Thompson Formation]		
-102.0	102.0							
-103.0	103.0							
-104.0	104.0							
-105.0	105.0	R-7	17% (4%)					
-106.0	106.0							
-107.0	107.0							
-108.0	108.0							
-109.0	109.0							
-110.0	110.0							Bottom of coring at 112.0ft. Boring continues to 360.0ft, and was destructively drilled alternating between (2 7/8 inch and 2 15/16 inch) mud rotary bits to accomodate pressuremeter testing pocket drilling.
-111.0	111.0	R-8	0% (0%)					
-112.0	112.0					---- Bottom of Boring at 112.00 ft.----		

DATE STARTED: 8/13/13
DATE FINISHED: 9/10/13
FIELD GEOLOGIST: Rolando Benitez
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ, SPT, NWD4
DRILLING CO. Huss Drilling

APPROVED BY: EOT

DRILLER: Eddie Palmer

NOTES:

DRILL RIG: DR-18

HAMMER ID:

Paul C. Rizzo Associates, Inc.
ENGINEERS/CONSULTANTS/CM

Paul C. Rizzo Associates, Inc
500 Penn Center Blvd. Suite 100, Pittsburgh, PA 15235
www.rizzoassoc.com

Boring R-7-1

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 396976.23 ft E. 875797.30 ft
GROUND SURFACE ELEVATION: 0.22 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
0.0						0.0-1.5 ft Road base layer.		Measured water level varied within one foot of ground surface. Boring was destructively drilled using a 5 inch mud rotary bit from 0 - 5 ft.
-1.0	1.0							
-2.0	2.0					1.5-6.0 ft Muck (Soft zone to 6ft depth).		
-3.0	3.0							
-4.0	4.0							
-5.0	5.0							5.0 - 120.2 ft., PQ wireline coring.
-6.0	6.0					6.0-30.5 ft PACKSTONE, sandy, moderately soft to soft, moderately weathered, fine sand to cobble particles, pitted to vuggy, max size: 1 in., yellowish gray (5Y 8/1) with medium gray (N5), weak reaction to HCl, lower contact is gradational, Interval from 17.0 - 18.5ft contains higher void density. Grades to Key Largo Limestone from 25.7 to 30.5ft. Grain supported. Intervals with pockets of sand. [Miami Limestone]		
-7.0	7.0	R-1	75% (39%)					
-8.0	8.0							
-9.0	9.0	R-2	100% (43%)					
-10.0	10.0							
-11.0	11.0							
-12.0	12.0	R-3	59% (0%)					
-13.0	13.0			FD0				Lost circulation at 13.0 ft, increased approximately 70% return after drilling a few more feet. (Special care sample) SC-1: 13.7-14.3ft.
-14.0	14.0	R-4	100% (100%)					
-15.0	15.0							
-16.0	16.0							
-17.0	17.0	R-5	88% (66%)					
-18.0	18.0							
-19.0	19.0							

DATE STARTED: 8/20/13
DATE FINISHED: 9/6/13
FIELD GEOLOGIST: Jason Lee
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ, SPT, ST, NWD4
DRILLING CO. Huss Drilling

APPROVED BY: EOT

DRILLER: Eddie Palmer

NOTES:

DRILL RIG: DR-16

HAMMER ID:

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Boring R-7-1

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 396976.23 ft E. 875797.30 ft
GROUND SURFACE ELEVATION: 0.22 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-20.0						6.0-30.5 ft PACKSTONE, sandy, moderately soft to soft, moderately weathered, fine sand to cobble particles, pitted to vuggy, max size: 1 in., yellowish gray (5Y 8/1) with medium gray (N5), weak reaction to HCl, lower contact is gradational, Interval from 17.0 - 18.5ft contains higher void density. Grades to Key Largo Limestone from 25.7 to 30.5ft. Grain supported. Intervals with pockets of sand. [Miami Limestone]		
-21.0	21.0							
-22.0	22.0	R-6	0% (0%)					
-23.0	23.0							
-24.0	24.0			FD0				
-25.0	25.0	R-7	100% (0%)					Lost circulation 25.5 - 28ft.
-26.0	26.0	R-8	60% (0%)					
-27.0	27.0							
-28.0	28.0	R-9	100% (40%)	FD1		28.2-29.2 ft Joint, R.D. = 90°; filling: totally healed, slightly weathered, moderately soft; surface: moderately rough, undulating, slightly weathered.		
-29.0	29.0							
-30.0	30.0	R-10	95% (20%)					
-31.0	31.0					30.5-37.9 ft BOUNDSTONE, moderately hard, moderately weathered, pitted to vuggy, max size: 2 in., yellowish gray (5Y 8/1) with medium dark gray (N4), strong reaction to HCl, Coral clasts, upper contact is gradational, void surfaces covered by recrystallized calcite. [Key Largo Limestone]		
-32.0	32.0							
-33.0	33.0	R-11	88% (63%)					
-34.0	34.0			FD0				
-35.0	35.0							
-36.0	36.0							
-37.0	37.0	R-12	90% (50%)					SC-2: 37.5-37.9ft.
-38.0	38.0							
-39.0	39.0							

DATE STARTED: 8/20/13
DATE FINISHED: 9/6/13
FIELD GEOLOGIST: Jason Lee
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ, SPT, ST, NWD4
DRILLING CO. Huss Drilling

APPROVED BY: EOT

DRILLER: Eddie Palmer

NOTES:

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Boring R-7-1

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 396976.23 ft E. 875797.30 ft
GROUND SURFACE ELEVATION: 0.22 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-40.0						37.9-47.7 ft PACKSTONE, calcareous, moderately hard to hard, slightly (W3) weathered to moderately (W5) weathered, pitted to vuggy, typical diameter: 0.4 in., yellowish gray (5Y 8/1) with moderate yellow (5Y 7/6), strong reaction to HCl, Void surfaces covered by recrystallized calcite. Sandy,soft interval from 47.4 to 49.0ft, core mostly recovered as gravel fragments due to mechanical breakage during drilling. [Key Largo Limestone]		SC-3: 40.1 - 41.0ft.
-41.0	41.0							
-42.0	42.0	R-13	100% (98%)					
-43.0	43.0							
-44.0	44.0							
-45.0	45.0							
-46.0	46.0							
-47.0	47.0	R-14	97% (80%)					SC-4: 46.9 to 47.7ft. Softer material, 47.4-47.9ft.
-48.0	48.0					47.7-57.7 ft PACKSTONE, calcareous, moderately hard, slightly weathered, pitted to vuggy, max size: 0.7 in., white (N9) to light gray (N7), weak reaction to HCl, At 56ft, oolitic fossils seen in core. Interval from 50.5 - 51.6ft is Grainstone. [Fort Thompson Formation]		
-49.0	49.0	R-15	100% (60%)					
-50.0	50.0			FD0				
-51.0	51.0							
-52.0	52.0	R-16	100% (100%)					
-53.0	53.0							
-54.0	54.0							SC-5: 53.7-55.0ft.
-55.0	55.0							
-56.0	56.0							
-57.0	57.0	R-17	100% (100%)					
-58.0	58.0							
-59.0	59.0							
		R-18						

DATE STARTED: 8/20/13
DATE FINISHED: 9/6/13
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DRILLING METHOD: Mud Rotary, PQ, SPT, ST, NWD4
DRILLING CO. Huss Drilling

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Boring R-7-1

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PROJECT NO.: 13-5054

COORDINATES
N. 396976.23 ft E. 875797.30 ft
GROUND SURFACE ELEVATION: 0.22 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-60.0						57.7-66.5 ft GRAINSTONE, calcareous, moderately hard to hard, slightly weathered, very fine sand particles, vuggy, light gray (N7), weak reaction to HCl, Angular quartz grains present, approximately 40% [Fort Thompson Formation] interbedded with GRAINSTONE, calcareous, moderately hard to moderately soft, moderately weathered, light gray (N7), weak reaction to HCl, [Fort Thompson Formation]		
-61.0	61.0	R-18	100% (96%)					
-62.0	62.0							
-63.0	63.0	R-19	97% (97%)					
-64.0	64.0							
-65.0	65.0							
-66.0	66.0							
-67.0	67.0	R-20	52% (30%)			66.5-79.0 ft PACKSTONE, calcareous, moderately soft, slightly to moderately weathered, fine sand particles, pitted to vuggy, white (N9), strong reaction to HCl, [Fort Thompson Formation] interbedded with GRAINSTONE, calcareous, soft, moderately weathered, white (N9), weak reaction to HCl, Some core intervals are recovered as gravel sized fragments from mechanical breakage during drilling. [Fort Thompson Formation]		
-68.0	68.0							
-69.0	69.0							
-70.0	70.0			FD0				
-71.0	71.0	R-21	70% (45%)					
-72.0	72.0							
-73.0	73.0	R-22	100% (90%)					
-74.0	74.0	R-23	100% (63%)					
-75.0	75.0	R-24	100% (92%)					SC-6: 74.3-75.0ft.
-76.0	76.0							
-77.0	77.0	R-25	100% (100%)					
-78.0	78.0							
-79.0	79.0	R-26	100%					

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Boring R-7-1

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 396976.23 ft E. 875797.30 ft
GROUND SURFACE ELEVATION: 0.22 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-80.0			(87%)					
-81.0	81.0	R-26	100% (87%)			79.0-83.3 ft GRAINSTONE, calcareous, moderately soft, moderately weathered, very fine sand to fine sand particles, pitted to vuggy, light gray (N7) to very light gray (N8), strong reaction to HCl, Average shell clast size decreases compared to above layers [Fort Thompson Formation]		
-82.0	82.0							
-83.0	83.0	R-27	87% (73%)			83.3-93.0 ft PACKSTONE, calcareous, moderately soft to moderately hard, slightly to moderately weathered, very fine sand to fine sand particles, vuggy, light gray (N7) to very light gray (N8), strong reaction to HCl, [Fort Thompson Formation] with layers of GRAINSTONE, calcareous, moderately soft to soft, moderately weathered, very fine sand to fine sand particles, light gray (N7) to very light gray (N8), strong reaction to HCl, [Fort Thompson Formation]		SC-7: 84.1-85.0ft.
-84.0	84.0							
-85.0	85.0							
-86.0	86.0							
-87.0	87.0	R-28	88% (64%)					
-88.0	88.0							
-89.0	89.0							
-90.0	90.0			FD0				
-91.0	91.0	R-29	93% (93%)					
-92.0	92.0							
-93.0	93.0					93.0-101.0 ft GRAINSTONE, calcareous, soft (H6) to moderately soft (H5), moderately (W5) weathered, fine sand to medium sand particles, vuggy, very light gray (N8), strong reaction to HCl, Zones of unconsolidated fine sand infilling of voids [Fort Thompson Formation]		
-94.0	94.0	R-30	50% (0%)					
-95.0	95.0							
-96.0	96.0	R-31	87% (0%)					
-97.0	97.0							
-98.0	98.0	R-32	69% (31%)					
-99.0	99.0							

DATE STARTED: 8/20/13
DATE FINISHED: 9/6/13
FIELD GEOLOGIST: Jason Lee
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ, SPT, ST, NWD4
DRILLING CO. Huss Drilling

APPROVED BY: EOT

DRILLER: Eddie Palmer

NOTES:

DRILL RIG: DR-16

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Boring R-7-1

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 396976.23 ft E. 875797.30 ft
GROUND SURFACE ELEVATION: 0.22 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-100.0								
-101.0	101.0	R-33	80% (35%)			101.0-115.0 ft GRAINSTONE, calcareous, moderately soft (H5), slightly (W3) weathered to moderately (W5) weathered, fine sand to medium sand particles, pitted to vuggy, max size: 1.5 in., light gray (N7) to very light gray (N8), strong reaction to HCl, [Fort Thompson Formation]		
-102.0	102.0							
-103.0	103.0	R-34	80% (80%)					SC-8: 102.5-103.5ft.
-104.0	104.0	R-35	90% (90%)					
-105.0	105.0							
-106.0	106.0							
-107.0	107.0	R-36	98% (98%)					
-108.0	108.0							
-109.0	109.0			FD0				
-110.0	110.0							
-111.0	111.0	R-37	100% (76%)					SC-9: 111.5-112.2ft.
-112.0	112.0							
-113.0	113.0							
-114.0	114.0	R-38	95% (76%)					
-115.0	115.0					115.0-118.7 ft WACKESTONE, calcareous, moderately soft (H5), slightly (W3) weathered to moderately (W5) weathered, fine sand particles, pitted to vuggy, max size: 1 in., strong reaction to HCl, [Fort Thompson Formation]		
-116.0	116.0							
-117.0	117.0	R-39	38% (28%)					
-118.0	118.0							
-119.0	119.0						sm	

DATE STARTED: 8/20/13
DATE FINISHED: 9/6/13
FIELD GEOLOGIST: Jason Lee
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COORDINATES
N. 396976.23 ft E. 875797.30 ft
GROUND SURFACE ELEVATION: 0.22 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-120.0						118.7-131.0 ft Silty sand, 80% sand, fine to medium, subrounded, flat and elongated; 20% fines, low plasticity; yellowish gray (5Y 7/2), wet, strong HCl reaction, medium dense consistency, weak cementation, trace rock fragments, may be caved in material that fell in boring while tripping in/out of boring. [Upper Tamiami Formation]	sm	From 120.2 ft. to total depth, a combination of ST and SPT sampling, and destructive over-drilling with a 5 inch mud rotary bit were used. Intervals not sampled were drilled destructively using a 5 inch mud rotary bit.
-121.0	121.0	S-1	21-17-6-7 N1(23) N2(13) 100%					
-122.0	122.0							
-123.0	123.0							
-124.0	124.0							
-125.0	125.0							ST-1a: 125 - 127.7ft, no recovery
-126.0	126.0	ST-1a	0%					
-127.0	127.0							
-128.0	128.0							ST-1b: 127.7 - 130.4ft, no recovery
-129.0	129.0	ST-1b	0%					
-130.0	130.0							
-131.0	131.0					131.0-161.0 ft SILTY SAND, fine to medium, subrounded; 70% sand, fine, rounded, flat and elongated; 30% fines, low plasticity, low toughness; light olive gray (5Y 5/2), moist, weak HCl reaction, dense consistency, weak cementation, trace shells, delayed very weak HCl reaction, Sand/Fines ratio varies from 80/20 to 60/40. [Upper Tamiami Formation]	SM	
-132.0	132.0	S-2	8-6-9-14 N1(15) N2(23) 90%					
-133.0	133.0							
-134.0	134.0							
-135.0	135.0							
-136.0	136.0							
-137.0	137.0	ST-1	63%					
-138.0	138.0							
-139.0	139.0	S-3	9-15-18-25 N1(33) N2(43)					

DATE STARTED: 8/20/13
DATE FINISHED: 9/6/13
FIELD GEOLOGIST: Jason Lee
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ, SPT, ST, NWD4
DRILLING CO. Huss Drilling

APPROVED BY: EOT

DRILLER: Eddie Palmer

NOTES:

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HAMMER ID:

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COORDINATES
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GROUND SURFACE ELEVATION: 0.22 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-140.0		S-3	90%			131.0-161.0 ft SILTY SAND, fine to medium, subrounded; 70% sand, fine, rounded, flat and elongated; 30% fines, low plasticity, low toughness; light olive gray (5Y 5/2), moist, weak HCl reaction, dense consistency, weak cementation, trace shells, delayed very weak HCl reaction, Sand/Fines ratio varies from 80/20 to 60/40. [Upper Tamiami Formation]		
-141.0	141.0							
-142.0	142.0							
-143.0	143.0							
-144.0	144.0							
-145.0	145.0							
-146.0	146.0	S-4	8-14-22-34 N1(36) N2(56) 100%					
-147.0	147.0							
-148.0	148.0							
-149.0	149.0							
-150.0	150.0						SM	Trouble cleaning boring between 150-160ft. Material is caving in at the bottom of installed casing, at approximately 120ft.
-151.0	151.0	ST-2a	0%					
-152.0	152.0							
-153.0	153.0							
-154.0	154.0	S-5	7-8-17-21 N1(25) N2(38) 100%					
-155.0	155.0							
-156.0	156.0							
-157.0	157.0							
-158.0	158.0							
-159.0	159.0	ST-2	93%				ML	

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-160.0		ST-2					SM	
-161.0	161.0					161.0-215.0 ft SILT WITH SAND, 80% fines, medium plasticity, low toughness; 20% sand, fine, subrounded; grayish olive (10Y 4/2), moist, weak HCl reaction, medium stiff to stiff consistency, weak cementation, little shells, Placticity and silt content increases with depth. [Lower Tamiami Formation]		
-162.0	162.0	S-6	6-8-14-33 N1(22) N2(47) 100%					
-163.0	163.0							
-164.0	164.0							
-165.0	165.0							
-166.0	166.0							
-167.0	167.0	ST-3a	0%					
-168.0	168.0							
-169.0	169.0							
-170.0	170.0	ST-3b	0%				ML	
-171.0	171.0							
-172.0	172.0							
-173.0	173.0	S-7	4-4-10-33 N1(14) N2(43) 100%					
-174.0	174.0							
-175.0	175.0							
-176.0	176.0							
-177.0	177.0							
-178.0	178.0							
-179.0	179.0							

DATE STARTED: 8/20/13
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N. 396976.23 ft E. 875797.30 ft
GROUND SURFACE ELEVATION: 0.22 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-180.0						161.0-215.0 ft SILT WITH SAND, 80% fines, medium plasticity, low toughness; 20% sand, fine, subrounded; grayish olive (10Y 4/2), moist, weak HCl reaction, medium stiff to stiff consistency, weak cementation, little shells, Placticity and silt content increases with depth. [Lower Tamiami Formation]		
-181.0	181.0	S-8	4-8-13-32 N1(21) N2(45) 100%					
-182.0	182.0							
-183.0	183.0							
-184.0	184.0							
-185.0	185.0							
-186.0	186.0	ST-3	40%					
-187.0	187.0							
-188.0	188.0							
-189.0	189.0	ST-4	100%					
-190.0	190.0						ML	
-191.0	191.0	S-9	2-5-10-34 N1(15) N2(44) 100%					
-192.0	192.0							
-193.0	193.0							
-194.0	194.0							
-195.0	195.0							
-196.0	196.0							
-197.0	197.0							
-198.0	198.0							
-199.0	199.0	S-10	3-6-14-37 N1(20) N2(51)					

DATE STARTED: 8/20/13
DATE FINISHED: 9/6/13
FIELD GEOLOGIST: Jason Lee
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ, SPT, ST, NWD4
DRILLING CO. Huss Drilling

NOTES:

APPROVED BY: EOT

DRILLER: Eddie Palmer

DRILL RIG: DR-16

HAMMER ID:

Paul C. Rizzo Associates, Inc.
ENGINEERS/CONSULTANTS/CM

Paul C. Rizzo Associates, Inc
500 Penn Center Blvd. Suite 100, Pittsburgh, PA 15235
www.rizzoassoc.com

Boring R-7-1

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 396976.23 ft E. 875797.30 ft
GROUND SURFACE ELEVATION: 0.22 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-200.0		S-10	100%			161.0-215.0 ft SILT WITH SAND, 80% fines, medium plasticity, low toughness; 20% sand, fine, subrounded; grayish olive (10Y 4/2), moist, weak HCl reaction, medium stiff to stiff consistency, weak cementation, little shells, Placticity and silt content increases with depth. [Lower Tamiami Formation]		
-201.0	201.0							
-202.0	202.0							
-203.0	203.0							ST-5a: 203.0 - 205.7ft, Shelby tube was damaged during sampling. Tube had to be retrieved with a screw wedge. No recovery in tube, boring was cleaned prior to attempting another sample.
-204.0	204.0	ST-5a	0%					
-205.0	205.0							
-206.0	206.0							
-207.0	207.0	ST-5	100%				ML	
-208.0	208.0							
-209.0	209.0	S-11	5-6-14-49 N1(20) N2(63) 100%					
-210.0	210.0							
-211.0	211.0							
-212.0	212.0							
-213.0	213.0							
-214.0	214.0							
-215.0	215.0					215.0-223.7 ft SILTY SAND, 80% sand, fine to medium, subrounded, flat and elongated; 20% fines, low plasticity, medium toughness; light olive gray (5Y 5/2), moist, weak HCl reaction, dense consistency, moderate cementation, [Peace River Formation]		
-216.0	216.0							
-217.0	217.0							
-218.0	218.0	S-12	11-16-25-48 N1(41) N2(73) 100%				SM	
-219.0	219.0							

DATE STARTED: 8/20/13
DATE FINISHED: 9/6/13
FIELD GEOLOGIST: Jason Lee
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ, SPT, ST, NWD4
DRILLING CO. Huss Drilling

APPROVED BY: EOT

DRILLER: Eddie Palmer

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Boring R-7-1

PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 396976.23 ft E. 875797.30 ft
GROUND SURFACE ELEVATION: 0.22 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-220.0						215.0-223.7 ft SILTY SAND, 80% sand, fine to medium, subrounded, flat and elongated; 20% fines, low plasticity, medium toughness; light olive gray (5Y 5/2), moist, weak HCl reaction, dense consistency, moderate cementation, [Peace River Formation]		
-221.0	221.0							
-222.0	222.0	ST-6	93%				SM	
-223.0	223.0							
-224.0	224.0					223.7-246.5 ft Sandy silt, 60% fines, low plasticity, no dilatancy, low toughness; 40% sand, fine to medium, subrounded; maximum grain size = 0.1 in., dusky yellow green (5GY 5/2), weak HCl reaction, dense consistency, weak cementation, trace gravel, [Peace River Formation]		
-225.0	225.0	S-13	28-28-27-50 N1(55) N2(77) 100%					
-226.0	226.0							
-227.0	227.0							
-228.0	228.0							
-229.0	229.0							
-230.0	230.0							
-231.0	231.0							
-232.0	232.0						ml	
-233.0	233.0	ST-7	67%				SM	
-234.0	234.0							
-235.0	235.0	S-14	10-13-21-48 N1(34) N2(69) 100%					
-236.0	236.0							
-237.0	237.0							
-238.0	238.0							
-239.0	239.0							

DATE STARTED: 8/20/13
DATE FINISHED: 9/6/13
FIELD GEOLOGIST: Jason Lee
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ, SPT, ST, NWD4
DRILLING CO. Huss Drilling

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PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 396976.23 ft E. 875797.30 ft
GROUND SURFACE ELEVATION: 0.22 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-240.0						223.7-246.5 ft Sandy silt, 60% fines, low plasticity, no dilatancy, low toughness; 40% sand, fine to medium, subrounded; maximum grain size = 0.1 in., dusky yellow green (5GY 5/2), weak HCl reaction, dense consistency, weak cementation, trace gravel, [Peace River Formation]		
-241.0	241.0							
-242.0	242.0							
-243.0	243.0	ST-8a	53%				ml	ST-8a, 243 - 245ft, Shelby tube was damaged during sampling. Sample is not able to be preserved. Soil will be collected from inside tube and used for index properties testing if required.
-244.0	244.0							
-245.0	245.0	ST-8	80%				SM	
-246.0	246.0							
-247.0	247.0	S-15	18-18-27-50/5 N1(45) N2(50/5) 105%			246.5-267.25 ft SILTY SAND, 70% sand, fine to medium, subrounded; 30% fines, low plasticity, no dilatancy, low toughness; maximum grain size = 0.1 in., dusky yellow green (5GY 5/2), weak HCl reaction, dense consistency, weak cementation, trace gravel, [Peace River Formation]		
-248.0	248.0							
-249.0	249.0							
-250.0	250.0							
-251.0	251.0							
-252.0	252.0							
-253.0	253.0						SM	
-254.0	254.0							
-255.0	255.0							
-256.0	256.0	ST-9	88%				SM	
-257.0	257.0							
-258.0	258.0	S-16	11-14-20-48 N1(34) N2(68) 100%					
-259.0	259.0							

DATE STARTED: 8/20/13
DATE FINISHED: 9/6/13
FIELD GEOLOGIST: Jason Lee
CHECKED BY: Rolando Benitez

DRILLING METHOD: Mud Rotary, PQ, SPT, ST, NWD4
DRILLING CO. Huss Drilling

APPROVED BY: EOT

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PROJECT: Turkey Point Units 6 and 7 Site
PROJECT NO.: 13-5054

COORDINATES
N. 396976.23 ft E. 875797.30 ft
GROUND SURFACE ELEVATION: 0.22 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-260.0						246.5-267.25 ft SILTY SAND, 70% sand, fine to medium, subrounded; 30% fines, low plasticity, no dilatancy, low toughness; maximum grain size = 0.1 in., dusky yellow green (5GY 5/2), weak HCl reaction, dense consistency, weak cementation, trace gravel, [Peace River Formation]	SM	
-261.0	261.0							
-262.0	262.0							
-263.0	263.0							
-264.0	264.0							
-265.0	265.0							
-266.0	266.0							
-267.0	267.0	ST-10	89%			267.25-289.0 ft SANDY SILT, 60% fines, low plasticity, medium toughness; 40% sand, fine to medium, subrounded; dusky yellow green (5GY 5/2), dry, weak HCl reaction, medium dense consistency, weak cementation, [Peace River Formation] interbedded with sandy lean clay, 70% fines, medium plasticity; 30% sand, fine; pale olive (10Y 6/2), moist, weak HCl reaction, medium stiff consistency, weak cementation, [Peace River Formation]	SM	
-268.0	268.0							
-269.0	269.0	S-17	9-16-28-50 N1(44) N2(78) 100%					
-270.0	270.0							
-271.0	271.0							
-272.0	272.0							
-273.0	273.0						ML	
-274.0	274.0							
-275.0	275.0							
-276.0	276.0							
-277.0	277.0							
-278.0	278.0	ST-11	100%					
-279.0	279.0							
		S-18						

DATE STARTED: 8/20/13
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COORDINATES
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GROUND SURFACE ELEVATION: 0.22 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-280.0								
	281.0	S-18	10-23-35-50/4 N1(58) N2(50/4) 100%			267.25-289.0 ft SANDY SILT, 60% fines, low plasticity, medium toughness; 40% sand, fine to medium, subrounded; dusky yellow green (5GY 5/2), dry, weak HCl reaction, medium dense consistency, weak cementation, [Peace River Formation] interbedded with sandy lean clay, 70% fines, medium plasticity; 30% sand, fine; pale olive (10Y 6/2), moist, weak HCl reaction, medium stiff consistency, weak cementation, [Peace River Formation]		
-281.0								
	282.0							
-282.0								
	283.0							
-283.0								
	284.0							
-284.0							ML	
	285.0							
-285.0								
	286.0							
-286.0								
	287.0							
-287.0								
	288.0							
-288.0								
	289.0	ST-12	86%			289.0-310.1 ft SILTY SAND, 60% sand, fine to medium, subrounded; 40% fines, low plasticity, medium toughness; dusky yellow green (5GY 5/2), dry, weak HCl reaction, medium dense consistency, weak cementation, [Peace River Formation] interbedded with sandy lean clay, 70% fines, medium plasticity; 30% sand, fine; pale olive (10Y 6/2), moist, weak HCl reaction, medium stiff consistency, weak cementation, [Peace River Formation]	SM	
-289.0								
	290.0							
-290.0								
	291.0	S-19	14-29-48-50/3 N1(77) N2(50/3) 100%					
-291.0								
	292.0							
-292.0								
	293.0							
-293.0								
	294.0							
-294.0							SM	
	295.0							
-295.0								
	296.0							
-296.0								
	297.0							
-297.0								
	298.0							
-298.0								
	299.0	ST-13	100%					
-299.0								

DATE STARTED: 8/20/13
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COORDINATES
N. 396976.23 ft E. 875797.30 ft
GROUND SURFACE ELEVATION: 0.22 ft

ELEVATION (Feet)	DEPTH (Feet)	SAMPLE OR RUN NO.	BLOW/6in & (N) OR %REC (%RQD)	FRACTURE DENSITY	PROFILE	DESCRIPTION	USCS SYMBOL	REMARKS
-300.0		ST-13				289.0-310.1 ft SILTY SAND, 60% sand, fine to medium, subrounded; 40% fines, low plasticity, medium toughness; dusky yellow green (5GY 5/2), dry, weak HCl reaction, medium dense consistency, weak cementation, [Peace River Formation] interbedded with sandy lean clay, 70% fines, medium plasticity; 30% sand, fine; pale olive (10Y 6/2), moist, weak HCl reaction, medium stiff consistency, weak cementation, [Peace River Formation]	SM	
-301.0	301.0	S-20	24-38-50/5 N1(50/5) 100%					
-302.0	302.0							
-303.0	303.0							
-304.0	304.0							
-305.0	305.0							
-306.0	306.0							
-307.0	307.0							
-308.0	308.0							
-309.0	309.0							
-310.0	310.0	ST-14	95%			310.1-320.95 ft SILTY SAND, 70% sand, fine to medium, subrounded; 30% fines, low plasticity, medium toughness; dusky yellow green (5GY 5/2), dry, weak HCl reaction, medium dense consistency, weak cementation, [Peace River Formation] interbedded with sandy lean clay, 70% fines, medium plasticity; 30% sand, fine; pale olive (10Y 6/2), moist, weak HCl reaction, medium stiff consistency, weak cementation, [Peace River Formation]	SM	
-311.0	311.0							
-312.0	312.0	S-21	23-41-50/4 N1(50/4) 96%					
-313.0	313.0							
-314.0	314.0							
-315.0	315.0							
-316.0	316.0							
-317.0	317.0							
-318.0	318.0							ST-15, less than 20in. recovery.
-319.0	319.0	ST-15	71%					
		ST-16						

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