

Appendix J
As-Built Survey, As-Built
Drawings, Certification of
Class V Well Completion,
and Certification of Surface
Equipment Completion

THE COORDINATES SHOWN HEREON WERE BASED ON GPS REAL-TIME TIES TO "H 111" CONTROL STATION.

DESIGNATION - H 111
PID - AC4311
STATE/COUNTY - FL/MIAMI-DADE
USGS QUAD - HOMESTEAD (1984)
NAD 83/99 GEOGRAPHIC COORDINATE - N 25°26'52.39299" W 080°24'43.15420"
NAD 83/90 STATE PLANE COORDINATE - FLORIDA EAST ZONE
NORTHING: 405,457.43 (FT)
EASTING: 850,195.56 (FT)



LEGEND:

M.W. = MONITOR WELL

ELEV. = ELEVATION

FT. = FEET

MT. = METERS

✦ = EXPLORATORY WELL

□ = DUAL ZONE MONITORING WELL

● = FOUND 5/8" IRON ROD & CAP, LB 7071

SURVEY PLAT

PARCEL LYING IN
SECTION 4, TOWNSHIP 58 SOUTH, RANGE 40 EAST
MIAMI-DADE COUNTY, FLORIDA

NOTES:

THIS PLAT PREPARED AS A SPECIFIC PURPOSE SURVEY FOR THE PURPOSE OF LOCATING THE RECENTLY STAKED WELLS.

BEARINGS AND COORDINATES SHOWN HEREON ARE STATE PLANE FOR THE FLORIDA EAST ZONE NAD 83/1990 ADJUSTMENT AND BASED ON GPS REAL-TIME TIES TO CONTROL STATION "H 111".

ELEVATIONS SHOWN HEREON ARE BASED ON "LM 13 316 FLPCO" HAVING ELEVATION OF 5.58' IN THE NORTH AMERICAN VERTICAL DATUM 1988 (N.A.V.D. 88).

UNDERGROUND IMPROVEMENTS, UTILITIES AND/OR FOUNDATIONS WERE NOT LOCATED UNLESS OTHERWISE SHOWN OR NOTED.

DATE OF LAST FIELD WORK: 7-06-2012.

PREPARED FOR:

LAYNE CHRISTENSEN COMPANY

BY:

DENIS J. O'CONNELL, JR.
PROFESSIONAL SURVEYOR AND MAPPER
FLORIDA CERTIFICATE NO. LS# 5430

DATE SIGNED: 7/11/12

NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.

THIS SPECIFIC PURPOSE SURVEY IS ONLY FOR THE LANDS AS DESCRIBED. IT IS NOT A CERTIFICATE OF TITLE, ZONING, EASEMENTS OR FREEDOM OF ENCUMBRANCES.

THIS SURVEY WAS PREPARED WITHOUT BENEFIT OF AN ABSTRACT OF TITLE AND ALL MATTERS OF TITLE SHOULD BE REFERRED TO AN ATTORNEY AT LAW.

FPL PLANT "TURKEY POINT"

TITLE: SPECIFIC PURPOSE SURVEY



METRON
SURVEYING & MAPPING, LLC

LAND SURVEYORS-PLANNERS
LB# 7071

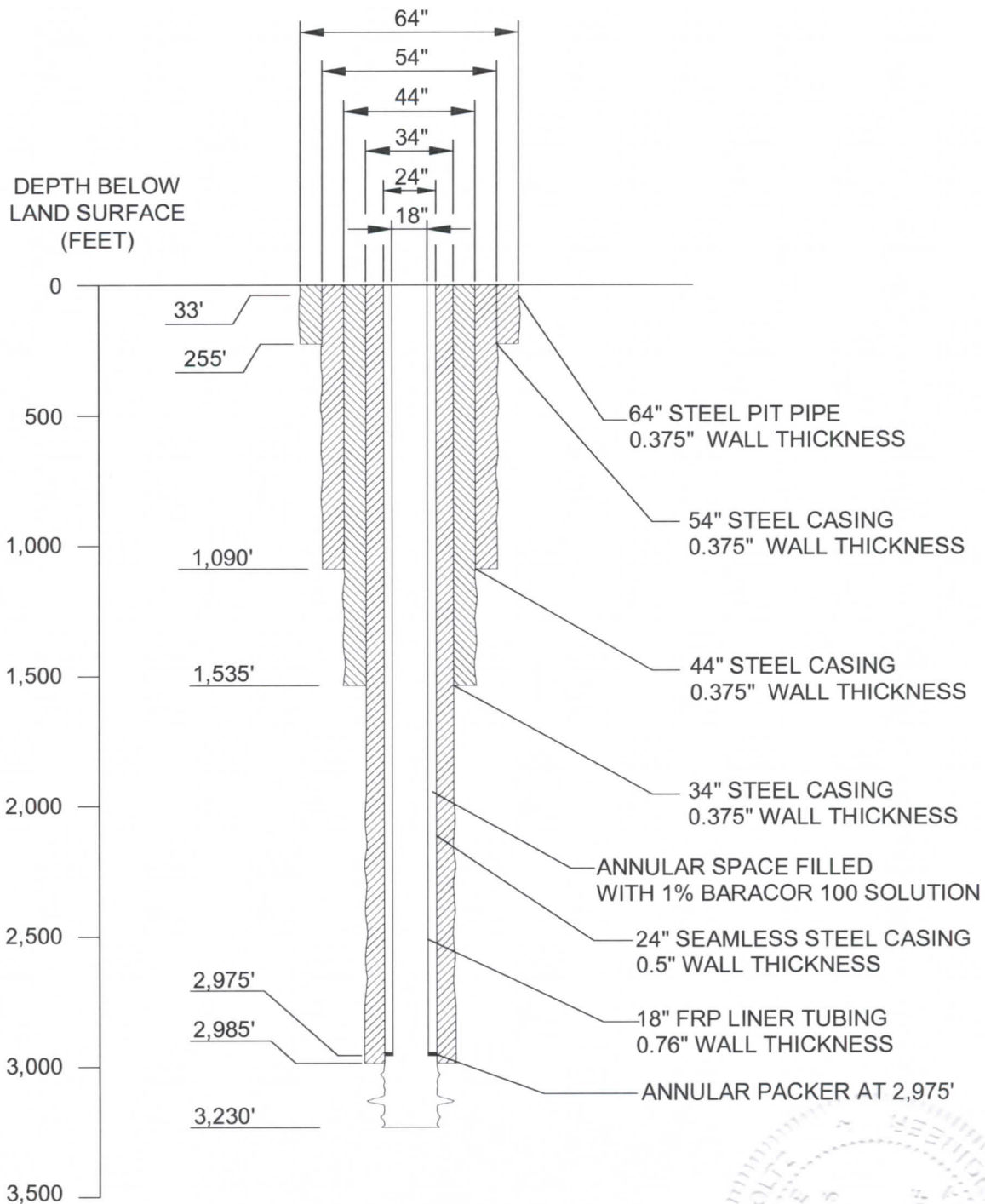
10970 SOUTH CLEVELAND AVENUE
SUITE #605
FORT MYERS, FLORIDA 33907
PHONE: (239) 275-8575
FAX: (239) 275-8457

www.metronfl.com

FILE NAME: 11985SR.DWG	FIELD BOOK/PAGE: 506/32	PROJECT NO.: 11985	SHEET: 1 OF 1
SURVEY DATE: 03-25-2011	DRAWN BY: DJO	SCALE: 1" = 50'	CHECKED BY: TLM
		(S-T-R) 4-58-40	

REVISED: 7-06-2012 ASBUILT WELLS - DJO

FPL-005B-246



NOTE: THIS AS-BUILT DRAWING DEPICTS
WELL CONSTRUCTION INFORMATION
PROVIDED BY THE CONTRACTOR. TO THE
BEST OF MY KNOWLEDGE THE
INFORMATION DEPICTED IS ACCURATE.

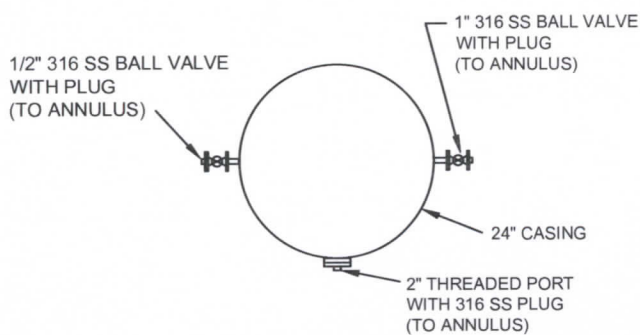
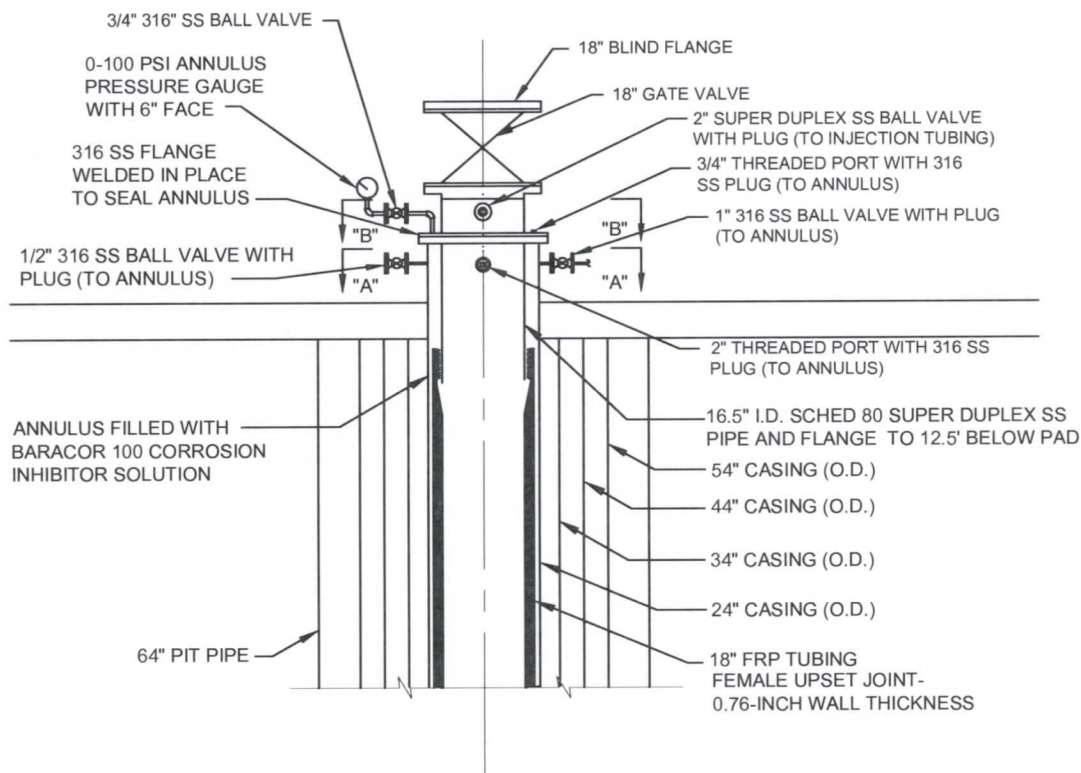
David Hult
8-1672 PE # 12595

MHC McNabb Hydrogeologic Consulting, Inc.
601 HERITAGE DRIVE, SUITE 110
Jupiter, Florida 33458
Phone 561.891.0753 - Fax 561.523.5469

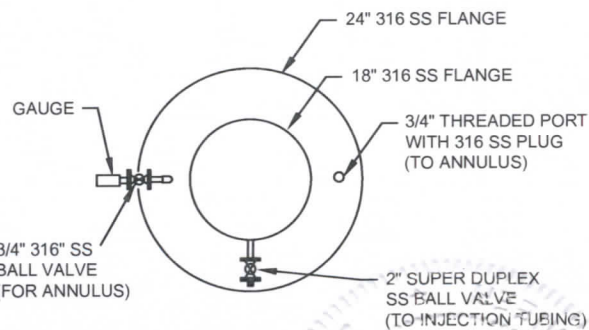
FLORIDA POWER & LIGHT COMPANY
TURKEY POINT UNITS 6 & 7
EXPLORATORY WELL EW-1
PROJECT

EXPLORATORY WELL EW-1
AS-BUILT DIAGRAM

HOLTZ CONSULTING ENGINEERS, INC.
50 SOUTH US HIGHWAY ONE, SUITE 206
JUPITER, FLORIDA 33477
PH: (561) 575-2005



SECTION "A"



SECTION "B"

NOTE: THIS AS-BUILT DRAWING DEPICTS WELL CONSTRUCTION INFORMATION PROVIDED BY THE CONTRACTOR. TO THE BEST OF MY KNOWLEDGE THE INFORMATION DEPICTED IS ACCURATE.

David Hult
8-16-12 PE #42595

MHC McNabb Hydrogeologic Consulting, Inc.
601 HERITAGE DRIVE, SUITE 110
Jupiter, Florida 33458
Phone 561.891.0753 - Fax 561.623.5489

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT UNITS 6 & 7
EXPLORATORY WELL EW-1
PROJECT

EXPLORATORY WELL EW-1
AS-BUILT WELLHEAD DIAGRAM

HOLTZ CONSULTING ENGINEERS, INC.
80 SOUTH FLA HIGHWAY ONE, SUITE 208
JUPITER, FLORIDA 33477
PH. (561) 575-2005



Florida Department of Environmental Protection

Twin Towers Office Bldg., 2600 Blair Stone Road,
Tallahassee, Florida 32399-2400

DEP Form No: 62-528.900(4)
Form Title: Certification of Class V
Well construction Completion
Effective Date:
DEP Application No.: (Filled in by DEP)

CERTIFICATION OF CLASS V WELL CONSTRUCTION COMPLETION

INSTRUCTIONS: Submit this certification to the Department along with a signed copy of the Well Completion Report from the appropriate Water Management District.

DEP Construction Permit No. 0293962-001-UC, issued on 05/05/10 . County Miami-Dade
(Date)

Owner's Name Florida Power & Light Company

Owner's Address 700 Universe Blvd.

City Juno Beach State Florida Zip 33408-0000

Well Contractor's Name Ed McCullers

Title General Manager - Layne Christensen Company State License No. 11312

Well Contractor's Address 5061 Lockett Road

City Ft. Myers State Florida Zip 33905

Well Location 9760 SW 344th Street, Florida City, Florida 33035

Deviations from the application and plans approved by the Department:

EW-1 was drilling to a final depth of 3,230 feet rather than approximately 3,500 feet.

Borehole televiewer was not performed and pilot hole below intermediate casing was not

backplugged due to large borehole diameter. Additional borehole reaming also took place.

Actual Dimensions:

Diameter 24 inches

Well depth 3,230 feet

Casing depth 2,985 feet

This is to certify that, with the exception of the deviations noted above, the construction of this well has been completed in accordance with the plans authorized by Construction Permit No. 0293962-001-UC , dated 7/31/12

Date: 8-21-2012

Ed McCullers
(Contractor's Signature)

HOLTZ CONSULTING ENGINEERS, INC.
50 South U.S. Highway One, Suite 206, Jupiter, FL 33477

August 16, 2012

Mr. Joe May, P.G.
Florida Department of Environmental Protection
400 N. Congress Ave., Suite 200
West Palm Beach, FL 33401

Subject: **FPL Turkey Point Exploratory Well EW-1
Certification of Completion of Exploratory Well EW-1
Wellhead and Surface Equipment
FDEP Permit No. 0293962-001-UC**

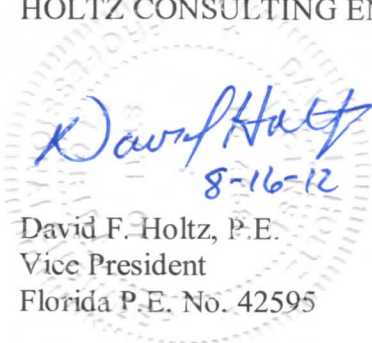
Dear Mr. May,

The purpose of this letter is to certify that the construction of the surface equipment for Florida Power and Light (FPL) Turkey Point Exploratory Well EW-1 has been completed and was constructed in accordance with applicable rules and regulations and the requirements of FDEP Permit No. 0293962-001-UC.

If you have any questions regarding the surface equipment for FPL Turkey Point Exploratory Well EW-1, please contact me.

Sincerely,

HOLTZ CONSULTING ENGINEERS, INC.



David F. Holtz, P.E.
Vice President
Florida P.E. No. 42595

Cc: David McNabb, P.G., McNabb Hydrogeological Consulting, Inc.

Appendix K
EW-1 Lithologic Log



Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Lithologic Description



Date	Depth (ft. bpl)		Observer's Description
	From	To	
4/14/2011	0	5	Limestone and Sand (fill material): yellowish gray (5Y 8/1), calcareous, silty, trace shell fragments. Note: Samples collected during pit casing installation via auger drilling.
4/14/2011	5	10	Limestone, Sand, and Muck: Limestone and Sand (fill material), 50%, yellowish gray (5Y 8/1), calcareous, silty, trace shell fragments; Muck, brownish black (5YR 2/1) to brownish gray (5YR 4/1). Note: Samples collected during pit casing installation via auger drilling. The top of the muck was encountered at approximately 7.5 feet below land surface.
4/14/2011	10	15	Limestone: 100%, yellowish gray (5Y 8/1), calcareous, trace very fine angular quartz sand. Note: Samples collected during pit casing installation via auger drilling. Limestone encountered at 12 feet below land surface.
4/14/2011	15	20	Limestone: 100%, yellowish gray (5Y 8/1), calcareous, trace very fine angular quartz sand. Note: Samples collected during pit casing installation via auger drilling.
4/14/2011	20	25	Limestone: 100%, yellowish gray (5Y 8/1), calcareous, trace very fine angular quartz, sand and shell. Note: Samples collected during pit casing installation via auger drilling.
4/14/2011	25	30	Limestone: 100%, yellowish gray (5Y 8/1), calcareous, trace very fine angular quartz, sand and shell. Note: Samples collected during pit casing installation via auger drilling.
5/12/2011	30	40	Limestone: 100%, yellowish gray (5Y 8/1), calcareous, fine grained, sand and shell.
5/12/2011	40	50	Limestone: 100%, poorly indurated yellowish gray (5Y 8/1), white (N9), and very light gray (N8) to light gray (N7), fine grained, sub-rounded quartz sand and abundant shell fragments. Soft, wet.
5/12/2011	50	60	Sandy Limestone: 100%, poorly indurated white (N9) coarse to fine shell fragments, fine quartz sand, some cemented fragments, some fine dark gray grains (N3), trace brownish gray coarse grains (5YR 4/1), sl. clayey, soft, wet.
5/12/2011	60	70	Sandy Limestone: 100%, moderately indurated, light gray (N8) to yellowish gray (5Y 8/1), with medium to coarse white (N9) shell fragments, fine quartz sand, some fine dark gray (N3) to black (N2) grains, few fossil molds, trace coral fragments.
5/12/2011	70	80	Sandy Limestone: 100%, light gray (N8) to yellowish gray (5Y 8/1), with medium to coarse white (N9) shell fragments, fine subrounded quartz sand, some fine dark gray (N3) to black (N2) grains, moderately hard.
5/12/2011	80	90	Sandy Limestone: Same as above.
5/13/2011	90	100	Sandy Limestone: 100%, white (N9) to yellowish gray (5Y 8/1), with medium to coarse white (N9) shell fragments, fine subrounded quartz sand, some fine dark gray (N3) to black (N2) grains, moderately hard to hard.
5/13/2011	100	110	Limestone: 100%, very light gray (N8) to light gray (N8), coarse to fine white (N9) shell, shell fragments, some rounded; some fine quartz sand, some to few fine dark gray (N3) to black (N2) grains, moderately indurated.
5/13/2011	110	120	Limestone: 100%, light gray (N8), coarse to fine white (N9) shell, shell fragments, some rounded; fine quartz sand, some to few fine dark gray (N3) to black (N2) grains, moderately indurated.
5/13/2011	120	130	Limestone, to 122 ft bpl, clay noted in cuttings at 122 ft bpl consisting of light olive gray (5Y 6/1), soft, sandy; 122-130 mix of white (N9), yellowish gray (5Y 8/1) and light olive gray (5Y 6/1) limestone with coarse to fine shells and shell fragments, some quartz sand, trace light olive gray (5Y 6/1) clay, (small cuttings).
5/13/2011	130	140	Limestone: 100%, light gray (N8) to yellowish gray (5Y 8/1), coarse to fine white (N9) shell, shell fragments, some rounded; fine quartz sand, some fine dark gray (N3) to black (N2) grains, moderately indurated.



Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Lithologic Description



Date	Depth (ft. bpl)		Observer's Description
	From	To	
5/13/2011	140	150	Limestone to 145 ft; Clayey Silt: at 145 ft bpl, dark greenish gray (5GY 4/1) sandy, slightly clayey Silt, some calcareous grains and shell fragments, moderately hard, stiff.
5/14/2011	150	160	Clayey Silt: as above, (note: cuttings "mashed up" with drill mud obscuring natural texture).
5/14/2011	160	170	Clayey Silt: dark greenish gray (5GY 8/1), silty, sandy, slightly clayey, more calcareous grains and coarse to fine shell fragments than above, fine dark gray (N3) to black (N2) grains (phosphate). (note: cuttings "mashed up" with drill mud obscuring natural texture)
5/14/2011	170	180	Clayey Silt: as above, (note: cuttings "mashed up" with drill mud obscuring natural texture).
5/14/2011	180	190	Silt: dark greenish gray (5GY 8/1), sandy, clayey with fine calcareous grains and coarse to fine shell fragments, fine dark gray (N3) to black (N2) grains (phosphate). (note: cuttings "mashed up" with drill mud obscuring natural texture).
5/14/2011	190	200	Silt: same as above.
5/14/2011	200	210	Silt: same as above.
5/14/2011	210	220	Silt: same as above.
5/14/2011	220	230	Silt: same as above.
5/14/2011	230	240	Sand: light olive gray (5Y 5/2) fine grained, phosphatic, trace shell fragments.
5/14/2011	240	250	Sand: Same as above.
5/25/2011	250	260	Sand: light olive gray (5Y 5/2) fine grained, slightly clayey, phosphatic, trace shell fragments.
5/28/2011	260	270	Clayey sand: greenish gray (5GY 6/1) to dark greenish gray (5GY 4/1), fine grained, phosphatic, trace shell fragments.
5/28/2011	270	280	Clayey sand: greenish gray (5GY 6/1) to dark greenish gray (5GY 4/1), fine grained, slightly more clayey than above, phosphatic, trace shell fragments.
5/28/2011	280	290	Clayey sand: Same as above.
5/28/2011	290	300	Sand: medium gray (N5) to greenish gray (5GY 6/1), slightly clayey, fine grained, phosphatic, some shell fragments, rounded fine calcareous grains.
5/29/2011	300	310	Sand: same as above.
5/29/2011	310	320	Sand: same as above.
5/29/2011	320	330	Sand: medium light gray (N6), fine grained, shell fragments, some phosphate.
5/29/2011	330	340	Sand: same as above.
5/29/2011	340	350	Sand: medium gray (N5) to medium light gray (N6), slightly clayey, fine grained, shell fragments, some phosphate. Driller notes stiffer material at 345 feet.
5/29/2011	350	360	Sand: light olive gray (5Y 5/2), very fine grained, subrounded, well sorted, slightly phosphatic.
5/29/2011	360	370	Clayey Sand: grayish olive (10Y 4/2), very fine grained, slightly phosphatic, trace shell fragments <1mm.
5/29/2011	370	380	Clayey Sand: grayish olive green (5GY 3/2), very fine grained, slightly phosphatic, slightly plastic.
5/29/2011	380	390	Silty Clay: grayish olive green (5GY 3/2), soft, moderately plastic, trace phosphate grains.
5/29/2011	390	400	Silty Clay: same as above.
5/29/2011	400	410	Silty Clay: same as above.
5/29/2011	410	420	Clayey Sand: grayish olive (10Y 4/2), very fine grained, slightly phosphatic, trace phosphate grains.
5/29/2011	420	430	Clayey sand: Same as above.
5/29/2011	430	440	Sand: medium light gray (N6), fine grained, trace shell fragments, phosphatic.



Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Lithologic Description



Date	Depth (ft. bpl)		Observer's Description
	From	To	
5/29/2011	440	450	Sand: same as above.
5/29/2011	450	460	Sand: same as above.
5/29/2011	460	470	Clayey Sand: dark greenish gray (5GY 4/1), very fine grained, trace shell fragments, phosphatic.
5/29/2011	470	480	Sand: medium light gray (N6), fine grained, trace shell fragments, phosphatic.
5/29/2011	480	490	Limestone: very light gray (N8), sandy, shell fragments and fine grained calcareous nodules, phosphate grains
5/29/2011	490	500	Clayey sand: medium gray (N5), fine grained, some lithified sand fragments, some phosphate.
5/30/2011	500	510	Calcareous clay: medium light gray (N5), soft, sandy, trace shells and shell fragments, trace phosphate
5/30/2011	510	520	Limestone: yellowish gray (5Y 7/2), sandy, shell fragments, some phosphate, moderately indurated, low porosity.
5/30/2011	520	530	Limestone: same as above.
5/30/2011	530	540	Limestone: same as above.
5/30/2011	540	550	Limestone: same as above.
5/30/2011	550	560	Limestone: same as above.
5/30/2011	560	570	Limestone: same as above.
5/30/2011	570	580	Limestone, Sand, and Clay: Limestone, 40%, yellowish gray (5Y 7/2), sandy, shell fragments, slightly phosphatic, moderately indurated, low porosity; Sand, 40%, light olive gray (5Y 5/2), very fine grained, loosely consolidated, calcareous; Clay, 20%, grayish olive (10YR 4/2), very soft, moderately plastic, phosphatic.
5/30/2011	580	590	Limestone and Clay: Limestone, 60%, yellowish gray (5Y 7/2), micritic, calcareous, very low porosity and permeability; Clay, 40%, yellowish gray (5Y 7/2), calcareous; trace shell fragments.
5/30/2011	590	600	Limestone and Clay: same as above.
5/30/2011	600	610	Limestone: yellowish gray (5Y 7/2), micritic, calcareous, few shell fragments, very low porosity and permeability; trace clay.
5/30/2011	610	620	Limestone: same as above.
5/30/2011	620	630	Clay and Limestone: Clay, 70%, grayish olive (10YR 4/2) and yellowish gray (5Y 7/2), very soft, moderate plasticity; Limestone, 30%, yellowish gray (5Y 7/2), micritic, calcareous, few shell fragments, slightly phosphatic, moderately indurated, low porosity.
5/30/2011	630	640	Limestone and Shell Fragments: Limestone, 60%, yellowish gray (5Y 7/2), very fine grained to silt, calcareous, very low porosity; Shell Fragments, 40%, 3-22mm.
5/30/2011	640	650	Clay and Limestone: Clay, 80%, yellowish gray (5Y 7/2), very soft, moderate plasticity; Limestone, 20%, yellowish gray (5Y 7/2), micritic, shell fragments, slightly phosphatic, moderately indurated, very low porosity.
5/30/2011	650	660	Clay and Limestone: Clay, 60%, yellowish gray (5Y 7/2), very soft, moderate plasticity; Limestone, 20%, yellowish gray (5Y 7/2), micritic, shell fragments, slightly phosphatic, moderately indurated.
5/30/2011	660	670	Clay and Limestone: Same as above.
5/30/2011	670	680	Limestone: yellowish gray (5Y 7/2), fine grained, some shell fragments, phosphatic, moderately indurated.
5/30/2011	680	690	Limestone and Clay: Limestone 80%, same as above; Clay, 20%, yellowish gray (5Y 7/2), calcareous; trace shell fragments.
5/30/2011	690	700	Limestone: yellowish gray (5Y 7/2), fine grained, some shell fragment, phosphatic, moderately indurated.
5/30/2011	700	710	Limestone: same as above.



Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Lithologic Description



Date	Depth (ft. bpl)		Observer's Description
	From	To	
5/30/2011	710	720	Limestone: same as above.
5/31/2011	720	730	Clay and Limestone: Clay, 70%, yellowish gray (5Y 7/2), soft, calcareous, moderate plasticity; Limestone: 30%, yellowish gray (5Y 7/2), fine grained; trace phosphate grains.
5/31/2011	730	740	Clay and Limestone: same as above.
5/31/2011	740	750	Clay and Limestone: same as above.
5/31/2011	750	760	Clay and Limestone: same as above.
5/31/2011	760	770	Clay and Limestone: same as above, with trace fine moderate reddish brown (10R 4/6) grains.
5/31/2011	770	780	Clay: pale olive (10Y 6/2), moderately soft, plastic, slightly phosphatic; Trace limestone.
5/31/2011	780	790	Clay: same as above.
5/31/2011	790	800	Clay: same as above.
5/31/2011	800	810	Clay and Limestone: Clay, 50%, pale olive (10Y 6/2), soft, calcareous, medium plasticity; Limestone: 40%, yellowish gray (5Y 8/1), micritic, trace phosphate grains.
5/31/2011	810	820	Clay and Limestone: same as above.
5/31/2011	820	830	Limestone: yellowish gray (5Y 8/1), micritic, phosphatic, moderately indurated; Trace shell fragment.
5/31/2011	830	840	Limestone and Shell Fragments: Limestone, 80%, yellowish gray (5Y 8/1) and very light gray (N8), fine grained, vuggy, moderate vuggy porosity; Shell Fragments, 20%, white (N9) and yellowish gray (5Y 8/1), <5mm.
5/31/2011	840	850	Limestone and Shell Fragments: same as above.
5/31/2011	850	860	Shell Fragments and Limestone: Shell Fragments, 70%, white (N9) and yellowish gray (5Y 8/1), between 3mm to 10mm in size; Limestone, 30%, yellowish gray (5Y 8/1) and very light gray (N8), fine grained, vuggy, moderate vuggy porosity.
5/31/2011	860	870	Limestone and Clay: Limestone: 70%, yellowish gray (5Y 8/1), fine to medium grained, slightly phosphatic; Clay, 30%, yellowish gray (5Y 8/1), soft, calcareous, low plasticity.
5/31/2011	870	880	Limestone: very light gray (N8) to yellowish gray (5Y 8/1), fine grained, trace fine quart sand, some shell fragments, trace phosphate.
5/31/2011	880	890	Limestone and Clay: Limestone: 70%, yellowish gray (5Y 7/2), fine to medium grained, slightly phosphatic; Clay, 30%, yellowish gray (5Y 7/2), soft, calcareous, moderate plasticity;
5/31/2011	890	900	Clay: yellowish gray (5Y 7/2), soft, low plasticity, poorly indurated limestone fragments (30%), trace shells and shell fragments, trace phosphate.
5/31/2011	900	910	Clay: yellowish gray (5Y 8/1), soft, low plasticity, trace poorly indurated limestone fragments, trace shells and shell fragments, trace phosphate.
6/1/2011	910	920	Clay: same as above.
6/1/2011	920	930	Clay: same as above, some large shell fragments (10 to 20 mm).
6/1/2011	930	940	Clay: yellowish gray (5Y 8/1), soft, low plasticity, some poorly indurated limestone fragments, trace shells and shell fragments, trace phosphate.
6/1/2011	940	950	Clay: same as above.
6/1/2011	950	960	Clay: yellowish gray (5Y 8/1), soft, low plasticity, phosphatic, trace shells and shell fragments.
6/1/2011	960	970	Clay: light olive gray (5Y 5/2), soft, low plasticity, phosphatic, trace shells and shell fragments.



Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Lithologic Description



Date	Depth (ft. bpl)		Observer's Description
	From	To	
6/1/2011	970	980	Clay, Limestone, and Shell: Clay, 70%, yellowish gray (5Y 8/1), moderately stiff, moderate plasticity, phosphatic; Limestone, 20%, yellowish gray (5Y 8/1), fine to medium grained, poorly indurated, phosphatic; Shell Fragments: 10%, white (N9) and very light gray (N8), 1 to 5mm in size.
6/1/2011	980	990	Clay, Limestone, and Shell: Clay, 60%, yellowish gray (5Y 8/1), moderately stiff, moderate plasticity, phosphatic; Limestone, 30%, yellowish gray (5Y 8/1), fine to medium grained, poorly indurated, phosphatic; Shell Fragments: 10%, white (N9) and very light gray (N8), 1 to 5mm in size.
6/1/2011	990	1,000	Clay: yellowish gray (5Y 8/1), stiff, plastic; Trace limestone fragments.
6/1/2011	1,000	1,010	Clay: same as above.
6/1/2011	1,010	1,020	Clay: grayish olive green (5GY 3/2), soft, moderately low plasticity.
6/1/2011	1,020	1,030	Clay: yellowish gray (5Y 8/1), moderately stiff, moderate plasticity; Trace limestone fragments.
6/1/2011	1,030	1,040	Clay and Limestone: Clay, 60%, yellowish gray (5Y 8/1), moderately soft, moderate plasticity, phosphatic; Limestone, 40%, yellowish gray (5Y 8/1), fine grained, shell intraclast, slightly phosphatic.
6/1/2011	1,040	1,050	Clay and Limestone: Clay, 50%, yellowish gray (5Y 8/1), moderately soft, moderate plasticity, phosphatic; Limestone, 50%, yellowish gray (5Y 8/1), fine grained, shell intraclast, moderately well cemented, phosphatic.
6/1/2011	1,050	1,060	Clay: light olive gray (5Y 5/2), soft, low plasticity, phosphatic.
6/1/2011	1,060	1,070	Limestone: yellowish gray (5Y 7/2), fine grained, poorly indurated, phosphatic.
6/1/2011	1,070	1,080	Limestone and Clay: Limestone 60%, predominantly pelecypod shell fragments, yellowish gray (5Y 8/1), up to 20 mm in size; Clay, 40%, yellowish gray (5Y 7/2), moderately plastic.
6/1/2011	1,080	1,090	Limestone: 90%, pelecypod shell fragments, yellowish gray (5Y 8/1), up to 20 mm in size; 10%, light olive gray (5Y 5/2), fine grained limestone fragments.
6/30/2011	1,090	1,100	Limestone and Dolomitic Limestone: Limestone, 50%, pelecypod shell fragments, pale yellowish gray (5Y 8/1); Limestone 30%, yellowish gray (5Y 7/2), arenaceous, soft; Dolomitic Limestone, 20%, pale yellowish brown (10YR 6/2), well indurated with pelecypod shell fragments.
7/1/2011	1,100	1,110	Limestone and Dolomitic Limestone: Limestone, 80%, yellowish gray (5Y 7/2), arenaceous, fine grained, soft; Dolomitic Limestone, 20%, pale yellowish brown (10YR 6/2), well indurated with minor amount of pelecypod shell fragments, trace phosphate grains.
7/1/2011	1,110	1,120	Shell Fragments and Limestone: Shell Fragments, 90% pelecypod shell fragments, yellowish gray (5Y 8/1), well indurated, partially dolomitized; Limestone, 10%, yellowish gray (5Y 7/2, arenaceous, fine grained, slightly vuggy, soft.
7/1/2011	1,120	1,130	Limestone and Shell Fragments: Limestone, 80%, yellowish gray (5Y 7/2), arenaceous, fine grained, moderate to poorly indurated; Shell Fragments, 20% pelecypod shell fragments, yellowish gray (5Y 8/1), well indurated, partially dolomitized.
7/1/2011	1,130	1,140	Limestone and Dolomitic Limestone: Limestone, 60%, yellowish gray (5Y 7/2), very fine grained, moderately well indurated, slightly vuggy, very fossiliferous, low porosity, low permeability; Dolomitic Limestone, 40%, pale yellowish brown (10YR 6/2) and moderate yellowish brown (10YR 5/4), fine crystalline, slightly brittle; Trace Shell Fragments.
7/1/2011	1,140	1,150	Dolomitic Limestone: 100%, pale yellowish brown (10YR 6/2), fine grained, well indurated, slightly brittle, vuggy, low porosity, low permeability; Trace clay.
7/1/2011	1,150	1,160	Dolomitic Limestone: same as above.



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	From	To	
7/1/2011	1,160	1,170	Dolomitic Limestone: 100%, pale yellowish brown (10YR 6/2) to moderate yellowish brown (10YR 5/4), fine grained, well indurated, slightly brittle, very fossiliferous, low porosity, low permeability; Trace clay.
7/1/2011	1,170	1,180	Limestone and Dolomite: Limestone, 70%, yellowish gray (5Y 7/2), very fine grained, well indurated, fossiliferous, vuggy; Dolomite, 30% light gray (N7), fine crystalline, well indurated, vuggy.
7/1/2011	1,180	1,190	Limestone: yellowish gray (5Y 7/2), very fine grained, well indurated, fossiliferous, vuggy; Dolomite trace.
7/1/2011	1,190	1,200	Limestone: same as above.
7/1/2011	1,200	1,210	Dolomite: 100%, pale yellowish brown (10YR 6/2), fine crystalline, well indurated vuggy.
7/1/2011	1,210	1,220	Limestone and Dolomite: Limestone, 60%, yellowish gray (5Y 7/2), very fine grained, moderately well indurated, slightly fossiliferous; Dolomite, 40%, pale yellowish brown (10YR 6/2), fine crystalline, well indurated, vuggy.
7/1/2011	1,220	1,230	Limestone: 100%, yellowish gray (5Y 7/2), very fine grained, moderately well indurated, slightly fossiliferous.
7/1/2011	1,230	1,240	Limestone and Dolomite: Limestone, 50%, yellowish gray (5Y 7/2), very fine grained, moderately well indurated, slightly fossiliferous; Dolomite, 50%, pale yellowish brown (10YR 6/2), fine crystalline, well indurated, vuggy.
7/1/2011	1,240	1,250	Limestone: 100%, yellowish gray (5Y 7/2), very fine grained, well indurated, very well sorted, low porosity, low permeability; Dolomite trace, phosphate trace.
7/1/2011	1,250	1,260	Limestone: same as above.
7/1/2011	1,260	1,270	Limestone: 100%, yellowish gray (5Y 7/2), very fine grained, well indurated, slightly fossiliferous (pelecypods, gastropods), very well sorted, low porosity, low permeability; Dolomite trace, phosphate trace.
7/1/2011	1,270	1,280	Limestone: 100%, yellowish gray (5Y 7/2), very fine grained, moderately to well indurated, fossiliferous (pelecypods, gastropods), well sorted, low porosity, low permeability; Dolomite trace.
7/1/2011	1,280	1,290	Limestone: same as above.
7/1/2011	1,290	1,300	Limestone: 100%, yellowish gray (5Y 7/2), very fine grained, moderately to poorly indurated, slightly fossiliferous (pelecypods), well sorted, low porosity, low permeability.
7/1/2011	1,300	1,310	Limestone: 100%, yellowish gray (5Y 7/2), very fine grained, moderately to well indurated, fossiliferous (pelecypods), well sorted, low porosity, low permeability; Dolomite trace.
7/1/2011	1,310	1,320	Limestone: 100%, yellowish gray (5Y 7/2), very fine grained, moderately to poorly indurated, well sorted, low porosity, low permeability.
7/1/2011	1,320	1,330	Limestone: 100%, yellowish gray (5Y 7/2), very fine grained, moderately to well indurated, fossiliferous (pelecypods), well sorted, slightly vuggy.
7/1/2011	1,330	1,340	Limestone: 100%, yellowish gray (5Y 7/2), very fine grained, moderately to poorly indurated, fossiliferous (pelecypods), well sorted, low porosity, low permeability.
7/1/2011	1,340	1,350	Limestone: 100%, yellowish gray (5Y 7/2), very fine grained, moderately indurated, fossiliferous (pelecypods, echinoids), well sorted, low porosity, low permeability.
7/1/2011	1,350	1,360	Limestone: same as above.
7/1/2011	1,360	1,370	Limestone: 100%, yellowish gray (5Y 7/2), very fine grained, moderately indurated, slightly fossiliferous (pelecypods), well sorted, low porosity, low permeability, slightly vuggy; Dolomite trace.
7/2/2011	1,370	1,380	Limestone: same as above.



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	From	To	
7/2/2011	1,380	1,390	Limestone: 100%, yellowish gray (5Y 7/2), very fine grained, well indurated, more fossiliferous (pelecypod and gastropod casts and molds, echinoids), well sorted, low porosity, low permeability, slightly vuggy.
7/2/2011	1,390	1,400	Limestone: 100%, yellowish gray (5Y 7/2) and light gray (N7), very fine grained, well indurated, highly fossiliferous (pelecypod and gastropod casts and molds, echinoid spines), well sorted, low porosity, low permeability, slightly vuggy.
7/2/2011	1,400	1,410	Limestone: 100%, yellowish gray (5Y 7/2), very fine grained, moderately to well indurated, highly fossiliferous (pelecypods, abundant whole echinoids 5-10 mm in diameter), well sorted, low porosity, low permeability.
7/2/2011	1,410	1,420	Limestone: 100%, yellowish gray (5Y 7/2), fine grained, well indurated, highly fossiliferous (pelecypods, sparse echinoids), less well sorted, low to moderate porosity, low permeability.
7/2/2011	1,420	1,430	Limestone: 100%, very pale orange (5YR 8/2), fine grained, well indurated, highly fossiliferous (Dictyoconus, Lituonella, Fabiana, Echinoid spines), well sorted, low to moderate intergranular porosity, moderate permeability.
7/2/2011	1,430	1,440	Limestone: 100%, very pale orange (5YR 8/2) to light olive gray (5Y 6/1), fine grained, poorly indurated, friable, highly fossiliferous (Dictyoconus), well sorted, moderate intergranular porosity, moderate permeability.
7/2/2011	1,440	1,450	Limestone: 100%, pale yellowish brown (10YR 6/2), fine grained, well indurated, fossiliferous (pelecypods, Dictyoconus), well sorted, low intergranular porosity, vugs, low permeability.
7/2/2011	1,450	1,460	Limestone: 100%, pale yellowish brown (10YR 6/2), fine grained, well indurated, fossiliferous (Dictyoconus, Lituonella, gastropod molds), well sorted, low intergranular porosity, vugs, low permeability.
7/2/2011	1,460	1,470	Limestone: 100%, pale yellowish brown (10YR 6/2), fine grained, well indurated, fossiliferous (Dictyoconus, Archaias), well sorted, low intergranular porosity, low permeability.
7/2/2011	1,470	1,480	Limestone: 100%, pale yellowish brown (10YR 6/2), fine grained with calcite replacement, moderately indurated, fossiliferous (Dictyoconus, shell), well sorted, moderate intergranular porosity, vugs, moderate permeability.
7/2/2011	1,480	1,490	Limestone: 100%, pale yellowish brown (10YR 6/2), fine grained, moderately indurated, fossiliferous (Dictyoconus), well sorted, moderate intergranular porosity, vugs, moderate permeability, black to dark gray trace mineral.
7/2/2011	1,490	1,500	Limestone: 100%, pale yellowish brown (10YR 6/2), very fine grained, well indurated, well sorted, low intergranular porosity, low permeability.
7/2/2011	1,500	1,510	Limestone: 100%, pale yellowish brown (10YR 6/2), very fine grained, well indurated, slightly fossiliferous (Dictyoconus, whole echinoid), well sorted, low intergranular porosity, low permeability.
7/2/2011	1,510	1,520	Limestone: 100%, pale yellowish brown (10YR 6/2), very fine grained, moderately to well indurated, slightly fossiliferous (Dictyoconus, echinoids), well sorted, low to moderate intergranular porosity, low permeability; Dolomite trace.
7/2/2011	1,520	1,530	Limestone: 100%, pale yellowish brown (10YR 6/2), very fine grained, moderately to poorly indurated, fossiliferous (Dictyoconus, abundant echinoids, sparse pelecypods), well sorted, low to moderate intergranular porosity, low permeability.
7/2/2011	1,530	1,540	Limestone: 100%, partially dolomitized, pale yellowish brown (10YR 6/2), very fine grained, well indurated, slightly fossiliferous (Dictyoconus, echinoid spines), well sorted, low intergranular porosity, low permeability.



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	From	To	
7/2/2011	1,540	1,550	Limestone: 100%, pale yellowish brown (10YR 6/2), very fine grained, moderately indurated, slightly fossiliferous (Dictyoconus and other foraminifera), moderately well sorted, moderate intergranular porosity, low permeability.
7/2/2011	1,550	1,560	Limestone: 80%, pale yellowish brown (10YR 6/2), very fine grained, moderately indurated, fossiliferous (Dictyoconus and other foraminifera abundant), well sorted, moderate to high intergranular porosity, low permeability, vuggy. Limestone: 20%, yellowish gray (5Y 8/1), very fine grained, moderately indurated, well sorted, low intergranular porosity, low permeability.
7/3/2011	1,560	1,570	Limestone: pale yellowish brown (10YR 6/2), very fine grained, well indurated, slightly fossiliferous (sparse Dictyoconus), well sorted, low intergranular porosity, low permeability.
7/3/2011	1,570	1,580	Limestone: yellowish gray (5Y 8/1), very fine grained, well indurated, well sorted, low intergranular porosity, low permeability.
7/3/2011	1,580	1,590	Limestone: 100%, pale yellowish brown (10YR 6/2), very fine grained, well indurated, highly fossiliferous (Dictyoconus, echinoids, and echinoid spines abundant), moderately well sorted, low intergranular porosity, low permeability.
7/3/2011	1,590	1,600	Limestone: 100%, pale yellowish brown (10YR 6/2), very fine grained, moderately indurated, generally devoid of large benthic foraminifera (Dictyoconus and Archaias observed), well sorted, low intergranular porosity, low permeability.
7/3/2011	1,600	1,610	Limestone: 100%, pale yellowish brown (10YR 6/2), very fine grained, moderate to low induration, fossiliferous (benthic foraminifera Dictyoconus and Valvulina observed), well sorted, low intergranular porosity, low permeability, dark gray accessory mineral.
7/3/2011	1,610	1,620	Limestone: 100%, pale yellowish brown (10YR 6/2) to pinkish gray (5YR 7/1), very fine grained, moderate to low induration, fossiliferous (benthic foraminifera Dictyoconus; echinoids), well sorted, moderate intergranular porosity, low permeability.
7/3/2011	1,620	1,630	Limestone: 100%, grayish orange (10YR 7/4), very fine grained, moderate to low induration, fossiliferous (benthic foraminifera Dictyoconus; echinoids), well sorted, moderate intergranular porosity, moderate permeability.
7/3/2011	1,630	1,640	Limestone: 100%, grayish orange (10YR 7/4), very fine grained, low induration, fossiliferous (mostly benthic foraminifera Dictyoconus), well sorted, moderate to high intergranular porosity, moderate permeability.
7/3/2011	1,640	1,650	Limestone: 100%, pale yellowish brown (10YR 6/2), very fine grained, moderate induration, fossiliferous (Dictyoconus, Borelis, casts of benthic foraminifera), sparry calcite cement, well sorted, moderate to high intergranular porosity, moderate permeability.
8/13/2011	1,650	1,660	Limestone: 100%, pale yellowish brown (10YR 6/2), very fine grained, moderate induration, fossiliferous (Dictyoconus, casts of benthic foraminifera, echinoids), well sorted, moderate to high intergranular porosity, slightly vuggy, moderate permeability.
8/13/2011	1,660	1,670	Limestone: 100%, pale yellowish brown (10YR 6/2), fine grained to very fine grained, moderately well indurated, highly fossiliferous (benthic foraminifera primarily Dictyoconus, abundant echinoids), moderately to well sorted, moderate to high intergranular porosity, moderately to highly vuggy, moderate to high permeability.
8/13/2011	1,670	1,680	Limestone: 100%, yellowish gray (5Y 7/2) to light olive gray (5Y 5/2), fine grained, poorly indurated, fossiliferous (benthic foraminifera, Dictyoconus and others), well sorted, moderate intergranular porosity, moderate permeability.



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Date	Depth (ft. bpl)		Observer's Description
	From	To	
8/13/2011	1,680	1,690	Limestone: 100%, yellowish gray (5Y 7/2) to light olive gray (5Y 5/2), fine grained , poorly to moderately indurated, fossiliferous (benthic foraminifera, Dictyoconus and others), well sorted, moderate intergranular porosity, moderate permeability.
8/13/2011	1,690	1,700	Limestone: 100%, pale yellowish brown (10YR 6/2), fine grained to very fine grained, low induration, highly fossiliferous (benthic foraminifera primarily Dictyoconus, echinoids spines), moderately to well sorted, moderate to high intergranular porosity, moderate to high permeability.
8/13/2011	1,700	1,710	Limestone: 90%, pale yellowish brown (10YR 6/2) to very pale orange (10 YR /2), fine grained, moderate induration, fossiliferous (molds), moderately to well sorted, low intergranular porosity, low permeability (micro), calcite replacement. Dolomitic Limestone: 10%, pale yellowish brown (10YR 6/2) to light olive gray (5Y 6/1), very fine grained, high induration, non-fossiliferous, well sorted, low intergranular porosity, low permeability (micro).
8/13/2011	1,710	1,720	Dolomitic Limestone: 50%, yellowish gray (5YR 8/1) to very pale orange (10 YR /2), very fine grained, high induration, non-fossiliferous, well sorted, low intergranular porosity, low permeability (micro). Dolomitic Limestone: 50%, pale yellowish brown (10YR 6/2), very fine grained, low to moderate induration, fossiliferous with high degree decalcification, well sorted, low intergranular porosity, low permeability (micro).
8/15/2011	1,720	1,730	Dolomitic Limestone: 80%, pale yellowish brown (10YR 6/2) to grayish orange (10YR 7/4), fine grained, low to moderate induration, fossiliferous, few vugs, low to moderate intergranular porosity, low permeability; Dolomitic Limestone, 20%, pale yellowish brown (10YR 6/2), fine crystalline, highly indurated, few small vugs, low permeability.
8/15/2011	1,730	1,740	Dolomitic Limestone: 60%, pale yellowish brown (10YR 6/2) to grayish orange (10YR 7/4), fine grained, low to moderate induration, fossiliferous, few vugs, low to moderate intergranular porosity, low permeability; Dolomitic Limestone, 40%, pale yellowish brown (10YR 6/2), fine crystalline, highly indurated, few small vugs, low permeability.
8/15/2011	1,740	1,750	Dolomitic Limestone: pale yellowish brown (10YR 6/2) to light olive gray (5Y 6/1), very fine grained to crystalline, well indurated, slightly vuggy, low permeability.
8/15/2011	1,750	1,760	Dolomitic Limestone and Mudstone: Dolomitic Limestone, 90%, pale yellowish brown (10YR 6/2) to grayish orange (10YR 7/4) and very pale orange ((10YR 8/2), fine grained, low to moderate induration, fossiliferous, few vugs, low to moderate intergranular porosity, low permeability; Mudstone, 10%, dusky yellowish brown (10YR 2/2), silty, cohesive.
8/15/2011	1,760	1,770	Dolomitic Limestone: pale yellowish brown (10YR 6/2) to grayish orange (10YR 7/4), fine grained, low to moderate induration, fossiliferous, moderate intergranular porosity, low permeability; Mudstone, trace.
8/15/2011	1,770	1,780	Dolomite and Dolomitic Limestone: Dolomite, 80%, dark yellowish brown (10YR 4/2) and pale yellowish brown (10YR 6/2), microcrystalline, few vugs; Dolomitic Limestone, 20%, pale yellowish brown (10YR 6/2) to grayish orange (10YR 7/4), fine grained, low to moderate induration, fossiliferous, moderate intergranular porosity, low permeability.



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	From	To	
8/15/2011	1,780	1,790	Dolomitic Limestone: 40 %, pale yellowish orange (10 YR 8/2), fine crystalline, high induration, trace quartz very fine quartz sand, low permeability. Dolomitic Limestone: 40%, pale yellowish brown (10YR 6/2), fine grained to very fine grained, low induration, highly fossiliferous (benthic foraminifera primarily <u>Dictyoconus</u> , echinoids spines), moderately to well sorted, moderate to high intergranular porosity, moderate to high permeability. Dolomite: 10%, light olive gray (5Y 6/1), fine crystalline, high induration, sparsely fossiliferous, low permeability.
8/15/2011	1,790	1,800	Dolomitic Limestone: 95%, pale yellowish brown (10YR 6/2), fine grained to very fine grained, low induration, highly fossiliferous (benthic foraminifera primarily <u>Dictyoconus americanus</u> , <u>Dictyoconus cookei</u> , echinoids spines), moderately to well sorted, moderate to high intergranular porosity, moderate to high permeability. Mudstone: 5%, dark gray (N3) to brownish gray (5YR 4/1), carbonaceous, very fine grained, low induration, non-fossiliferous, low permeability.
8/15/2011	1,800	1,810	Dolomitic Limestone: 60%, pale yellowish brown (10YR 6/2), fine grained to very fine grained, low induration, highly fossiliferous (benthic foraminifera primarily <u>Dictyoconus</u> , echinoids spines, shell fragments), moderately to well sorted, moderate to high intergranular porosity, moderate to high permeability. Mudstone: 30%, dark gray (N3) to brownish gray (5YR 4/1), carbonaceous, very fine grained, low induration, non-fossiliferous, low permeability; Dolomite: 10%, light olive gray (5Y 6/1), fine crystalline, high induration, sparsely fossiliferous, low permeability.
8/16/2011	1,810	1,820	Dolomite: 100%, pale yellowish orange (10YR 8/2), fine crystalline, high induration, low permeability.
8/16/2011	1,820	1,830	Dolomite: 100%, yellowish gray (5Y 8/1) to pale yellowish orange (10YR 8/2) to brownish gray (5YR 4/1), fine crystalline, high induration, low permeability.
8/16/2011	1,830	1,840	Dolomite and Mudstone: 90%, yellowish gray (5Y 8/1), and light olive gray (5YR 5/2) to brownish gray (5YR 4/1), fine crystalline, high induration, slightly vuggy, low permeability; Mudstone, 10%, dusky yellowish brown (10YR 2/2) to Black (N1), cohesive.
8/16/2011	1,840	1,850	Dolomite: 100%, pale yellowish brown (10YR 6/2), grayish orange (10YR 7/4) and dark yellowish brown (10YR 4/2), fine crystalline, well indurated, few vugs, low permeability.
8/16/2011	1,850	1,860	Dolomite: same as above.
8/16/2011	1,860	1,870	Dolomite: 100%, moderate yellowish brown (10YR 5/4) and dark yellowish brown (10YR 4/2), fine crystalline, well indurated, some slightly brittle, low permeability; Mudstone, trace.
8/16/2011	1,870	1,880	Dolomite: 100%, pale yellowish brown (10YR 6/2) and moderate yellowish brown (10YR 5/4), fine crystalline, moderately well indurated, low permeability; Mudstone, trace; Limestone, trace.
8/16/2011	1,880	1,890	Limestone (marl): 90%, very pale orange (10YR 8/2), very fine grain, low induration, low porosity, low permeability; Dolomite: 10%, pale yellowish brown (10YR 6/2) and moderate yellowish brown (10YR 5/4), fine crystalline, moderately well indurated, low permeability; Mudstone: dusky yellowish brown (10YR 2/2), trace
8/16/2011	1,890	1,900	Limestone (marl): 70%, very pale orange (10YR 8/2), very fine grain, low induration, low porosity, low permeability; Dolomitic Limestone: 30%, pale yellowish brown (10YR 6/2), fine grain, low to moderate induration, low permeability.
8/16/2011	1,900	1,910	Limestone: 100%, very pale orange (10YR 8/2), fine grain, low induration, low porosity, low permeability, bedding planes noticeable by darker banding.



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	From	To	
8/16/2011	1,910	1,920	Dolomitic Limestone: 90%, very pale orange (10YR 8/2), fine grain, low induration, low porosity, low permeability; Dolomite: 10%, dark gray (N3) to moderate yellowish brown (10YR 5/4), fine crystalline, well indurated, low permeability.
8/17/2011	1,920	1,930	Dolomitic Limestone: 50%, very pale orange (10YR 8/2), fine grain, low induration, low porosity, low permeability, bedding planes noticeable by darker banding. Dolomite: 50% dark gray (N3) to light olive gray (5Y 6/1), fine crystalline, well indurated, low permeability (micro).
8/17/2011	1,930	1,940	Dolomitic Limestone: 50%, very pale orange (10YR 8/2) to pale yellowish brown (10 YR 6/2), fine grain, low induration, low porosity, low permeability, bedding planes noticeable by darker banding. Dolomite: 50%, pale yellowish brown (10YR 6/2) to dark yellowish brown (10YR 4/2), fine crystalline, well indurated, low permeability (micro), bedding planes noticeable by darker banding.
8/17/2011	1,940	1,950	Dolomitic Limestone: 100%, pale yellowish brown (10YR 6/2), fine grain, low induration, fossiliferous (benthic foraminifera primarily Dictyoconus, echinoids spines, shell fragments), well sorted, low intergranular porosity, low permeability, black accessory mineral.
8/17/2011	1,950	1,960	Dolomitic Limestone: same as above.
8/17/2011	1,960	1,970	Dolomitic Limestone: same as above.
8/17/2011	1,970	1,980	Dolomite and Dolomitic Limestone: Dolomite, 60%, dark yellowish brown (10YR 4/2), sucrosic, vuggy; Dolomitic Limestone, 40%, pale yellowish brown (10YR 6/2), fine grain, low induration, fossiliferous (benthic foraminifera primarily Dictyoconus, shell fragments), well sorted, low intergranular porosity, low permeability.
8/17/2011	1,980	1,990	Dolomitic Limestone and Dolomite: Dolomitic Limestone, 80%, pale yellowish brown (10YR 6/2) to grayish orange (10YR 7/4), very fine grained, dark banding (lamination), low to moderate induration, low porosity, low permeability; Dolomite, 20%, dark yellowish brown (10YR 4/2) and grayish orange (10YR 7/4), crystalline, well indurated, some brittle.
8/17/2011	1,990	2,000	Dolomitic Limestone and Dolomite: Dolomite, 80%, dark yellowish brown (10YR 4/2) and grayish orange (10YR 7/4), crystalline, well indurated, some brittle. Dolomitic Limestone, 20%, pale yellowish brown (10YR 6/2) to grayish orange (10YR 7/4), very fine grained, dark banding (lamination), low to moderate induration, low porosity, low permeability.
8/17/2011	2,000	2,010	Dolomite, 100%, dark yellowish brown (10YR 4/2) and pale yellowish brown (10YR 6/2), fine crystalline, well indurated.
8/17/2011	2,010	2,020	Dolomite, 80%, dark yellowish brown (10YR 4/2) and pale yellowish brown (10YR 6/2), fine crystalline, well indurated; Dolomitic Limestone, 15%, pale yellowish brown (10YR 6/2) to grayish orange (10YR 7/4), very fine grained, dark banding (lamination), low to moderate induration, low porosity, low permeability; Clay: 5%, dark yellowish brown (10YR 2/2) to grayish black (N2), laminated, highly plastic, waxy, low permeability.
8/18/2011	2,020	2,030	Dolomitic Limestone; 40%, yellowish gray (5Y 8/1) to very pale orange (10yr 8/2), fine crystalline, moderate to well indurated, minor moldic porosity, low permeability, black accessory mineral; Dolomitic Limestone; 40%, pale yellowish brown (10YR 6/2), fine grained (fine crystalline cement), well sorted, moderate to high induration, low to moderate intergranular porosity, low permeability, benthic foraminifera generally absent, black accessory mineral; Limestone: 20%, Light olive gray (5Y 6/1), fine grained, well sorted, moderate induration, low to moderate intergranular porosity, low permeability, benthic foraminifera (Dictyoconus).



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	From	To	
8/19/2011	2,030	2,040	Dolomitic Limestone; 100%, pale yellowish brown (10YR 6/2), fine grained (fine crystalline cement), well sorted, moderate to high induration, low to moderate intergranular porosity, low permeability, benthic foraminifera generally absent, black accessory mineral.
8/19/2011	2,040	2,050	Dolomitic Limestone; 100%, grayish orange (10YR 7/4), fine grained, moderately well sorted, low to moderate induration, moderate intergranular porosity, low permeability.
8/19/2011	2,050	2,060	Dolomitic Limestone: same as above.
8/19/2011	2,060	2,070	Dolomitic Limestone: same as above.
8/19/2011	2,070	2,080	Dolomitic Limestone: same as above.
8/19/2011	2,080	2,090	Dolomitic Limestone: same as above.
8/19/2011	2,090	2,100	Dolomitic Limestone; 100%, grayish orange (10YR 7/4), fine grained, moderately well sorted, low induration, moderate intergranular porosity, low permeability, benthic foraminifera (Dictyoconus).
8/19/2011	2,100	2,110	Dolomitic Limestone: same as above.
8/20/2011	2,110	2,120	Dolomitic Limestone; 100%, grayish orange (10YR 7/4), fine grained, well sorted, low induration, moderate intergranular porosity, low permeability, large benthic foraminifera generally absent.
8/20/2011	2,120	2,130	Dolomitic Limestone; 70%, grayish orange (10YR 7/4), fine grained, well sorted, low induration, moderate intergranular porosity, low permeability, large benthic foraminifera generally absent. Dolomitic Limestone; 20%, very pale orange (10YR 8/2), fine grained, well sorted, low induration, low intergranular porosity, low permeability; Dolomite; 10%, pale yellowish brown (10YR 6/2), fine crystalline, vugs and moldic porosity less than 10%, high induration, low permeability, few benthic foraminifera (Dictyoconus), high degree of calcite/dolomite recrystallization.
8/20/2011	2,130	2,140	Dolomitic Limestone; 50%, very pale orange (10YR 8/2), fine grained, well sorted, low induration, low intergranular porosity, low permeability; Dolomite; 50%, pale yellowish brown (10YR 6/2), fine crystalline, vugs and moldic porosity less than 10%, high induration, low permeability, few benthic foraminifera (Dictyoconus), high degree of calcite/dolomite recrystallization.
8/20/2011	2,140	2,150	Dolomitic Limestone: grayish orange (10YR 7/4), fine grained, moderately well to well sorted, low induration, low to moderate intergranular porosity, low permeability, benthic foraminifera (Dictyoconus).
8/20/2011	2,150	2,160	Dolomitic Limestone: 90% grayish orange (10YR 7/4), fine grained, moderately well to well sorted, low induration, low to moderate intergranular porosity, low permeability, benthic foraminifera (Dictyoconus); Dolomite: 10%, grayish orange (10YR 7/4), fine crystalline, vugs and moldic porosity less than 10%, high induration, low permeability.
8/20/2011	2,160	2,170	Dolomitic Limestone: pale yellowish brown (10YR 6/2), fine grained, moderately well to well sorted, low induration, low to moderate intergranular porosity, low permeability, benthic foraminifera (Dictyoconus)
8/20/2011	2,170	2,180	Dolomitic Limestone: 80%, pale yellowish brown (10YR 6/2), fine grained, moderately well to well sorted, low induration, low to moderate intergranular porosity, low permeability, benthic foraminifera (Dictyoconus), laminated; Dolomitic Limestone: 20%, light olive gray (5Y 6/1), fine grained, moderately well to well sorted, moderate induration, moderate intergranular porosity, vugs and molds less than 30%, benthic foraminifer (Dictyoconus americanus).



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	From	To	
8/20/2011	2,180	2,190	Dolomitic Limestone: 50%, pale yellowish brown (10YR 6/2), fine grained, moderately well to well sorted, low induration, low to moderate intergranular porosity, low permeability, benthic foraminifera (Dictyoconus); Dolomitic Limestone: 50%, light olive gray (5Y 6/1), fine grained, well sorted, low induration, low intergranular porosity.
8/20/2011	2,190	2,200	Dolomitic Limestone; 100%, grayish orange (10YR 7/4), fine grained, moderately well sorted, low induration, moderate to high intergranular porosity, low to moderate permeability.
8/20/2011	2,200	2,210	Dolomitic Limestone as above.
8/20/2011	2,210	2,220	Dolomitic Limestone; 100%, grayish orange (10YR 7/4), fine grained, moderately well sorted, low induration, moderate to high intergranular porosity, low to moderate permeability, benthic foraminifera (Dictyoconus).
8/20/2011	2,220	2,230	Dolomitic Limestone; 100%, grayish orange (10YR 7/4) to very pale orange (10YR 8/2), fine grained, moderately well sorted, low induration, moderate to high intergranular porosity, low to moderate permeability, benthic foraminifera (Dictyoconus).
8/20/2011	2,230	2,240	Dolomitic Limestone; 100%, grayish orange (10YR 7/4) to very pale orange (10YR 8/2), fine grained, moderately well sorted, low induration, low intergranular porosity, low to moderate permeability, vugs (less than 5%), benthic foraminifera (Dictyoconus).
8/21/2011	2,240	2,250	Dolomitic Limestone; 100%, grayish orange (10YR 7/4) to very pale orange (10YR 8/2), fine to medium grained, some crystalline, moderately well sorted, low induration, low intergranular porosity, low to moderate permeability, benthic foraminifera (Dictyoconus).
8/21/2011	2,250	2,260	Dolomitic Limestone; 100%, pale yellowish brown (10YR 6/2) to grayish orange (10YR 7/4), fine to medium grained, some crystalline, poorly sorted, low induration, low to moderate intergranular porosity, moderate permeability, benthic foraminifera (Dictyoconus).
8/21/2011	2,260	2,270	Dolomitic Limestone; 100%, moderate yellowish brown (10YR 5/4) and pale yellowish brown (10YR 6/2) to grayish orange (10YR 7/4), fine to medium grained, some crystalline, poorly sorted, low induration, low to moderate intergranular porosity, moderate permeability, benthic foraminifera (Dictyoconus), black accessory mineral.
8/21/2011	2,270	2,280	Limestone and Dolomitic Limestone: Limestone, 60%, yellowish gray (5Y 7/2), very fine grained, moderately well indurated, slightly fossiliferous, low porosity, low permeability; Dolomitic Limestone, 40%, pale yellowish brown (10YR 6/2) to grayish orange (10YR 7/4), fine to medium grained, some crystalline, poorly sorted, low induration, low to moderate intergranular porosity, moderate permeability, benthic foraminifera (Dictyoconus), black accessory mineral.
8/22/2011	2,280	2,290	Dolomitic Limestone: 50%, pale yellowish brown (10YR 6/2), fine grained, moderately well to well sorted, low induration, low to moderate intergranular porosity, low permeability, benthic foraminifera (Dictyoconus); Dolomitic Limestone: 50%, grayish orange (10YR 7/4), fine grained, moderately well to well sorted, low induration, low to moderate intergranular porosity, low permeability, benthic foraminifera (Dictyoconus), laminated.
8/22/2011	2,290	2,300	Dolomitic Limestone: grayish orange (10YR 7/4), fine grained, well sorted, low induration, low to moderate intergranular porosity, low permeability, sparse benthic foraminifera, calcite/dolomite replacement.
8/22/2011	2,300	2,310	Dolomitic Limestone: grayish orange (10YR 7/4), fine grained, well sorted, low induration, low to moderate intergranular porosity, low permeability, benthic foraminifera (Dictyoconus), calcite/dolomite replacement.



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	From	To	
8/22/2011	2,310	2,320	Dolomitic Limestone: 75%, grayish orange (10YR 7/4), fine grained, well sorted, low induration, low to moderate intergranular porosity, low permeability, benthic foraminifera (Dictyoconus); Dolomitic Limestone: 25%, moderate yellowish brown (10YR 5/4), fine grained, well sorted, low to moderate induration, moderate intergranular porosity, low permeability, sparse benthic foraminifera.
8/22/2011	2,320	2,330	Dolomitic Limestone: 100%, pale yellowish brown (10YR 6/2), fine grained, moderate sorted, low induration, low to moderate intergranular porosity, low permeability, benthic foraminifera (Dictyoconus).
8/23/2011	2,330	2,340	Dolomitic Limestone: 100%, grayish orange (10YR 7/4) to dark yellowish orange (10 YR 6/6), fine grained, some fine crystalline, moderately well sorted, low induration, low to moderate intergranular porosity, some dark lamination, low permeability, benthic foraminifera (Dictyoconus).
8/23/2011	2,340	2,350	Dolomitic Limestone: 100%, grayish orange (10YR 7/4) to dark yellowish orange (10 YR 6/6), fine grained, moderately well sorted, low induration, low to moderate intergranular porosity, low permeability, benthic foraminifera (Dictyoconus).
8/23/2011	2,350	2,360	Dolomitic Limestone: 100%, yellowish gray (5Y 7/2) and Light olive gray (5Y 5/2), fine grained, moderately well sorted, low induration, low intergranular porosity, low permeability, benthic foraminifera (Dictyoconus).
8/23/2011	2,360	2,370	Dolomitic Limestone and Limestone: Dolomitic Limestone, 80%, yellowish gray (5Y 7/2) and Light olive gray (5Y 5/2), fine grained, moderately well sorted, low induration, low intergranular porosity, low permeability, benthic foraminifera (Dictyoconus); Limestone 20%, very pale orange (10YR 8/2) to pale yellowish brown (10YR 6/2), micritic, moderate induration, very few fossils, some lamination, low porosity, low permeability.
8/23/2011	2,370	2,380	Dolomitic Limestone and Dolomite: Dolomitic Limestone, 90%, grayish orange (10YR 7/4), fine grained, poorly sorted, low induration, moderate intergranular porosity, moderate permeability, benthic foraminifera; Dolomite, 10%, pale yellowish brown (10YR 6/2), fine crystalline, slightly vuggy (<0.05 mm).
8/23/2011	2,380	2,390	Dolomitic Limestone: 100%, pale yellowish brown (10YR 6/2), fine grained, moderate to well sorted, low induration, moderate intergranular porosity, moderate permeability, benthic foraminifera.
8/25/2011	2,390	2,400	Dolomitic Limestone and Dolomite: Dolomitic Limestone, 90%, grayish orange (10YR 7/4), fine grained, moderate to well sorted, low induration, moderate intergranular porosity, some dolomite replacement, moderate permeability, benthic foraminifera; Dolomite, 10%, pale yellowish brown (10YR 6/2), grayish orange (10YR 7/4), and medium gray (N5), fine crystalline, dense.
8/25/2011	2,400	2,410	Dolomitic Limestone and Dolomite: Dolomitic Limestone, 95%, grayish orange (10YR 7/4) to very pale orange (10YR 8/2), fine grained, moderate to well sorted, low to moderate induration, moderate intergranular porosity, moderate permeability, benthic foraminifera; Dolomite, 5%, pale yellowish brown (10YR 6/2) and dark yellowish brown (10YR4/2), fine crystalline, well indurated, dense.
8/25/2011	2,410	2,420	Dolomitic Limestone: grayish orange (10YR 7/4) to very pale orange (10YR 8/2), fine grained, moderate to well sorted, poor induration, moderate intergranular porosity, moderate permeability, benthic foraminifera.
8/25/2011	2,420	2,430	Dolomitic Limestone: grayish orange (10YR 7/4) to very pale orange (10YR 8/2), fine grained, moderate to well sorted, poor induration, moderate intergranular porosity, moderate permeability, benthic foraminifera.



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Date	Depth (ft. bpl)		Observer's Description
	From	To	
8/25/2011	2,430	2,440	Dolomitic Limestone: grayish orange (10YR 7/4) to very pale orange (10YR 8/2), fine grained, moderate to well sorted, poor to moderate induration, moderate intergranular porosity, moderate permeability, benthic foraminifera.
8/26/2011	2,440	2,450	Dolomitic Limestone and Dolomite: Dolomitic Limestone, 80%, dark gray (N3) to very pale orange (10YR 8/2), fine grained, moderate to well sorted, poor induration, moderate intergranular porosity, moderate permeability, benthic foraminifera; Dolomite, 20%, pale yellowish brown (10YR 6/2) to very pale orange (10YR 8/2), fine crystalline, dense.
8/26/2011	2,450	2,460	Dolomitic Limestone and Dolomite: Dolomitic Limestone, 95%, grayish orange (10YR 7/4) to very pale orange (10YR 8/2), fine grained, moderate to well sorted, poor induration, moderate intergranular porosity, moderate permeability, benthic foraminifera; Dolomite, 5%, pale yellowish brown (10YR 6/2) to very pale orange (10YR 8/2), fine crystalline, dense.
8/26/2011	2,460	2,470	Dolomitic Limestone and Dolomite: Dolomitic Limestone, 80%, grayish orange (10YR 7/4) to very pale orange (10YR 8/2) to dark gray (N3), fine grained, moderate to well sorted, poor to moderately poor induration, moderate intergranular porosity, moderate permeability, benthic foraminifera (Dictyoconus); Dolomite, 20%, pale yellowish brown (10YR 6/2) to light olive gray (5Y 6/1), fine crystalline, well indurated, dense.
8/26/2011	2,470	2,480	Dolomitic Limestone and Dolomite as above.
8/26/2011	2,480	2,490	Dolomitic Limestone and Dolomite: Dolomitic Limestone, 80%, grayish orange (10YR 7/4) to very pale orange (10YR 8/2) to dark gray (N3), fine grained, moderate to well sorted, poor to moderately poor induration, moderate intergranular porosity, moderate permeability, benthic foraminifera, laminated. Dolomite, 20%, yellowish gray (5Y 8/1), fine crystalline, well indurated, dense.
8/26/2011	2,490	2,500	Dolomitic Limestone and Dolomite: Dolomitic Limestone, 60%, grayish orange (10YR 7/4) to very pale orange (10YR 8/2) to dark gray (N3), fine grained, moderate to well sorted, poor to moderately poor induration, moderate intergranular porosity, moderate permeability, benthic foraminifera, laminated; Dolomite, 40%, yellowish gray (5Y 8/1) to medium gray (N5), fine crystalline, well indurated, dense.
8/26/2011	2,500	2,510	Dolomitic Limestone and Dolomite: Dolomitic Limestone, 60%, grayish orange (10YR 7/4) to very pale orange (10YR 8/2)), fine grained, moderate to well sorted, poor to moderately poor induration, moderate intergranular porosity, moderate permeability, benthic foraminifera, laminated; Dolomite, 40%, yellowish gray (5Y 8/1) to medium gray (N5), fine crystalline, well indurated, dense.
8/26/2011	2,510	2,520	Dolomitic Limestone and Dolomite: Dolomitic Limestone, 80%, grayish orange (10YR 7/4) to very pale orange (10YR 8/2), fine grained, moderate to well sorted, poor to moderately poor induration, moderate intergranular porosity, moderate permeability, benthic foraminifera; Dolomite, 20%, yellowish gray (5Y 8/1), fine crystalline, vuggy, well indurated.
8/26/2011	2,520	2,530	Dolomitic Limestone: 100%, grayish orange (10YR 7/4) to medium gray (N5), fine grained, moderate to well sorted, poor to moderately poor induration, moderate intergranular porosity, moderate permeability, benthic foraminifera.
8/26/2011	2,530	2,540	Dolomitic Limestone: 100%, yellowish gray (5Y 8/1) to grayish orange (10YR 8/2) to light gray (N7), fine grained, moderate to poorly sorted, poor to moderate induration, moderate intergranular porosity, moderate permeability, benthic foraminifera.



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	From	To	
8/26/2011	2,540	2,550	Dolomitic Limestone and Dolomite: Dolomitic Limestone, 90%, pale yellowish brown (10YR 6/2), fine grained, moderately well sorted, low induration, moderate intergranular porosity, low to moderate permeability, benthic foraminifera (Dictyoconus, Fabularia); Dolomite, 10%, yellowish gray (5Y 8/1), fine crystalline, vuggy, well indurated.
8/26/2011	2,550	2,560	Dolomitic Limestone: 100%, grayish orange (10YR 7/4) to pale yellowish brown (10YR 6/2), fine grained, moderately well sorted, low to moderate induration, moderate intergranular porosity, low to moderate permeability, vugs, microfossil casts and benthic foraminifera.
8/26/2011	2,560	2,570	Dolomitic Limestone and Limestone: Dolomitic Limestone, 80%, grayish orange (10YR 7/4) to pale yellowish brown (10YR 6/2), fine grained, moderately well sorted, low to moderate induration, moderate intergranular porosity, low to moderate permeability, vugs, benthic foraminifera; Limestone, 20%, argillaceous, yellowish gray (5Y 8/1), poor induration, low intergranular porosity, low permeability, nonfossiliferous.
8/26/2011	2,570	2,576	Dolomitic Limestone and Limestone: Dolomitic Limestone, 90%, grayish orange (10YR 7/4) to pale yellowish brown (10YR 6/2) to dark gray (N3), fine grained, moderately well sorted, moderate to moderately well induration, moderate to high intergranular porosity, moderate permeability, vugs, benthic foraminifera, microfossil casts and molds; Limestone, 10%, argillaceous, yellowish gray (5Y 8/1), poor induration, low intergranular porosity, low permeability, nonfossiliferous. Trace of lignite.
8/27/2011	2,576	2,578	Core interval No. 6. - Dolomitic Limestone: very pale orange (10YR 8/2) to grayish orange (10YR 7/4), fine grained, moderately well sorted, moderate induration, moderate to high intergranular porosity, moderate permeability, vugs, sparse benthic foraminifera, echinoids spine, gastropod molds.
8/27/2011	2,578	2,580	Dolomitic Limestone: 100%, grayish orange (10YR 7/4) to pale yellowish brown (10YR 6/2), fine grained, moderately well sorted, moderate to induration, moderate to high intergranular porosity, moderate permeability, vugs, benthic foraminifera and echinoids, microfossil and molds.
8/28/2011	2,580	2,590	Core interval No. 7. - Dolomitic Limestone: grayish orange (10YR 7/4) to pale yellowish brown (10YR 6/2), fine grained, moderately well sorted, moderate induration, moderate to high intergranular porosity, moderate permeability, unevenly distributed vugs, benthic foraminifera (Dictyoconus, echinoids spine) near core top and becoming sparse, limestone fragments in matrix.
8/29/2011	2,590	2,600	Dolomitic Limestone and Limestone: Dolomitic Limestone, 70%, grayish orange (10YR 7/4) to pale yellowish brown (10YR 6/2) to dark gray (N3), fine grained, moderately well sorted, moderate to well induration, moderate intergranular porosity, moderate permeability, vugs, benthic foraminifera, some dark banding (lamination); Limestone, 30%, argillaceous, yellowish gray (5Y 8/1), poor induration, low porosity, low permeability, nonfossiliferous.
8/29/2011	2,600	2,610	Limestone and Dolomitic Limestone: Limestone, 60%, argillaceous, yellowish gray (5Y 8/1), poor induration, low porosity, low permeability, nonfossiliferous; Dolomitic Limestone, 40%, grayish orange (10YR 7/4) to pale yellowish brown (10YR 6/2) to dark gray (N3), fine grained, moderately well sorted, moderate to well induration, moderate intergranular porosity, moderate permeability, vugs, benthic foraminifera, some dark banding (lamination).



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8/29/2011	2,610	2,620	Dolomitic Limestone and Limestone: Dolomitic Limestone, 80%, grayish orange (10YR 7/4) to pale yellowish brown (10YR 6/2) to dark gray (N3), fine grained, moderately well sorted, moderate to well induration, moderate intergranular porosity, moderate permeability, few small vugs, benthic foraminifera, some dark banding (lamination); Limestone, 20%, yellowish gray (5Y 8/1), argillaceous, poor induration, low porosity, low permeability, nonfossiliferous.
8/29/2011	2,620	2,630	Dolomitic Limestone and Limestone: Dolomitic Limestone, 60%, grayish orange (10YR 7/4) to pale yellowish brown (10YR 6/2), and medium light gray (N6), fine grained, moderately well sorted, moderate to well induration, moderate intergranular porosity, moderate permeability; Limestone, 40%, yellowish gray (5Y 8/1), argillaceous, chalky, moderate induration, low porosity, low permeability, nonfossiliferous.
8/31/2011	2,630	2,640	Dolomitic Limestone and Limestone: Dolomitic Limestone, 50%, grayish orange (10YR 7/4) to pale yellowish brown (10YR 6/2), fine grained, moderately well sorted, moderate to well induration, moderate intergranular porosity, moderate permeability; Limestone, 50%, yellowish gray (5Y 8/1), argillaceous, chalky, moderate induration, low porosity, low permeability, nonfossiliferous.
8/31/2011	2,640	2,650	Dolomitic Limestone and Limestone: Dolomitic Limestone, 80%, grayish orange (10YR 7/4) to pale yellowish brown (10YR 6/2), fine grained, moderately well sorted, moderate to well induration, some dark banding (laminated), moderate intergranular porosity, moderate permeability; Limestone, 20%, yellowish gray (5Y 8/1), argillaceous, chalky, low to moderate induration, few vugs, moderate porosity, low to moderate permeability, nonfossiliferous.
9/2/2011	2,650	2,660	Dolomitic Limestone and Limestone: Dolomitic Limestone, 90%, grayish orange (10YR 7/4) to pale yellowish brown (10YR 6/2), fine grained, moderately well sorted, moderate to well induration, some dark banding (laminated), moderate intergranular porosity, moderate permeability; Limestone, 10%, yellowish gray (5Y 8/1), argillaceous, chalky, low to moderate induration, few vugs, moderate porosity, low to moderate permeability.
9/4/2011	2,660	2,670	Limestone: 90%, very pale orange (10 YR 8/2), fine grained, well indurated, abundant foraminifera, pelletal and fossil grains, moderate to good intergranular porosity, moderate permeability; Limestone, 5%, medium light gray (N6), micritic, low intergranular porosity, low permeability; Limestone 5%, yellowish gray (5Y 8/1), argillaceous, chalky, moderate induration, few vugs, low porosity, low permeability, nonfossiliferous.
9/4/2011	2,670	2,680	Limestone: 100%, very pale orange (10 YR 8/2), fine grained, moderately indurated, abundant foraminifera, pelletal and fossil grains, moderate to good intergranular porosity, moderate permeability.
9/4/2011	2,680	2,690	Limestone and Dolomite: Limestone 75%, yellowish gray (5Y 8/1), argillaceous, slightly chalky, few burrows and fossil molds, moderate induration, low intergranular porosity, low permeability; Dolomite, 20%, pale yellowish brown 10YR 6/2, fine grained, sucrosic, low intergranular porosity; Limestone, 5%, very pale orange (10 YR 8/2), fine grained, moderately indurated, abundant foraminifera, fossil grains, moderate to good intergranular porosity, moderate permeability.
9/4/2011	2,690	2,700	Limestone: 98%, very pale orange (10 YR 8/2), fine grained, poorly to moderately indurated, many foraminifera, pelletal and fossil grains, moderate to good intergranular porosity, moderate permeability; Limestone, 2%, medium light gray (N6), micritic, low intergranular porosity, low permeability.



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	From	To	
9/4/2011	2,700	2,710	Limestone: 98%, very pale orange (10 YR 8/2), fine grained, poorly to moderately indurated, many foraminifera, pelletal and fossil grains, moderate to good intergranular porosity, moderate permeability; Limestone, 2%, medium light gray (N6), micritic, low intergranular porosity, low permeability.
9/4/2011	2,710	2,720	Limestone: 98%, yellowish gray (5Y 8/1) to very pale orange (10 YR 8/2), fine grained, poorly to moderately indurated, many foraminifera, pelletal and fossil grains, moderate to good intergranular porosity, moderate permeability; Limestone, 2%, medium light gray (N6), micritic, low intergranular porosity, low permeability.
9/4/2011	2,720	2,730	Limestone: 100%, yellowish gray (5Y 8/1) to very pale orange (10 YR 8/2), fine grained, poorly to moderately indurated, many foraminifera, pelletal and fossil grains, moderate to good intergranular porosity, moderate permeability.
9/4/2011	2,730	2,740	Limestone: 98%, yellowish gray (5 Y 8/1), fine grained, moderately indurated, some foraminifera, pelletal and fossil grains, moderate intergranular porosity, moderate permeability; Limestone, 2%, medium light gray (N6), micritic, low intergranular porosity, low permeability.
9/4/2011	2,740	2,750	Limestone: 100%, yellowish gray (5Y 8/1), fine grained, few burrows and fossil molds, moderate induration, low intergranular porosity, low permeability.
9/4/2011	2,750	2,760	Limestone: same as above.
9/4/2011	2,760	2,770	Limestone: same as above.
9/4/2011	2,770	2,780	Limestone: same as above.
9/4/2011	2,780	2,790	Limestone: 100%, yellowish gray (5Y 8/1) to very pale orange (10YR 8/2), fine to medium grained, poorly sorted, moderate induration, benthic foraminifera (Borelis), low intergranular and interparticle porosity, low permeability.
9/4/2011	2,790	2,800	Limestone: same as above.
9/4/2011	2,800	2,805	Limestone and Dolomite: Limestone 80%, yellowish gray (5Y 8/1) to very pale orange (10YR 8/2), fine to medium grained, poorly sorted, moderate induration, benthic foraminifera (Borelis), low intergranular porosity, low permeability; Dolomite, 20%, light gray (N7), fine crystalline, well indurated.
9/4/2011	2,805	2,810	Limestone: 100%, yellowish gray (5Y 8/1) to very pale orange (10YR 8/2), fine to medium grained, poorly sorted, poor to moderate induration, benthic foraminifera, low intergranular and interparticle porosity, low permeability.
9/4/2011	2,810	2,815	Limestone and Dolomite: Limestone 90%, yellowish gray (5Y 8/1) to very pale orange (10YR 8/2), fine to medium grained, poorly sorted, moderate induration, benthic foraminifera (Borelis), low intergranular porosity, low permeability; Dolomite, 10%, light gray (N7) and medium gray (N6), fine crystalline, moderately well indurated, few small vugs.
9/4/2011	2,815	2,820	Limestone Sand: 100%, yellowish gray (5Y 8/1) to very pale orange (10YR 8/2), fine to medium grained, poor to moderate induration, benthic foraminifera (Borelis).
9/4/2011	2,820	2,825	Limestone: 100%, yellowish gray (5Y 8/1) to very pale orange (10YR 8/2), fine to medium grained, poorly sorted, moderate induration, benthic foraminifera (Borelis).
9/4/2011	2,825	2,830	Limestone and Dolomite: Limestone 70%, yellowish gray (5Y 8/1) to very pale orange (10YR 8/2), fine to medium grained, poorly sorted, moderate induration, benthic foraminifera (Borelis), low intergranular porosity, low permeability; Dolomite, 30%, light gray (N7) fine crystalline, well indurated, few small vugs.
9/4/2011	2,830	2,835	Limestone and Dolomite: Limestone 90%, yellowish gray (5Y 8/1) to very pale orange (10YR 8/2), fine to medium grained, poorly sorted, moderate induration, benthic foraminifera, low intergranular porosity, low permeability; Dolomite, 10%, light gray (N7) fine crystalline, well indurated, few small vugs.
9/4/2011	2,835	2,840	Limestone and Dolomite: same as above.



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Date	Depth (ft. bpl)		Observer's Description
	From	To	
9/4/2011	2,840	2,845	Limestone and Dolomite: Limestone 80%, yellowish gray (5Y 8/1) to very pale orange (10YR 8/2), fine to medium grained, poorly, low to moderate induration, benthic foraminifera, low intergranular porosity, low permeability; Dolomite, 20%, light gray (N7) and medium gray (N6), fine crystalline, moderately well indurated, few small vugs.
9/4/2011	2,845	2,850	Limestone: 100%, very pale orange (10YR 8/2) to grayish orange (10YR 7/4), fine to medium grained, poorly sorted, moderate induration, benthic foraminifera, low intergranular porosity, low permeability.
9/4/2011	2,850	2,855	Limestone: same as above.
9/4/2011	2,855	2,860	Limestone: same as above.
9/4/2011	2,860	2,865	Limestone: same as above.
9/4/2011	2,865	2,870	Limestone: 100%, very pale orange (10YR 8/2) to grayish orange (10YR 7/4), fine grained, well sorted, moderate induration, ooids and some benthic foraminifera, shell material, low to moderate intergranular porosity, low permeability.
9/4/2011	2,870	2,875	Limestone: same as above.
9/5/2011	2,875	2,880	Limestone and Dolomite: Limestone, 90%, yellowish gray (5Y 8/1), fine grained, moderately indurated, ooids and some benthic foraminifera, shell material, low to moderate intergranular porosity, low permeability; Dolomite 10%, medium dark gray (N4), fine grained, moderately indurated, ooids and some benthic foraminifera, shell material, low to moderate intergranular porosity, low permeability.
9/5/2011	2,880	2,885	Limestone and Dolomite: same as above.
9/5/2011	2,885	2,890	Limestone and Dolomite: Limestone: 90%, yellowish gray (5Y 8/1), fine grained, moderately indurated, ooids and some benthic foraminifera, shell material, low to moderate intergranular porosity, low permeability; Dolomite, 10%, light gray (N7), fine grained, moderately indurated, ooids and some benthic foraminifera, shell material, low to moderate intergranular porosity, low permeability.
9/5/2011	2,890	2,895	Limestone and Dolomite: Limestone: 90%, yellowish gray (5Y 8/1), fine grained, moderately indurated, ooids and some benthic foraminifera, shell material, low to moderate intergranular porosity, low permeability; Dolomite, 10%, light gray (N7) to medium gray (N4), fine grained, moderately indurated, ooids and some benthic foraminifera, shell material, low to moderate intergranular porosity, low permeability.
9/5/2011	2,895	2,900	Limestone and Dolomite: Limestone: 90%, yellowish gray (5Y 8/1), fine grained, moderately indurated, ooids and some benthic foraminifera, shell material, low to moderate intergranular porosity, low permeability; Dolomite, 10%, light gray (N7) to grayish black (N2), fine grained, moderately indurated, ooids and some benthic foraminifera, shell material, low to moderate intergranular porosity, low permeability.
9/5/2011	2,900	2,905	Dolomitic Limestone and Dolomite: Dolomitic Limestone: 95%, grayish orange (10YR 7/4), fine grained, moderately indurated, ooids and some benthic foraminifera, shell material, low to moderate intergranular porosity, low permeability; Dolomite, 5%, medium gray (N5), fine grained, moderately indurated, ooids and some benthic foraminifera, shell material, low to moderate intergranular porosity, low permeability.
9/5/2011	2,905	2,910	Dolomitic Limestone: 100%, grayish orange (10YR 7/4) and pale yellow brown (10YR 4/2), fine grained, moderate to well indurated, ooids and some benthic foraminifera, shell material, low to moderate intergranular porosity, low permeability.
9/5/2011	2,910	2,915	Dolomitic Limestone, same as above.



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Date	Depth (ft. bpl)		Observer's Description
	From	To	
9/5/2011	2,915	2,920	Dolomitic Limestone and Dolomite: Dolomitic Limestone: 95%, grayish orange (10YR 7/4), fine grained, moderately indurated, ooids and some benthic foraminifera, shell material, low to moderate intergranular porosity, low permeability; Dolomite, 5%, medium gray (N5), fine grained, moderately indurated, ooids and some benthic foraminifera, shell material, low to moderate intergranular porosity, low permeability.
9/5/2011	2,920	2,925	Dolomite: 100%, light gray (N7) to grayish black (N2), fine grained, moderately indurated, ooids, shell material, low to moderate intergranular porosity, low permeability.
9/5/2011	2,925	2,930	Dolomitic Limestone and Dolomite: Dolomitic Limestone: 95%, grayish orange (10YR 7/4), fine grained, moderately indurated, ooids and some benthic foraminifera, shell material, low to moderate intergranular porosity, low permeability; Dolomite, 5%, medium gray (N5) to medium dark gray (N4), fine grained, moderately indurated, ooids and some benthic foraminifera, shell material, low to moderate intergranular porosity, low permeability.
9/5/2011	2,930	2,935	Dolomite and Limestone: same as above.
9/5/2011	2,935	2,940	Dolomitic Limestone: 100%, very pale orange (10YR 8/2) to grayish orange (10YR 7/4), and medium gray (N5), fine grained, moderate to well indurated, some benthic foraminifera, low to moderate intergranular porosity, low permeability.
9/5/2011	2,940	2,945	Dolomitic Limestone: same as above.
9/5/2011	2,945	2,950	Dolomitic Limestone: 100%, grayish orange (10YR 7/4), fine grained to crystalline, moderate induration, ooids and some benthic foraminifera, low to moderate intergranular porosity, low permeability; Dolomite, trace, grayish orange (10YR 7/4), crystalline, vuggy.
9/5/2011	2,950	2,955	Dolomitic Limestone: same as above.
9/5/2011	2,955	2,960	Dolomite: 100%, pale yellowish brown (10YR 6/2), grayish orange (10YR 7/4) and light gray (N7), crystalline, vuggy.
9/5/2011	2,960	2,965	Dolomitic Limestone: 100%, yellowish gray (5Y 7/2), fine grained, moderately well sorted, moderate induration, benthic foraminifera, moderate intergranular porosity, low to moderate permeability.
9/5/2011	2,965	2,970	Dolomite and Limestone: Dolomite, 60%, pale yellowish brown (10YR 6/2) and light gray (N7), crystalline, vuggy; Limestone, 40%, very pale orange (10YR 8/2) to grayish orange (10YR 7/4), fine grained, poorly indurated, poorly sorted, benthic foraminifera, low to moderate intergranular porosity, low permeability.
9/5/2011	2,970	2,975	Dolomite and Limestone: Dolomite, 50%, pale yellowish brown (10YR 6/2) and light gray (N7), crystalline, vuggy; Limestone, 50%, very pale orange (10YR 8/2) to grayish orange (10YR 7/4), fine grained, poorly indurated, poorly sorted, benthic foraminifera, low to moderate intergranular porosity, low permeability.
9/5/2011	2,975	2,980	Dolomitic Limestone and Dolomite: Dolomitic Limestone, 80%, very pale orange (10YR 8/2) to grayish orange (10YR 7/4), fine grained, moderate induration, moderately well sorted, benthic foraminifera, low intergranular porosity, low permeability; Dolomite, 20%, pale yellowish brown (10YR 6/2) and light gray (N7), crystalline, vuggy.
9/5/2011	2,980	2,985	Dolomitic Limestone and Dolomite: Dolomitic Limestone, 50%, very pale orange (10YR 8/2) to grayish orange (10YR 7/4), fine grained, moderate induration, moderately well sorted, benthic foraminifera, low intergranular porosity, low permeability; Dolomite, 50%, pale yellowish brown (10YR 6/2) and light gray (N7), crystalline, vuggy.



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Date	Depth (ft. bpl)		Observer's Description
	From	To	
9/5/2011	2,985	2,990	Dolomitic Limestone and Dolomite: Dolomitic Limestone, 80%, very pale orange (10YR 8/2) to grayish orange (10YR 7/4), fine grained, moderate induration, moderately well sorted, benthic foraminifera, low intergranular porosity, low permeability; Dolomite, 20%, pale yellowish brown (10YR 6/2) and light gray (N7), crystalline, vuggy.
9/5/2011	2,990	2,995	Limestone: 100%, very pale orange (10YR 8/2) to white (N9), very fine grained, moderate induration, moderately well sorted, benthic foraminifera, low intergranular porosity, low permeability.
9/5/2011	2,995	3,000	Limestone: same as above.
9/5/2011	3,000	3,005	Limestone: same as above.
9/5/2011	3,005	3,010	Limestone: same as above.
9/5/2011	3,010	3,015	Limestone: same as above.
9/5/2011	3,015	3,020	Dolomite and Limestone: Dolomite, 95%, medium light gray (N6), and pale yellowish brown (10YR 6/2) to dark yellowish brown (10YR 4/2), fine crystalline, some sucrosic, slightly vuggy; Limestone, 5%, very pale orange (10YR 8/2) to white (N9), very fine grained, moderate induration, moderately well sorted, benthic foraminifera, low intergranular porosity, low permeability.
9/6/2011	3,020	3,025	Dolomite: 100%, medium gray (N5) to grayish black (N2), fine crystalline, some sucrosic, low intergranular porosity, low permeability.
9/6/2011	3,025	3,030	Dolomite and Limestone: Limestone, 90%, yellowish gray 5Y 7/2, fine grained, ooids, well indurated, well sorted, low intergranular porosity, low permeability; Dolomite, 10%, dark gray (N3), fine crystalline, sucrosic, low intergranular porosity, low permeability.
9/6/2011	3,030	3,035	Dolomite: 100%, Light olive gray (5Y 6/1) to medium gray (N5), fine crystalline, sucrosic, low intergranular porosity, low permeability.
9/6/2011	3,035	3,040	Dolomite and Limestone: Dolomite, 90%, Light olive gray (5Y 6/1) to medium gray (N5), fine crystalline, some sucrosic, low intergranular porosity, low permeability; Limestone, 10%, yellowish gray 5Y 7/2, fine grained, ooids, well indurated, well sorted, low intergranular porosity, low permeability.
9/6/2011	3,040	3,045	Limestone and Dolomite: Limestone, 60%, yellowish gray 5Y 7/2, fine grained, ooids, few benthic foraminifera, moderately indurated, well sorted, low intergranular porosity, low permeability; Dolomite, 40%, Light olive gray (5Y 6/1) to medium gray (N5), fine crystalline, some sucrosic, low intergranular porosity, low permeability.
9/6/2011	3,045	3,050	Limestone: 100%, yellowish gray 5Y 7/2, fine grained, ooids, few benthic foraminifera, moderately indurated, well sorted, low intergranular porosity, low permeability; Trace dolomite, light olive gray (5Y 6/1) to medium gray (N5), fine crystalline, some sucrosic, low intergranular porosity, low permeability.
9/6/2011	3,050	3,055	Limestone: 100%, yellowish gray 5Y 7/2 to light olive gray 5Y 6/1, fine grained, few fossil grains, poorly to moderately indurated, low intergranular porosity, low permeability; Trace dolomite, medium gray (N5), fine crystalline, some sucrosic, low intergranular porosity, low permeability.
9/6/2011	3,055	3,060	Dolomite and Limestone: Dolomite, 70%, medium gray (N5) to medium dark gray (N4), fine crystalline, moderately to well indurated, some sucrosic, low intergranular porosity, low permeability; Limestone: 30%, yellowish gray 5Y 8/1, fine grained, few fossil grains, poorly to moderately indurated, low intergranular porosity, low permeability.
9/6/2011	3,060	3,065	Dolomite and Limestone: same as above.



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Date	Depth (ft. bpl)		Observer's Description
	From	To	
9/6/2011	3,065	3,070	Dolomite and Limestone: Dolomite, 60%, medium light gray (N6) to medium dark gray (N4), fine crystalline, moderately indurated, some sucrosic, few phosphate grains, low intergranular porosity, low permeability; Limestone, 40%, yellowish gray (5Y 8/1), fine grained, few fossil grains, poorly to moderately indurated, low intergranular porosity, low permeability.
9/6/2011	3,070	3,075	Dolomite: 100%, light olive gray (5Y 6/1) to dark gray (N3), fine crystalline, moderately to well indurated, sucrosic, low intergranular porosity, low permeability.
9/6/2011	3,075	3,080	Dolomite: same as above.
9/6/2011	3,080	3,085	Dolomite: same as above.
9/6/2011	3,085	3,090	Dolomite: 100%, light olive gray (5Y 6/1), dark yellowish brown (10YR 4/2), and medium gray (N5), fine crystalline, poor to moderately well indurated, low porosity, low permeability.
9/6/2011	3,090	3,095	Dolomite: 100%, dark yellowish brown (10YR 4/2), and medium gray (N5), fine crystalline, moderately well indurated, slightly vuggy, low to moderate porosity, low permeability.
9/6/2011	3,095	3,100	Dolomite: same as above.
9/6/2011	3,100	3,105	Dolomite and Dolomitic Limestone: Dolomite, 80%, medium dark gray (N4), fine crystalline, moderately well indurated, slightly, low porosity, low permeability; Dolomitic Limestone, 20%, pale yellowish brown (10YR 6/2) to grayish orange (10YR 7/4), very fine grained, slightly fossiliferous, poor to moderate induration, low porosity, low permeability.
9/6/2011	3,105	3,110	Dolomite and Dolomitic Limestone: Dolomite, 95%, medium dark gray (N4), fine crystalline, moderately well indurated, low porosity, low permeability; Dolomitic Limestone, 5%, pale yellowish brown (10YR 6/2) to grayish orange (10YR 7/4), very fine grained, slightly fossiliferous, poor to moderate induration, low porosity, low permeability.
9/6/2011	3,110	3,115	Dolomitic Limestone and Dolomite: Dolomitic Limestone, 90%, pale yellowish brown (10YR 6/2) to grayish orange (10YR 7/4), very fine grained, slightly fossiliferous, poor to moderate induration, low porosity, low permeability; Dolomite, 10%, medium dark gray (N4), fine crystalline, moderately well indurated, low porosity, low permeability.
9/6/2011	3,115	3,120	Dolomitic Limestone, 100%, pale yellowish brown (10YR 6/2) to grayish orange (10YR 7/4), very fine grained, slightly fossiliferous, poor to moderate induration, low porosity, low permeability.
9/6/2011	3,120	3,125	Dolomitic Limestone and Dolomite: Dolomitic Limestone, 50%, pale yellowish brown (10YR 6/2) to grayish orange (10YR 7/4), very fine grained, slightly fossiliferous, poor to moderate induration, low porosity, low permeability; Dolomite, 50%, medium gray (N5), fine crystalline, some sucrosic, moderately well indurated, slightly vuggy, low porosity, low permeability.
9/6/2011	3,125	3,130	Dolomite and Dolomitic Limestone: Dolomite, 80%, medium dark gray (N4) medium light gray (N6), fine crystalline, moderately well indurated, low porosity, low permeability; Dolomitic Limestone, 20%, pale yellowish brown (10YR 6/2) to grayish orange (10YR 7/4), very fine grained, slightly fossiliferous, poor to moderate induration, low porosity, low permeability.
9/6/2011	3,130	3,135	Dolomite and Dolomitic Limestone: Dolomite, 95%, medium dark gray (N4) medium light gray (N6), fine crystalline, moderately well indurated, low porosity, low permeability; Dolomitic Limestone, 5%, pale yellowish brown (10YR 6/2) to grayish orange (10YR 7/4), very fine grained, slightly fossiliferous, poor to moderate induration, low porosity, low permeability.



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Date	Depth (ft. bpl)		Observer's Description
	From	To	

9/6/2011	3,135	3,140	Dolomite: 100%, light gray (N7), fine crystalline, well indurated, low porosity, low permeability.
9/6/2011	3,140	3,145	Limestone: 100%, yellowish gray (5Y 8/1) to white (N9), very fine grained, chalky, calcareous, moderately well indurated, some vuggy, low to moderate porosity, low to moderate permeability.
9/6/2011	3,145	3,150	Limestone: same as above.
9/6/2011	3,150	3,155	Limestone: same as above.
9/6/2011	3,155	3,160	Limestone: same as above.
9/6/2011	3,160	3,165	Limestone: same as above.
9/6/2011	3,165	3,170	Limestone: same as above.
9/6/2011	3,170	3,175	Limestone: same as above.
9/6/2011	3,175	3,180	Limestone: same as above.
9/6/2011	3,180	3,185	Dolomite and Limestone: Dolomite, 70%, medium dark gray (N4) medium light gray (N6), fine crystalline, moderately well indurated, slightly vuggy; Limestone, 30%, yellowish gray (5Y 8/1) to white (N9), very fine grained, chalky, calcareous, moderately well indurated, some vuggy, low to moderate porosity, low to moderate permeability.
9/6/2011	3,185	3,190	Limestone: 100%, yellowish gray (5Y 8/1) to white (N9), very fine grained, chalky, calcareous, moderately well indurated, some vuggy, low to moderate porosity, low to moderate permeability.
9/7/2011	3,190	3,195	Limestone: 100%, yellowish gray (5Y 8/1), fine grained, ooids, few burrows and fossil molds, moderately to well indurated, low to moderate intergranular porosity, low to moderate permeability; Trace Dolomite, medium light gray (N6) to medium gray (N5), fine crystalline, moderately well indurated.
9/7/2011	3,195	3,200	Limestone and Dolomite: Limestone, 90%, yellowish gray (5Y 8/1) to white (N9), very fine grained, poorly indurated, some vuggy, low to moderate porosity, low to moderate permeability; Dolomite, 10%, medium light gray (N6), fine crystalline, well indurated.
9/8/2011	3,200	3,205	Limestone: 100%, very pale orange (10YR 8/2) to white (N9), fine to medium grained, poorly indurated, low to moderate porosity, low to moderate permeability, mostly pellets with few benthic foraminifera, sparry calcite cement.
9/9/2011	3,205	3,210	Limestone: same as above.
9/10/2011	3,210	3,215	Limestone: same as above.
9/15/2011	3,215	3,220	Limestone: 90%, very pale orange (10YR 8/2) to white (N9), fine to medium grained, poorly to moderately indurated, low to moderate porosity, low to moderate permeability, mostly pellets with few benthic foraminifera, sparry calcite cement; Dolomite, 10%, light gray (N7) to medium gray (N4), fine crystalline, well indurated.
9/18/2011	3,220	3,225	Limestone: 100%, very pale orange (10YR 8/2) to white (N9), fine grained, well to moderately indurated, low to moderate porosity, low to moderate permeability, mostly pellets with few benthic foraminifera, sparry calcite cement.
10/2/2011	3,225	3,230	Limestone: same as above.
10/23/2011	3,230	3,235	Limestone and Dolomite: Limestone, 80%, dolomitic, very pale orange (10YR 8/2) to white (N9), fine to medium grained, moderately to moderately well indurated, low to moderate porosity, low to moderate permeability; Dolomite, 20%, medium gray (N5) to medium dark gray (N4) to pale yellowish brown (10YR6/2), fine crystalline, well indurated; Minor amount of sparry calcite cement.



Florida Power & Light Company
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Date	Depth (ft. bpl)		Observer's Description
	From	To	

10/23/2011	3,235	3,240	Limestone and Dolomite: same as above.
10/23/2011	3,240	3,245	Limestone and Dolomite: 80%, dolomitic, very pale orange (10YR 8/2) to white (N9), fine to medium grained, moderately poor to moderately well indurated, low to moderate porosity, low to moderate permeability; Dolomite, 20%, medium gray (N5) to medium dark gray (N4) to pale yellowish brown (10YR6/2), fine crystalline, well indurated; <u>Minor amount of sparry calcite cement.</u>
10/26/2011	3,245	3,250	Limestone and Dolomite: Limestone, 95%, very pale orange (10YR 8/2) to white (N9), fine to medium grained, oolitic, some vugs, moderately poor to moderately well indurated, low to moderate porosity, low to moderate permeability; Dolomite, 5%, medium gray (N5), pale yellowish brown (10YR 6/2), and pale reddish brown (10R 5/4), <u>fine crystalline, well indurated..</u>
10/26/2011	3,250	3,255	Limestone: 100%, very pale orange (10YR 8/2) to white (N9), fine to medium grained, moderately poor to moderately well indurated, low to moderate porosity, low to moderate permeability; Dolomite, trace, medium gray (N5) to medium dark gray (N4), fine crystalline, well indurated..
10/26/2011	3,255	3,260	Limestone and Dolomite: 70%, dolomitic, very pale orange (10YR 8/2) to white (N9), fine grained, moderately well indurated, low to moderate porosity, low to moderate permeability; Dolomite, 30%, medium gray (N5) to medium dark gray (N4) to pale <u>yellowish brown (10YR6/2), fine crystalline, well indurated.</u>
10/26/2011	3,260	3,265	Limestone and Dolomite: same as above.

ft. bpl = feet below pad level

Appendix L

Geophysical Logs

**Please see geophysical logs
at the back of the report**

Appendix M

Core Descriptions

Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Rock Core Lithologic Description



Core #: 1

Date Recovered: August 14, 2011

Interval Cored: 1,721.5 to 1,734.5 feet bpl

Amount Recovered: 3.3

Recovery Percentage: 25.0%

Depth Interval (feet bpl)		Observer's Description
From	To	
1,721.5	1,722.3	Dolomitic Limestone: 100%, pale yellowish brown (10YR 6/2) to grayish orange (10 YR 7/4), fine to medium grained, moderate induration, fossiliferous (Dictyoconus, echinoid spines, calcite replaced shell), moderately to well sorted, moderate intergranular porosity, low permeability (micro), calcite replacement.
1,722.3	1,722.7	Dolomitic Limestone: 100%, pale yellowish brown (10YR 6/2), fine crystalline (waxy), high induration, conchoidal breaks, non-fossiliferous, moderate secondary porosity with vugs <1 mm to 1 cm, low permeability (micro).
1,722.7	1,723.0	Dolomitic Limestone: 100%, pale yellowish brown (10YR 6/2) to grayish orange (10 YR 7/4), fine to medium grained, moderate induration, fossiliferous (Dictyoconus, echinoid spines), moderate to well sorted, moderate intergranular porosity, low permeability (micro), calcite replacement.
1,723.0	1,723.3	Dolomitic Limestone: 100%, pale yellowish brown (10YR 6/2) to grayish orange (10 YR 7/4), fine to medium grained, moderate induration, fossiliferous (Dictyoconus, echinoid spines), moderate to well sorted, moderate intergranular porosity, vugs 1 mm to 3 cm, moderate to high permeability (micro).
1,723.3	1,723.6	Dolomitic Limestone (Rubble): 100%, very pale orange (10 YR /2), fine grained, moderate induration, fossiliferous (Dictyoconus, echinoid spines), well sorted, low intergranular porosity, low permeability (micro).
1,723.6	1,724.0	Dolomitic Limestone: 100%, pale yellowish brown (10YR 6/2) to medium gray (N5), fine grained, moderate induration, fossiliferous (molds), moderately to well sorted, low intergranular porosity, low permeability (micro), calcite replacement.
1,724.0	1,724.3	Dolomitic Limestone: 100%, pale yellowish brown (10YR 6/2) to grayish orange (10 YR 7/4), fine to medium grained, moderate induration, fossiliferous (Dictyoconus, echinoid spines), moderately to well sorted, moderate to high intergranular porosity, moderate permeability (micro), calcite replacement.
1,724.3	1,724.8	Dolomitic Limestone: 100%, pale yellowish brown (10YR 6/2) to grayish orange (10 YR 7/4), fine grained, moderate to high induration, fossiliferous (Dictyoconus, echinoid spines), moderately to well sorted, low to moderate intergranular porosity, vugs <1 mm to 3 mm, low permeability (micro), calcite replacement.
1,724.8	1,734.5	No core recovery.

feet bpl = feet below pad level

Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Rock Core Lithologic Description



Core #: 2

Date Recovered: August 18, 2011

Interval Cored: 2,026-2,040 feet bpl

Amount Recovered: 12.0 feet

Recovery Percentage: 86%

Depth Interval (feet bpl)		Observer's Description
From	To	
2,026.0	2,029.4	Dolomitic Limestone; 100%, yellowish gray (5Y 8/1) to very pale orange (10YR 8/2), fine grained, well sorted, moderate induration, low intergranular porosity, minor moldic porosity, low permeability, black accessory mineral.
2,029.4	2,031.3	Dolomitic Limestone; 100%, very pale orange (10YR 8/2) to grayish orange (10YR 7/4), fine grained, moderate sorting, moderate to high induration, moderate intergranular porosity, low permeability, benthic foraminifera generally absent, black accessory mineral, laminated appearance.
2,031.3	2,033.6	Dolomitic Limestone; 100%, yellowish gray (5Y 8/1) to very pale orange (10YR 8/2), fine grained, moderate sorting, moderate induration, moderate intergranular porosity, low permeability, black accessory mineral.
2,033.6	2,034.3	Dolomitic Limestone; 100%, very pale orange (10YR 8/2) to grayish orange (10YR 7/4), fine grained, moderate to well sorted, moderate to high induration, moderate intergranular porosity, low permeability, benthic foraminifera generally absent, black accessory mineral, laminated appearance.
2,034.3	2,038.0	Dolomitic Limestone; 100%, very pale orange (10YR 8/2) to grayish orange (10YR 7/4), fine grained (fine crystalline cement), well sorted, moderate to high induration, moderate intergranular porosity, low permeability, benthic foraminifera generally absent, black accessory mineral.

feet bpl = feet below pad level

**Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Rock Core Lithologic Description**



Core #: 3

Date Recovered: August 20, 2011

Interval Cored: 2,110-2,124 feet bpl

Amount Recovered: 2.0 feet

Recovery Percentage: 14%

Depth Interval (feet bpl)

From

To

Observer's Description

2,110.0

2,112.0

Dolomitic Limestone; grayish orange (10YR 7/4), fine grained, moderately well sorted, low induration, low to moderate intergranular porosity, low to moderate permeability, benthic foraminifera (dictyoconus, fabiana, echinoid test?), thin bands of black accessory mineral.

feet bpl = feet below pad level

**Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Rock Core Lithologic Description**



Core #: 4

Date Recovered: August 21, 2011

Interval Cored: 2,288.3-2,302.3 feet bpl

Amount Recovered: 13.0 feet

Recovery Percentage: 93%

Depth Interval (feet bpl)		Observer's Description
From	To	
2,288.3	2,299.9	Dolomitic Limestone: grayish orange (10YR 7/4), fine grained, well sorted, moderate induration, low intergranular porosity, low permeability, sparse benthic foraminifera, calcite/dolomite replacement, thin darker bands (laminated), black accessory mineral.
2,299.9	2,300.6	Dolomitic Limestone (chalky): very pale orange (10YR 8/2), fine grained, well sorted, low induration, low intergranular porosity, low permeability, benthic foraminifera generally absent, black accessory mineral.
2,300.6	2,301.3	Dolomitic Limestone: grayish orange (10YR 7/4), fine grained, well sorted, moderate induration, low intergranular porosity, low permeability, small localized pockets of honeycombed porosity, sparse benthic foraminifera, calcite/dolomite replacement, black accessory mineral.

feet bpl = feet below pad level

Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Rock Core Lithologic Description



Core #: 5

Date Recovered: August 24, 2011

Interval Cored: 2,396 feet to 2,410 feet bpl

Amount Recovered: 6.1 feet

Recovery Percentage: 44%

Depth Interval (feet bpl)		Observer's Description
From	To	
2,396.0	2,396.9	Dolomitic Limestone: very pale orange (10YR 8/2) to grayish orange (10YR 7/4), fine grained, moderately well sorted, moderate induration, moderate amount of foraminifera, some dolomite replacement, very few vugs, low interparticle porosity, low to moderate permeability.
2,396.9	2,397.6	Dolomitic Limestone (Rubble): grayish orange (10YR 7/4), fine grained, moderately well sorted, low induration, moderate porosity, moderate amount of foraminifera, low to moderate permeability.
2,397.6	2,399.4	Dolomite: pale yellowish brown (10YR 6/2), very fine grained to crystalline, poorly sorted, moderate induration, some lamination, some lamination, dolomite/calcite replacement mineral, low porosity, low permeability.
2,399.4	2,400.9	Dolomitic Limestone: grayish orange (10YR 7/4), fine grained, moderate to poorly sorted, low to moderate induration, benthic foraminifera, low to moderate intergranular and interparticle porosity, moderate permeability.
2,400.9	2,401.7	Dolomitic Limestone: grayish orange (10YR 7/4), fine grained, moderate to poorly sorted, low induration, benthic foraminifera, vuggy, moderate intergranular and interparticle porosity, moderate permeability.
2,401.7	2,402.1	Dolomitic Limestone Sand: grayish orange (10YR 7/4), very fine grained, chalky, benthic foraminifera.

feet bpl = feet below pad level

**Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Rock Core Lithologic Description**



Core #: 6

Date Recovered: August 27, 2011

Interval Cored: 2,576 feet to 2,578.1 feet bpl

Amount Recovered: 0.9 feet

Recovery Percentage: 43%

Depth Interval (feet bpl)		Observer's Description
From	To	
2,576.0	2,576.9	Dolomitic Limestone: very pale orange (10YR 8/2) to grayish orange (10YR 7/4), fine grained, moderately well sorted, moderate induration, vugs, sparse benthic foraminifera, echinoids spine, gastropod molds, moderate to high intergranular porosity, moderate

feet bpl = feet below pad level

**Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Rock Core Lithologic Description**



Core #: 7

Date Recovered: August 28, 2011

Interval Cored: 2,580 feet to 2,590 feet bpl

Amount Recovered: 0.8 feet

Recovery Percentage: 8%

Depth Interval (feet bpl)		Observer's Description
From	To	
2,580.0	2,580.8	Dolomitic Limestone: grayish orange (10YR 7/4) to pale yellowish brown (10YR 6/2), fine grained, moderately well sorted, moderate induration, moderate to high intergranular porosity, moderate permeability, unevenly distributed vugs, benthic foraminifera (Dictyoconus, echinoids spine) near core top and becoming sparse, limestone fragments.

feet bpl = feet below pad level

**Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Rock Core Lithologic Description**



Core #: 8

Date Recovered: August 31, 2011

Interval Cored: 2,638 feet to 2,652 feet bpl

Amount Recovered: 8.5 feet

Recovery Percentage: 61%

Depth Interval (feet bpl)		Observer's Description
From	To	
2,638.0	2,639.7	Limestone (Rubble): yellowish gray (5Y 8/1), argillaceous, chalky, moderately well indurated, low porosity, low permeability, nonfossiliferous.
2,639.7	2,640.2	Limestone: yellowish gray (5Y 8/1), argillaceous, chalky, moderately well indurated, low porosity, low permeability, nonfossiliferous.
2,640.2	2,642.9	Dolomitic Limestone: Dolomitic Limestone, grayish orange (10YR 7/4) to pale yellowish brown (10YR 6/2), fine grained, poorly sorted, moderate to well indurated, low to moderate intergranular porosity, few small vugs, benthic foraminifera. low to moderate permeability.
2,642.9	2,644.0	Dolomitic Limestone: pale yellowish brown (10YR 6/2) and grayish orange (10YR 7/4), fine grained, poorly sorted, moderate to well indurated, few benthic foraminifera, few small vugs, some calcite replacement, thin darker bands (laminated), low intergranular porosity, low permeability,.
2,644.0	2,645.5	Limestone: very pale orange (10YR 8/2), fine grained, poorly sorted, moderately well indurated, few benthic foraminifera, slightly vuggy, some thin darker bands (laminated), moderate intergranular and interparticle porosity, low to moderate permeability.
2,645.5	2,646.5	Dolomitic Limestone: Dolomitic Limestone, grayish orange (10YR 7/4) to pale yellowish brown (10YR 6/2), fine grained, poorly sorted, moderate to well indurated, low to moderate intergranular porosity, low to moderate permeability.

feet bpl = feet below pad level

Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Rock Core Lithologic Description



Core #: 9

Date Recovered: September 1, 2011

Interval Cored: 2,652 feet to 2,666 feet bpl

Amount Recovered: 5.2 feet

Recovery Percentage: 37%

Depth Interval (feet bpl)		Observer's Description
From	To	
2,652.0	2,653.4	Dolomitic Limestone: very pale orange (10YR 8/2) to grayish orange (10 YR 7/4), fine grained, moderate to well indurated, few to some benthic foraminifera, shell fragments and molds, low to moderate intergranular porosity, low to moderate permeability.
2,653.4	2,654.8	Dolomitic Limestone: yellow gray (5Y 8/1), fine grained, poorly sorted, moderate to well indurated, few benthic foraminifera, few small vugs, thin darker bands (laminated), low intergranular porosity, low permeability..
2,654.8	2,655.1	Limestone: yellow gray (5Y 8/1), fine grained, chalky, burrows and vugs, low intergranular porosity, low permeability.
2,655.1	2,656.5	Dolomitic Limestone: yellow gray (5Y 8/1), fine grained, poorly sorted, moderate to well indurated, few benthic foraminifera, few small vugs, thin darker bands (laminated), low intergranular porosity, low permeability..
2,656.5	2,657.2	Dolomitic Limestone: very pale orange (10YR 8/2) to grayish orange (10 YR 7/4), fine grained, moderate to well indurated, some benthic foraminifera, shell fragments and molds, low to moderate intergranular porosity, low to moderate permeability.

feet bpl = feet below pad level

**Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Rock Core Lithologic Description**



Core #: 10

Date Recovered: September 3, 2011

Interval Cored: 2,666 feet to 2,679 feet bpl

Amount Recovered: 12.4 feet



Recovery Percentage: 95%



Depth Interval (feet bpl)		Observer's Description
From	To	
2,666.0	2,671.3	Dolomitic Limestone: grayish orange (10 YR 7/4), fine grained, moderate to well indurated, some benthic foraminifera, shell fragments and molds, slightly vuggy, low to moderate intergranular porosity, low to moderate permeability.
2,671.3	2,677.6	Limestone: yellowish gray (5Y 8/1) to very pale orange (10YR 8/2), fine to medium grained, moderate to well induration, slightly vuggy, benthic foraminifera, low to moderate intergranular porosity, low permeability.
2,677.6	2,678.0	Limestone (Rubble): yellowish gray (5Y 8/1) to very pale orange (10YR 8/2), fine to medium grained, moderately poor induration, benthic foraminifera, low to moderate intergranular porosity, low permeability.
2,678.0	2,678.4	Limestone: yellowish gray (5Y 8/1) to very pale orange (10YR 8/2), fine to medium grained, moderate to well induration, benthic foraminifera, low to moderate intergranular porosity, low permeability.



feet bpl = feet below pad level



Appendix N

**Pad Monitor Wells Data
Summary Sheets and Plug
and Abandonment Permit**

Project: Florida Power & Light Company Turkey Point Units 6 & 7 Exploratory Well EW-1								 
EW-1 Pad Monitoring Well Water Quality Data Northeast Pad Monitoring Well (NE-EW PMW)								
Date	Time (hours)	Depth to Water (ft. btoc)	Water Elevation (ft. NAVD 88)	Specific Conductance (umhos/cm)	Chloride (mg/L)	TDS (mg/L)	Temperature (degrees C)	Remarks
4/21/2011	1108	10.49	-1.61	78,700	32,200	57,000	29.8	Background Sampling
4/29/2011	1157	10.68	-1.80	80,400	29,900	53,800	30.4	
5/5/2011	1157	11.40	-2.52	81,400	27,500	52,350	31.2	
5/11/2011	1309	11.00	-2.12	76,800	31,600	51,200	29.7	
5/19/2011	0958	10.48	-1.60	72,600	35,600	51,200	29.5	
5/26/2011	1050	10.76	-1.88	71,360	29,500	52,900	29.7	
6/2/2011	1134	10.78	-1.90	71,700	29,000	55,700	29.6	
6/9/2011	1128	10.61	-1.73	69,700	32,300	50,650	29.3	
6/16/2011	0958	10.35	-1.47	69,300	33,000	53,450	29.5	
6/23/2011	1028	10.41	-1.53	69,400	30,600	55,600	29.5	
6/30/2011	0928	10.15	-1.27	70,300	27,600	51,950	29.2	
7/8/2011	1210	9.00	-0.12	72,570	30,100	54,150	29.9	
7/14/2011	1338	9.75	-0.87	76,400	27,200	54,550	29.9	
7/21/2011	1039	9.35	-0.47	72,200	32,600	49,760	29.7	
7/28/2011	1119	9.51	-0.63	71,600	30,200	54,250	29.7	
8/4/2011	1249	9.70	-0.82	64,400	31,500	53,850	27.5	
8/11/2011	1059	9.25	-0.37	73,900	29,500	57,150	29.6	
8/18/2011	1039	9.45	-0.57	71,900	29,400	54,850	30.0	
8/25/2011	1039	9.45	-0.57	69,800	31,300	55,550	29.7	
9/1/2011	1109	9.15	-0.27	71,700	29,500	56,300	29.9	
9/8/2011	1049	9.15	-0.27	70,700	31,400	49,800	30.3	
9/16/2011	1233	9.30	-0.42	5320*	1260*	2668*	27.8	
9/23/2011	1129	9.10	-0.22	72,900	31,200	52,750	30.1	
9/29/2011	1330	9.16	-0.28	11,500*	3,200*	7,010*	27.8	
10/6/2011	1119	9.30	-0.42	72,600	30,000	56,200	30.1	
10/13/2011	1058	10.15	-1.27	75,200	32,500	51,600	30.1	
10/20/2011	1049	8.40	0.48	68,400	29,100	57,450	29.9	
10/27/2011	1109	8.95	-0.07	80,200	27,700	54,950	30.0	
11/3/2011	1049	8.91	-0.03	80,200	31,100	55,700	29.9	
11/10/2011	0958	9.67	-0.79	75,500	28,700	59,600	30.0	
11/17/2011	1058	10.81	-1.93	68,400	34,900	57,500	30.1	
11/25/2011	0939	9.51	-0.63	69,300	26,500	52,750	30.0	
12/1/2011	1138	9.67	-0.79	66,000	29,800	55,200	29.8	
12/8/2011	1058	10.31	-1.43	63,800	30,100	57,050	27.5	
12/15/2011	1109	9.61	-0.73	75,400	28,300	53,700	30.0	
12/22/2011	1038	9.67	-0.79	69,300	29,500	51,800	30.7	
12/29/2011	0918	9.87	-0.99	76,900	30,800	51,300	29.7	
1/5/2012	1118	10.41	-1.53	70,400	28,100	52,200	29.5	
1/12/2012	1058	10.21	-1.33	75,200	28,200	50,900	29.9	
1/19/2012	0958	10.30	-1.42	75,200	27,700	49,300	29.8	
1/26/2012	1048	10.22	-1.34	72,300	29,400	55,300	30.0	
2/2/2012	1048	10.21	-1.33	71,300	28,400	50,700	29.9	
2/10/2012	1029	9.15	-0.27	71,400	30,400	52,400	30.0	
2/16/2012	1219	9.47	-0.59	72,300	27,000	53,300	29.9	
2/23/2012	1049	9.57	-0.69	72,300	29,600	55,100	30.1	
3/1/2012	1038	9.74	-0.86	72,300	31,500	50,100	30.0	
3/8/2012	1058	9.76	-0.88	72,200	31,600	53,100	29.3	
3/16/2012	1038	9.65	-0.77	72,100	34,900	53,100	29.9	
3/22/2012	1108	9.90	-1.02	72,400	30,800	48,700	29.8	
3/29/2012	0911	9.87	-0.99	72,500	29,100	48,600	29.2	
4/5/2012	1208	10.25	-1.37	71,600	29,200	50,800	30.0	
4/12/2012	1118	10.15	-1.27	71,500	32,000	52,700	30.1	
4/19/2012	1143	9.85	-0.97	72,000	34,000	54,500	30.3	
4/26/2012	1009	9.50	-0.62	72,100	36,000	54,200	29.7	
5/3/2012	1144	8.85	0.03	72,400	36,500	50,900	29.6	
5/10/2012	1109	9.42	-0.54	72,800	32,000	51,700	29.7	
5/17/2012	0959	9.05	-0.17	73,200	29,500	53,200	29.7	
5/24/2012	1229	8.65	0.23	72,200	28,900	51,900	29.6	
5/31/2012	1214	9.04	-0.16	72,800	30,900	51,200	29.9	
6/8/2012	1029	9.32	-0.44	72,800	30,700	50,900	29.9	
6/14/2012	1029	9.55	-0.67	72,000	30,700	53,500	30.2	
6/21/2012	1129	9.25	-0.37	72,800	30,600	51,300	29.7	
6/28/2012	1019	9.10	-0.22	72,900	29,800	52,000	30.1	
7/5/2012	1244	9.40	-0.52	72,000	27,800	52,500	29.3	
ft. btoc: feet below top of casing TOC: Top of Casing ft. NAVD 88: North American Vertical Datum of 1988 umhos/cm: micromhos per centimeter mg/L: milligrams per liter C: Celsius *Results appear to be anomalous and are suspected to be related to a sampling error. Countermeasures to prevent reoccurrence have been implemented. Note: TOC elevation is: 8.88 feet NAVD 88								

Project: Florida Power & Light Company Turkey Point Units 6 & 7 Exploratory Well EW-1								 
EW-1 Pad Monitoring Well Water Quality Data Southeast Pad Monitoring Well (SE-EW PMW)								
Date	Time (hours)	Depth to Water (ft. btoc)	Water Elevation (ft. NAVD 88)	Specific Conductance (umhos/cm)	Chloride (mg/L)	TDS (mg/L)	Temperature (degrees C)	Remarks
4/21/2011	1311	10.10	-1.51	81,600	30,200	57,800	29.9	Background Sampling
4/29/2011	1349	10.40	-1.81	86,700	33,100	55,000	30.4	
5/5/2011	1008	11.10	-2.51	83,000	29,500	54,700	29.9	
5/11/2011	1228	10.65	-2.06	78,200	30,100	52,600	30.1	
5/19/2011	1039	10.12	-1.53	75,200	30,000	51,100	29.8	
5/26/2011	1235	10.47	-1.88	73,890	31,200	53,800	29.9	
6/2/2011	1056	10.50	-1.91	74,200	29,400	57,400	29.6	
6/9/2011	1210	10.32	-1.73	72,200	32,100	51,000	29.6	
6/16/2011	1035	10.00	-1.41	71,300	32,200	54,000	29.8	
6/23/2011	1109	10.10	-1.51	71,900	31,600	55,650	29.8	
6/30/2011	1009	9.85	-1.26	72,800	27,600	53,050	29.5	
7/8/2011	1138	9.12	-0.53	73,150	29,800	54,450	29.9	
7/14/2011	1414	9.48	-0.89	79,700	29,000	55,350	29.8	
7/21/2011	1119	9.36	-0.77	74,100	34,000	54,100	30.0	
7/28/2011	1229	9.55	-0.96	74,300	30,200	56,300	29.8	
8/4/2011	1224	9.50	-0.91	72,700	31,500	53,000	27.7	
8/11/2011	1209	9.37	-0.78	77,400	30,000	56,800	29.7	
8/18/2011	1149	9.45	-0.86	74,100	30,100	55,500	30.0	
8/25/2011	1149	9.38	-0.79	73,300	31,200	57,450	29.6	
9/1/2011	1224	9.10	-0.51	72,700	30,700	57,300	29.8	
9/8/2011	1159	9.21	-0.62	73,200	32,200	51,800	30.1	
9/16/2011	1303	9.40	-0.81	70,280	29,600	50,550	27.7	
9/23/2011	1239	9.20	-0.61	75,200	29,000	55,550	29.8	
9/29/2011	1300	9.10	-0.51	68,500	30,700	53,600	27.4	
10/6/2011	1229	9.25	-0.66	79,100	31,300	54,050	30.0	
10/13/2011	1209	9.95	-1.36	76,900	30,200	52,250	30.1	
10/20/2011	1200	8.60	-0.01	69,900	28,000	57,150	29.8	
10/27/2011	1218	8.81	-0.22	82,400	28,000	56,500	30.0	
11/3/2011	1159	9.56	-0.97	82,900	31,000	56,400	30.1	
11/10/2011	1109	9.96	-1.37	78,300	27,900	60,500	30.1	
11/17/2011	1208	10.90	-2.31	69,700	34,000	57,800	30.2	
11/25/2011	1049	9.36	-0.77	69,900	26,900	53,600	30.0	
12/1/2011	1248	10.85	-2.26	71,800	33,900	57,000	30.2	
12/8/2011	1209	9.87	-1.28	68,900	29,500	61,500	27.0	
12/15/2011	1219	9.53	-0.94	76,600	28,000	55,100	30.1	
12/22/2011	1149	9.65	-1.06	72,300	29,000	52,400	30.0	
12/29/2011	1029	9.96	-1.37	77,600	29,800	52,200	30.1	
1/5/2012	1229	10.31	-1.72	72,800	27,700	53,400	30.1	
1/12/2012	1204	10.10	-1.51	76,000	30,800	52,900	30.1	
1/19/2012	1139	10.38	-1.79	76,500	28,100	50,800	30.0	
1/26/2012	1229	10.18	-1.59	73,200	29,900	56,300	30.1	
2/2/2012	1229	10.23	-1.64	72,400	27,900	52,000	30.1	
2/10/2012	1209	9.21	-0.62	72,000	29,800	55,400	30.2	
2/16/2012	1359	9.45	-0.86	72,700	27,700	57,200	30.2	
2/23/2012	1229	9.48	-0.89	72,800	32,100	57,000	30.2	
3/1/2012	1219	9.61	-1.02	72,800	31,000	51,700	30.2	
3/8/2012	1244	9.81	-1.22	72,500	32,500	52,500	29.9	
3/16/2012	1219	9.61	-1.02	72,900	34,300	53,100	30.3	
3/22/2012	1249	9.87	-1.28	72,600	31,000	51,100	30.2	
3/29/2012	1054	9.97	-1.38	72,900	29,500	51,200	29.9	
4/5/2012	1341	10.05	-1.46	72,300	29,500	52,200	30.2	
4/12/2012	1259	9.98	-1.39	72,200	31,200	53,800	30.5	
4/19/2012	1244	9.90	-1.31	71,800	33,500	54,500	30.4	
4/26/2012	1144	9.61	-1.02	72,200	35,500	54,500	30.0	
5/3/2012	1249	8.97	-0.38	73,100	37,400	51,700	30.2	
5/10/2012	1242	9.32	-0.73	73,300	32,100	53,100	30.2	
5/17/2012	1134	9.10	-0.51	73,300	27,700	54,100	30.1	
5/24/2012	1404	8.75	-0.16	73,400	30,600	54,100	30.3	
5/31/2012	1343	9.10	-0.51	73,900	31,000	50,500	30.1	
6/8/2012	1202	9.30	-0.71	73,300	31,100	53,200	30.3	
6/14/2012	1209	9.38	-0.79	73,700	31,500	54,700	30.6	
6/21/2012	1316	9.03	-0.44	73,700	29,900	52,300	30.2	
6/28/2012	1159	9.20	-0.61	73,800	27,300	49,300	30.3	
7/5/2012	1424	9.30	-0.71	73,300	27,800	53,800	29.8	
ft. btoc: feet below top of casing TOC: Top of Casing ft. NAVD 88: North American Vertical Datum of 1988 umhos/cm: micromhos per centimeter mg/L: milligrams per liter C: Celsius Note: TOC elevation is: 8.59 feet NAVD 88								

Project: Florida Power & Light Company Turkey Point Units 6 & 7 Exploratory Well EW-1					 			
EW-1 Pad Monitoring Well Water Quality Data Northwest Pad Monitoring Well (NW-EW PMW)								
Date	Time (hours)	Depth to Water (ft. btoc)	Water Elevation (ft. NAVD 88)	Specific Conductance (umhos/cm)	Chloride (mg/L)	TDS (mg/L)	Temperature (degrees C)	Remarks
4/21/2011	1221	10.50	-1.66	84,300	33,500	59,900	30.8	Background Sampling
4/29/2011	1120	10.65	-1.81	86,300	33,700	56,400	30.0	
5/5/2011	1051	11.40	-2.56	87,400	31,300	57,650	31.1	
5/11/2011	1034	12.40	-3.56	79,100	33,500	55,650	30.4	
5/19/2011	1113	13.90	-5.06	80,000	36,000	53,700	30.4	
5/26/2011	1125	10.73	-1.89	75,130	32,300	55,450	30.4	
6/2/2011	1215	10.75	-1.91	75,900	30,700	59,500	30.3	
6/9/2011	1248	10.60	-1.76	72,500	32,200	51,950	29.9	
6/16/2011	1118	10.25	-1.41	72,500	31,500	54,550	30.0	
6/23/2011	1143	10.37	-1.53	73,300	31,600	57,750	30.3	
6/30/2011	1049	10.10	-1.26	75,700	27,400	54,300	30.0	
7/8/2011	1112	9.38	-0.54	74,100	30,700	53,950	30.3	
7/14/2011	1524	9.75	-0.91	79,900	27,600	56,350	30.3	
7/21/2011	1226	9.60	-0.76	76,200	32,600	54,500	29.7	
7/28/2011	1154	9.80	-0.96	74,900	32,200	57,050	30.5	
8/4/2011	1317	9.85	-1.01	78,000	30,500	59,300	28.7	
8/11/2011	1134	9.61	-0.77	77,600	31,100	58,150	30.4	
8/18/2011	1114	9.68	-0.84	73,100	30,000	55,350	30.6	
8/25/2011	1114	9.61	-0.77	72,300	31,800	56,950	30.0	
9/1/2011	1149	9.33	-0.49	71,900	29,300	56,000	30.4	
9/8/2011	1124	9.45	-0.61	73,800	30,100	52,300	30.5	
9/16/2011	1203	9.60	-0.76	67,200	23,400	51,650	28.2	
9/23/2011	1204	9.43	-0.59	73,800	30,800	54,450	30.4	
9/29/2011	1205	9.35	-0.51	68,700	27,500	50,800	27.6	
10/6/2011	1154	9.50	-0.66	78,400	30,000	56,550	30.2	
10/13/2011	1133	10.21	-1.37	75,800	29,300	50,500	30.2	
10/20/2011	1124	8.81	0.03	70,200	27,500	56,850	30.1	
10/27/2011	1143	10.39	-1.55	81,500	28,800	54,600	30.2	
11/3/2011	1123	10.50	-1.66	80,500	30,400	55,900	30.1	
11/10/2011	1033	10.37	-1.53	77,800	27,800	58,700	30.1	
11/17/2011	1133	10.71	-1.87	67,900	30,500	57,000	30.3	
11/25/2011	1014	9.58	-0.74	71,700	27,400	53,300	30.2	
12/1/2011	1214	9.80	-0.96	68,500	33,500	53,650	30.1	
12/8/2011	1133	10.37	-1.53	68,700	27,600	57,850	27.7	
12/15/2011	1144	9.75	-0.91	75,500	28,200	52,000	30.0	
12/22/2011	1114	9.87	-1.03	70,600	27,700	52,100	29.9	
12/29/2011	0954	9.97	-1.13	77,700	29,500	51,600	29.9	
1/5/2012	1153	10.52	-1.68	71,800	28,000	52,800	29.6	
1/12/2012	1133	10.35	-1.51	75,400	30,400	51,900	30.0	
1/19/2012	1033	10.42	-1.58	75,600	29,800	50,200	29.9	
1/26/2012	1123	10.35	-1.51	73,200	29,500	56,000	29.9	
2/2/2012	1123	10.35	-1.51	71,100	27,400	51,200	29.9	
2/10/2012	1104	9.38	-0.54	70,300	28,800	54,900	29.8	
2/16/2012	1254	9.67	-0.83	71,100	27,800	55,200	29.8	
2/23/2012	1124	9.67	-0.83	72,100	30,700	56,200	29.8	
3/1/2012	1114	9.91	-1.07	71,500	31,000	51,200	29.7	
3/8/2012	1139	9.62	-0.78	71,600	30,500	52,800	29.4	
3/16/2012	1114	9.85	-1.01	71,500	34,100	52,400	29.7	
3/22/2012	1144	10.10	-1.26	71,400	30,200	48,700	29.6	
3/29/2012	0949	9.93	-1.09	71,500	28,400	51,200	29.6	
4/5/2012	1241	10.09	-1.25	71,300	28,900	51,100	29.7	
4/12/2012	1154	10.00	-1.16	71,300	29,300	52,600	29.9	
4/19/2012	1109	9.97	-1.13	71,400	31,500	53,300	30.2	
4/26/2012	1042	9.68	-0.84	71,700	31,300	53,000	29.6	
5/3/2012	1109	9.00	-0.16	72,200	34,200	49,500	29.5	
5/10/2012	1142	9.35	-0.51	72,500	31,400	52,000	29.5	
5/17/2012	1032	9.10	-0.26	72,700	30,200	52,300	29.6	
5/24/2012	1302	8.75	0.09	72,600	30,300	52,800	29.5	
5/31/2012	1247	9.07	-0.23	73,100	32,100	48,800	29.6	
6/8/2012	1102	9.35	-0.51	71,800	30,300	52,200	29.7	
6/14/2012	1104	9.37	-0.53	72,300	30,200	53,200	30.3	
6/21/2012	1214	8.76	0.08	72,600	28,500	51,100	29.7	
6/28/2012	1054	9.12	-0.28	72,500	30,700	51,900	29.8	
7/5/2012	1319	9.50	-0.66	72,600	27,700	51,900	29.8	
ft. btoc: feet below top of casing TOC: Top of Casing ft. NAVD 88: North American Vertical Datum of 1988 umhos/cm: micromhos per centimeter mg/L: milligrams per liter C: Celsius Note: TOC elevation is: 8.84 feet NAVD 88								

Project: Florida Power & Light Company Turkey Point Units 6 & 7 Exploratory Well EW-1								 
EW-1 Pad Monitoring Well Water Quality Data Southwest Pad Monitoring Well (SW-EW PMW)								
Date	Time (hours)	Depth to Water (ft. btoc)	Water Elevation (ft. NAVD 88)	Specific Conductance (umhos/cm)	Chloride (mg/L)	TDS (mg/L)	Temperature (degrees C)	Remarks
4/21/2011	1414	10.50	-1.62	72,500	26,400	51,500	30.6	Background Sampling
4/29/2011	1025	10.60	-1.72	77,400	28,300	51,600	29.8	
5/5/2011	0930	11.85	-2.97	75,200	29,000	49,400	28.7	
5/11/2011	1124	16.40	-7.52	78,100	28,300	51,050	31.6	
5/19/2011	1202	15.95	-7.07	73,100	29,700	48,450	32.6	
5/26/2011	1155	11.20	-2.32	66,630	27,800	48,350	29.4	
6/2/2011	1035	11.25	-2.37	68,500	26,000	52,600	29.4	
6/9/2011	1319	11.05	-2.17	65,400	26,300	44,150	29.5	
6/16/2011	1154	10.75	-1.87	64,900	27,000	48,450	29.5	
6/23/2011	1214	10.85	-1.97	65,500	30,400	50,800	29.6	
6/30/2011	1119	10.60	-1.72	68,500	24,300	46,650	29.4	
7/8/2011	1045	9.85	-0.97	64,950	25,600	47,650	29.6	
7/14/2011	1445	10.22	-1.34	69,900	24,800	48,300	29.6	
7/21/2011	1154	10.10	-1.22	67,800	27,400	47,900	29.6	
7/28/2011	1259	10.26	-1.38	67,000	26,600	48,650	27.7	
8/4/2011	1157	10.30	-1.42	68,420	25,600	51,350	27.5	
8/11/2011	1243	9.21	-0.33	67,800	26,400	51,150	29.7	
8/18/2011	1219	10.15	-1.27	66,300	25,400	47,500	29.8	
8/25/2011	1219	10.31	-1.43	66,000	26,900	50,150	29.4	
9/1/2011	1254	9.87	-0.99	65,400	25,700	49,450	29.8	
9/8/2011	1229	9.97	-1.09	66,800	26,300	46,500	29.9	
9/16/2011	1329	10.10	-1.22	64,000	25,700	46,800	28.0	
9/23/2011	1309	9.95	-1.07	66,200	25,800	47,500	29.6	
9/29/2011	1230	9.80	-0.92	64,100	25,400	46,150	27.7	
10/6/2011	1259	9.97	-1.09	76,200	25,800	45,800	29.7	
10/13/2011	1239	10.67	-1.79	69,100	26,100	46,700	29.8	
10/20/2011	1229	9.31	-0.43	64,700	23,800	51,100	29.6	
10/27/2011	1249	10.87	-1.99	75,600	26,500	50,000	29.7	
11/3/2011	1229	10.93	-2.05	75,600	27,700	49,750	29.7	
11/10/2011	1139	10.91	-2.03	73,500	25,500	53,300	29.7	
11/17/2011	1238	11.41	-2.53	63,800	26,900	50,400	29.7	
11/25/2011	1119	10.05	-1.17	65,800	24,900	48,950	29.7	
12/1/2011	1323	11.42	-2.54	65,900	29,600	51,100	29.6	
12/8/2011	1239	10.98	-2.10	64,900	24,800	52,450	27.3	
12/15/2011	1247	10.27	-1.39	70,100	24,800	49,700	29.4	
12/22/2011	1219	10.27	-1.39	66,800	24,900	45,600	29.7	
12/29/2011	1059	10.67	-1.79	71,100	26,400	46,300	29.5	
1/5/2012	1259	11.03	-2.15	64,800	24,900	47,600	29.3	
1/12/2012	1234	10.87	-1.99	69,000	25,700	47,000	29.6	
1/19/2012	1104	11.00	-2.12	69,100	24,900	44,200	29.4	
1/26/2012	1154	10.85	-1.97	67,500	25,900	50,100	29.4	
2/2/2012	1154	10.97	-2.09	65,300	25,200	46,200	29.5	
2/10/2012	1134	9.91	-1.03	65,300	25,400	48,900	29.6	
2/16/2012	1324	10.15	-1.27	64,600	24,100	50,500	29.4	
2/23/2012	1154	10.24	-1.36	65,300	24,100	50,500	29.5	
3/1/2012	1144	10.27	-1.39	65,300	26,900	45,900	29.4	
3/8/2012	1209	10.31	-1.43	65,300	27,400	47,700	30.0	
3/16/2012	1144	10.35	-1.47	65,300	29,800	47,200	29.3	
3/22/2012	1214	10.61	-1.73	65,500	27,100	44,600	29.3	
3/29/2012	1019	10.18	-1.30	65,500	26,100	45,900	29.5	
4/5/2012	1309	10.72	-1.84	65,300	25,600	48,200	29.4	
4/12/2012	1224	10.60	-1.72	65,000	27,000	49,700	30.5	
4/19/2012	1211	10.65	-1.77	65,400	28,200	50,800	30.6	
4/26/2012	1109	10.32	-1.44	66,000	30,900	49,800	29.2	
5/3/2012	1214	9.70	-0.82	67,200	30,800	47,700	29.2	
5/10/2012	1209	10.02	-1.14	68,700	30,200	49,600	29.2	
5/17/2012	1100	9.85	-0.97	68,700	27,800	49,200	28.9	
5/24/2012	1330	9.47	-0.59	68,700	28,000	49,600	29.2	
5/31/2012	1314	9.91	-1.03	68,400	28,900	49,400	29.3	
6/8/2012	1129	10.10	-1.22	68,300	29,700	49,600	29.4	
6/14/2012	1134	10.15	-1.27	67,300	28,500	50,100	29.5	
6/21/2012	1243	9.75	-0.87	68,800	27,200	48,500	29.3	
6/28/2012	1124	9.98	-1.10	68,900	29,400	53,000	29.7	
7/5/2012	1349	9.97	-1.09	68,900	26,700	49,500	29.8	
ft. btoc: feet below top of casing TOC: Top of Casing ft. NAVD 88: North American Vertical Datum of 1988 umhos/cm: micromhos per centimeter mg/L: milligrams per liter C: Celsius Note: TOC elevation is: 8.88 feet NAVD 88								



STATE OF FLORIDA PERMIT APPLICATION TO CONSTRUCT,
REPAIR, MODIFY, OR ABANDON A WELL

- ☐ Southwest
☐ Northwest
☐ St. Johns River
☐ South Florida
☐ Suwannee River
☐ DEP
☐ Delegated Authority (If Applicable)

PLEASE FILL OUT ALL APPLICABLE FIELDS
(*Denotes Required Fields Where Applicable)

The water well contractor is responsible for completing
this form and forwarding the permit application to the
appropriate delegated authority where applicable.

Permit No. 13-59-8020 thru 8027
Florida Unique ID _____
Permit Stipulations Required (See Attached) _____
62-524 Quad No. _____ Delineation No. _____
CUP/WUP Application No. _____
ABOVE THIS LINE - FOR OFFICIAL USE ONLY

1. Florida Power & Light PO Box 14000, Juno Beach, FL. 33408 561-691-2451
*Owner, Legal Name if Corporation *Address *City *State *ZIP *Telephone Number
2. 9700 SW 344 St. FPL Turkey Point Power Plant, Florida City
*Well Location - Address, Road Name or Number, City
3. 30-7033-001.0010
*Parcel ID No. (PIN) or Alternate Key (Circle One)
4. 4 58 S 40E Dade 239 3980785 Lot Block Unit
*Section or Land Grant *Township *Range *County Subdivision Check if 62-524: Yes No
5. Ed McCullers 11312 239-275-1029 craig.brugger@layne.com
*Water Well Contractor *License Number *Telephone Number E-mail Address
6. 5061 Luckett Rd. Ft. Myers FL 33905
*Water Well Contractor's Address City State ZIP
7. *Type of Work: Construction Repair Modification X Abandonment Monitoring Wells- Not needed-
*Reason for Repair, Modification, or Abandonment
8. *Number of Proposed Wells 8
9. *Specify Intended Use(s) of Well(s):
Domestic Landscape Irrigation Agricultural Irrigation Site Investigation
Bottled Water Supply Recreation Area Irrigation Livestock X Monitoring
Public Water Supply (Limited Use/DOH) Nursery Irrigation Test
Public Water Supply (Community or Non-Community/DEP) Commercial/Industrial Earth-Coupled Geothermal
Class I Injection Golf Course Irrigation HVAC Supply
HVAC Return
Class V Injection: Recharge Commercial/Industrial Disposal Aquifer Storage and Recovery Drainage
Remediation: Recovery Air Sparge Other (Describe)
Other (Describe) _____ (Note: Not all types of wells are permitted by a given permitting authority)
10. *Distance from Septic System if ≤ 200 ft. N/A 11. Facility Description Power Plant 12. Estimated Start Date 7/25/12
13. *Estimated Well Depth 30 ft. *Estimated Casing Depth 20 ft. *Primary Casing Diameter 2 in. Open Hole: From 0 To 0 ft.
14. Estimated Screen Interval: From 20 To 30 ft.
15. *Primary Casing Material: Black Steel Galvanized X PVC Stainless Steel
Not Cased Other: _____
16. Secondary Casing: Telescope Casing Liner Surface Casing Diameter _____ in.
17. Secondary Casing Material: Black Steel Galvanized PVC Stainless Steel Other _____
18. *Method of Construction, Repair, or Abandonment: Auger Cable Tool Jetted Rotary Sonic
Combination (Two or More Methods) Hand Driven (Well Point, Sand Point) Hydraulic Point (Direct Push)
Horizontal Drilling Plugged by Approved Method X Other (Describe) Tremmie Cement
19. Proposed Grouting Interval for the Primary, Secondary, and Additional Casing:
From 0 To 30 Seal Material (Bentonite X Neat Cement Other)
From _____ To _____ Seal Material (Bentonite Neat Cement Other)
From _____ To _____ Seal Material (Bentonite Neat Cement Other)
From _____ To _____ Seal Material (Bentonite Neat Cement Other)
20. Indicate total number of existing wells on site _____ List number of existing unused wells on site _____
21. *Is this well or any existing well or water withdrawal on the owner's contiguous property covered under a Consumptive Water Use Permit (CUP/WUP)
or CUP/WUP Application? Yes X No If yes, complete the following: CUP/WUP No. _____ District Well ID No. _____
22. Latitude N 25 25'02.90780" Longitude W 80 20'19.68271"
23. Data Obtained From: GPS Map X Survey Datum: NAD 27 X NAD 83 WGS 84
I hereby certify that I will comply with the applicable rules of Title 40, Florida Administrative Code, and that a water use permit or artificial recharge permit, if needed, has been or will be obtained prior to commencement of well construction. I further certify that all information provided in this application is accurate and that I will obtain necessary approval from other federal, state, or local governments, if applicable. I agree to provide a well completion report to the District within 30 days after completion of the construction, repair, modification, or abandonment authorized by this permit, or the permit expiration, whichever occurs first.
I certify that I am the owner of the property, that the information provided is accurate, and that I am aware of my responsibilities under Chapter 373, Florida Statutes, to maintain or properly abandon this well; or, I certify that I am the agent for the owner, that the information provided is accurate, and that I have informed the owner of their responsibilities as stated above. Owner consents to allowing personnel of this WMD or Delegated Authority access to the well site during the construction, repair, modification, or abandonment authorized by this permit.

*Signature of Contractor Ed McCullers 11312 *License No. 239 3980785 *Signature of Owner or Agent Craig Brugger *Date 7/20/12
BELOW THIS LINE - FOR OFFICIAL USE ONLY
Approval Granted By _____ Issue Date _____ Expiration Date _____ Hydrologist Approval _____
Fee Received \$ _____ Receipt No. X2012129480 Check No. _____
THIS PERMIT IS NOT VALID UNTIL PROPERLY SIGNED BY AN AUTHORIZED OFFICER OR REPRESENTATIVE OF THE WMD OR DELEGATED AUTHORITY. THE PERMIT SHALL BE AVAILABLE AT THE WELL SITE DURING ALL CONSTRUCTION, REPAIR, MODIFICATION, OR ABANDONMENT ACTIVITIES.

Appendix O

Pilot Hole Water Quality Data Summary and Laboratory Reports

**Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Pilot Hole Water Quality**

Sample Date	Depth (ft bpl)	Conductivity (umhos/cm)	Total Dissolved Solids (mg/L)	Chlorides (mg/L)	Ammonia (mg/L)	Total Kjeldahl Nitrogen (mg/L)
6/30/2011	1,100	1,228	610	61.3	0.04	0.55
7/1/2011	1,190	1,177	768	85.5	0.06	0.59
7/1/2011	1,255	1,167	776	97.3	0.03	0.56
7/1/2011	1,345	2,420	1,428	551	0.06	0.42
7/1/2011	1,435	2,900	1,736	640	0.08	0.44
7/2/2011	1,525	6,760	4,168	2,045	0.09	0.35
7/3/2011	1,615	5,660	3,548	1,670	0.08	0.45
8/13/2011	1,704	9,500	5,688	3,120	U	0.56
8/15/2011	1,794	14,670	9,260	5,010	U	0.57
8/16/2011	1,884	20,400	13,520	7,180	U	0.38
8/17/2011	1,974	25,190	16,910	9,160	U	0.22
8/19/2011	2,064	37,000	24,280	14,400	U	0.71(I)
8/21/2011	2,154	30,000	18,525	11,000	U	0.32
8/21/2011	2,244	32,100	16,967	11,500	U	0.17
8/23/2011	2,334	60,100	40,400	26,000	U	0.44
8/25/2011	2,424	38,200	23,200	14,200	U	0.17
8/26/2011	2,514	39,130	26,867	14,200	U	0.18
8/29/2011	2,604	48,400	32,767	17,400	U	0.13
9/4/2011	2,694	63,800	41,500	27,200	U	0.12
9/4/2011	2,784	59,600	40,400	25,800	U	0.12
9/5/2011	2,874	52,200	34,000	25,600	U	0.25
9/5/2011	2,964	47,240	31,200	17,900	U	0.28
9/6/2011	3,054	50,000	32,000	19,500	U	0.25
9/6/2011	3,144	49,900	33,100	19,500	U	0.47
10/23/2011	3,234	52,100	40,250	21,100	U	0.54

ft bpl = feet below pad level

umhos/cm - micromhos per centimeter

mg/L = milligrams per liter

I= Value is between MDL and PQL

U = undetected

Note: Pilot hole water quality may be influenced by salt used to control artesian head.



Report To:
Brooke Allen
Layne Christensen Co-FL
5061 Luckett Road
Fort Myers, FL 33905

Page 1 of 7
Report Printed: 07/15/11 Rev. 1
Submission # 1107000027
Order # 71285

Project: Pilot Hole WQ EW-1 Analysis
Site Location: Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: EW1-PH-1100 Ft
Collected: 06/30/11 18:30
Received: 07/05/11 13:10
Collected by: Client

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Specific Conductance (grab)	1228		uS/cm	0.1	0.3	120.1	07/06 08:54	07/06 08:54	DGK
Chloride	61.3		mg/L	1.10	3.30	300.0	07/05 16:48	07/05 16:48	DGK
Nitrogen (Ammonia) as N	0.04		mg/L	0.01	0.03	350.1	07/06 14:11	07/06 14:11	RPV
Nitrogen (Kjeldahl) as "N"	0.55		mg/L	0.070	0.210	351.2	07/12 06:00	07/12 09:03	MSG
Total Dissolved Solids (TDS)	610		mg/L	1.00	3.00	SM 2540C	07/06 13:02	07/07 14:42	LYR

Unless indicated, soil results are reported based on actual (wet) weight basis.

Analytes not currently NELAC certified denoted by ~.
Work performed by outside (subcontract) labs denoted by Cert.ID in Analyst Field.
Results relate only to this sample.
QC=Qualifier Codes as defined by DEP 62-160
U=Analyzed for but not detected.
Q=Sample held beyond accepted holding time.
I=Value is between MDL and PQL.
J=Estimated value.


Authorized CSM Signature (954) 978-6400
Florida-Spectrum Environmental Services, Inc.
Certification # E86006

Florida-Spectrum Environmental Services, Inc.
1460 W. McNab Road, Fort Lauderdale, FL 33309

Pembroke Laboratory
528 Gooch Rd.
Fort Meade, FL 33841

Big Lake Laboratory
610 North Parrot Ave.
Okeechobee, FL 34972

Spectrum Laboratories
630 Indian St.
Savannah, GA 31401

www.flenviro.com

All NELAP certified analyses are performed in accordance with Chapter 64E-1 Florida Administrative Code, which has been determined to be equivalent to NELAC standards. Analyses certified by programs other than NELAP are designated with a "~".

FPL-005B-297

Report To:
Brooke Allen
Layne Christensen Co-FL
5061 Luckett Road
Fort Myers, FL 33905

Page 2 of 7
Report Printed: 07/15/11 Rev. 1
Submission # 1107000027
Order # 71286

Project: Pilot Hole WQ EW-1 Analysis
Site Location: Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: EW1-PH-1190 Ft
Collected: 07/01/11 10:30
Received: 07/05/11 13:10
Collected by: Client

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Specific Conductance (grab)	1177		uS/cm	0.1	0.3	120.1	07/06 08:54	07/06 08:54	DGK
Chloride	85.5		mg/L	1.10	3.30	300.0	07/05 16:48	07/05 16:48	DGK
Nitrogen (Ammonia) as N	0.06		mg/L	0.01	0.03	350.1	07/06 14:12	07/06 14:12	RPV
Nitrogen (Kjeldahl) as "N"	0.59		mg/L	0.070	0.210	351.2	07/12 06:00	07/12 09:03	MSG
Total Dissolved Solids (TDS)	768		mg/L	1.00	3.00	SM 2540C	07/06 13:02	07/07 14:42	LYR

Unless indicated, soil results are reported based on actual (wet) weight basis.

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Work performed by outside (subcontract) labs denoted by Cert.ID in Analyst Field.
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U=Analyzed for but not detected.
Q=Sample held beyond accepted holding time.
I=Value is between MDL and PQL.
J=Estimated value.


Authorized CSM Signature (954) 978-6400
Florida-Spectrum Environmental Services, Inc.
Certification # E86006

Report To:
Brooke Allen
Layne Christensen Co-FL
5061 Luckett Road
Fort Myers, FL 33905

Page 3 of 7
Report Printed: 07/15/11 Rev. 1
Submission # 1107000027
Order # 71287

Project: Pilot Hole WQ EW-1 Analysis
Site Location: Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: EW1-PH-1255 Ft
Collected: 07/01/11 15:30
Received: 07/05/11 13:10
Collected by: Client

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Specific Conductance (grab)	1167		uS/cm	0.1	0.3	120.1	07/06 08:54	07/06 08:54	DGK
Chloride	97.3		mg/L	1.10	3.30	300.0	07/05 16:48	07/05 16:48	DGK
Nitrogen (Ammonia) as N	0.03		mg/L	0.01	0.03	350.1	07/06 14:12	07/06 14:12	RPV
Nitrogen (Kjeldahl) as "N"	0.56		mg/L	0.070	0.210	351.2	07/12 06:00	07/12 09:03	MSG
Total Dissolved Solids (TDS)	776		mg/L	1.00	3.00	SM 2540C	07/06 13:03	07/07 14:43	LYR

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Fort Myers, FL 33905

Page 4 of 7
Report Printed: 07/15/11 Rev. 1
Submission # 1107000027
Order # 71288

Project: Pilot Hole WQ EW-1 Analysis
Site Location: Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: EW1-PH-1345 Ft
Collected: 07/01/11 21:40
Received: 07/05/11 13:10
Collected by: Client

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Specific Conductance (grab)	2420		uS/cm	0.1	0.3	120.1	07/06 08:54	07/06 08:54	DGK
Chloride	551		mg/L	1.10	3.30	300.0	07/05 16:48	07/05 16:48	DGK
Nitrogen (Ammonia) as N	0.06		mg/L	0.01	0.03	350.1	07/06 14:12	07/06 14:12	RPV
Nitrogen (Kjeldahl) as "N"	0.42		mg/L	0.070	0.210	351.2	07/12 06:01	07/12 09:03	MSG
Total Dissolved Solids (TDS)	1428		mg/L	1.00	3.00	SM 2540C	07/06 13:03	07/07 14:43	LYR

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Fort Myers, FL 33905

Page 5 of 7
Report Printed: 07/15/11 Rev. 1
Submission # 1107000027
Order # 71289

Project: Pilot Hole WQ EW-1 Analysis
Site Location: Turkey Point, Homestead, FL
Matrix: Water


Sample I.D.: EW1-PH-1435 Ft
Collected: 07/02/11 06:10
Received: 07/05/11 13:10
Collected by: Client

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Specific Conductance (grab)	2900		uS/cm	0.1	0.3	120.1	07/06 08:54	07/06 08:54	DGK
Chloride	640		mg/L	2.20	6.60	300.0	07/05 16:48	07/05 16:48	DGK
Nitrogen (Ammonia) as N	0.08		mg/L	0.01	0.03	350.1	07/06 14:13	07/06 14:13	RPV
Nitrogen (Kjeldahl) as "N"	0.44		mg/L	0.070	0.210	351.2	07/12 06:01	07/12 09:03	MSG
Total Dissolved Solids (TDS)	1736		mg/L	1.00	3.00	SM 2540C	07/06 13:03	07/07 14:43	LYR

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Fort Myers, FL 33905

Page 6 of 7
Report Printed: 07/15/11 Rev. 1
Submission # 1107000027
Order # 71290

Project: Pilot Hole WQ EW-1 Analysis
Site Location: Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: EW1-PH-1525 Ft
Collected: 07/02/11 19:30
Received: 07/05/11 13:10
Collected by: Client

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Specific Conductance (grab)	6760		uS/cm	0.1	0.3	120.1	07/06 08:55	07/06 08:55	DGK
Chloride	2045		mg/L	5.50	16.50	300.0	07/05 16:48	07/05 16:48	DGK
Nitrogen (Ammonia) as N	0.09		mg/L	0.01	0.03	350.1	07/06 14:16	07/06 14:16	RPV
Nitrogen (Kjeldahl) as "N"	0.35		mg/L	0.070	0.210	351.2	07/12 06:00	07/12 09:03	MSG
Total Dissolved Solids (TDS)	4168		mg/L	1.00	3.00	SM 2540C	07/06 13:04	07/07 14:44	LYR

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Fort Myers, FL 33905

Page 7 of 7
Report Printed: 07/15/11 Rev. 1
Submission # 1107000027
Order # 71291

Project: Pilot Hole WQ EW-1 Analysis
Site Location: Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: EW1-PH-1615 Ft
Collected: 07/03/11 05:25
Received: 07/05/11 13:10
Collected by: Client

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Specific Conductance (grab)	5660		uS/cm	0.1	0.3	120.1	07/06 08:55	07/06 08:55	DGK
Chloride	1670		mg/L	5.50	16.50	300.0	07/05 16:48	07/05 16:48	DGK
Nitrogen (Ammonia) as N	0.08		mg/L	0.01	0.03	350.1	07/06 14:17	07/06 14:17	RPV
Nitrogen (Kjeldahl) as "N"	0.45		mg/L	0.070	0.210	351.2	07/12 06:00	07/12 09:03	MSG
Total Dissolved Solids (TDS)	3548		mg/L	1.00	3.00	SM 2540C	07/06 13:00	07/07 14:44	LYR

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Report To:
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Fort Myers, FL 33905

Page 1 of 4
Report Printed: 08/24/11
Submission # 1108000565
Order # 77782

Project: FPL Turkey Point (Exploratory)
Site Location: Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: EW-1-PH 1704 FT
Collected: 08/13/11 19:30
Received: 08/18/11 15:00
Collected by: Client

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Specific Conductance (Field)(grab)	9500		uS/cm	1.0	3.0	120.1	08/13 19:30	08/13 19:30	Client
Specific Conductance (grab)	9860		uS/cm	1.0	3.0	120.1	08/19 14:48	08/19 14:48	DGK
Chloride	3120		mg/L	5.50	16.50	300.0	08/19 12:18	08/19 12:18	DGK
Nitrogen (Ammonia) as N	U	U	mg/L	0.01	0.03	350.1	08/22 15:04	08/22 15:04	RPV
Nitrogen (Kjeldahl) as "N"	0.56		mg/L	0.070	0.210	351.2	08/23 10:00	08/23 14:57	MSG
Total Dissolved Solids (TDS)	5688		mg/L	1.00	3.00	SM 2540C	08/19 14:45	08/22 13:29	LYR

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Big Lake Laboratory
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Spectrum Laboratories
630 Indian St.
Savannah, GA 31401

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All NELAP certified analyses are performed in accordance with Chapter 64E-1 Florida Administrative Code, which has been determined to be equivalent to NELAC standards. Analyses certified by programs other than NELAP are designated with a "~".

FPL-005B-304

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Brooke Allen
Layne Christensen Co-FL
5061 Lockett Road
Fort Myers, FL 33905

Page 2 of 4
Report Printed: 08/24/11
Submission # 1108000565
Order # 77783

Project: FPL Turkey Point (Exploratory)
Site Location: Turkey Point, Homestead, FL
Matrix: Water


Sample I.D.: EW-1-PH 1794 FT
Collected: 08/15/11 19:30
Received: 08/18/11 15:00
Collected by: Client

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Specific Conductance (Field)(grab)	14670		uS/cm	1.0	3.0	120.1	08/15 19:30	08/15 19:30	Client
Specific Conductance (grab)	14950		uS/cm	1.0	3.0	120.1	08/19 14:49	08/19 14:49	DGK
Chloride	5010		mg/L	11.00	33.00	300.0	08/19 12:18	08/19 12:18	DGK
Nitrogen (Ammonia) as N	U	U	mg/L	0.01	0.03	350.1	08/22 15:04	08/22 15:04	RPV
Nitrogen (Kjeldahl) as "N"	0.57		mg/L	0.070	0.210	351.2	08/23 10:00	08/23 14:57	MSG
Total Dissolved Solids (TDS)	9260		mg/L	1.00	3.00	SM 2540C	08/19 14:45	08/22 13:29	LYR

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Report To:
Brooke Allen
Layne Christensen Co-FL
5061 Lockett Road
Fort Myers, FL 33905

Page 3 of 4
Report Printed: 08/24/11
Submission # 1108000565
Order # 77784

Project: FPL Turkey Point (Exploratory)
Site Location: Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: EW-1-PH 1884 FT
Collected: 08/16/11 15:30
Received: 08/18/11 15:00
Collected by: Client

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Specific Conductance (Field)(grab)	20400		uS/cm	1.0	3.0	120.1	08/16 15:30	08/16 15:30	Client
Specific Conductance (grab)	20900		uS/cm	1.0	3.0	120.1	08/19 14:49	08/19 14:49	DGK
Chloride	7180		mg/L	11.00	33.00	300.0	08/19 12:18	08/19 12:18	DGK
Nitrogen (Ammonia) as N	U	U	mg/L	0.01	0.03	350.1	08/22 15:04	08/22 15:04	RPV
Nitrogen (Kjeldahl) as "N"	0.38		mg/L	0.070	0.210	351.2	08/23 10:00	08/23 14:57	MSG
Total Dissolved Solids (TDS)	13520		mg/L	1.00	3.00	SM 2540C	08/22 15:33	08/23 15:13	LYR

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Fort Myers, FL 33905

Page 4 of 4
Report Printed: 08/24/11
Submission # 1108000565
Order # 77785

Project: FPL Turkey Point (Exploratory)
Site Location: Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: EW-1-PH 1974 FT
Collected: 08/17/11 08:04
Received: 08/18/11 15:00
Collected by: Client



LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Specific Conductance (Field)(grab)	25190		uS/cm	1.0	3.0	120.1	08/17 08:04	08/17 08:04	Client
Specific Conductance (grab)	26100		uS/cm	1.0	3.0	120.1	08/19 14:49	08/19 14:49	DGK
Chloride	9160		mg/L	11.00	33.00	300.0	08/19 12:18	08/19 12:18	DGK
Nitrogen (Ammonia) as N	U	U	mg/L	0.01	0.03	350.1	08/22 15:04	08/22 15:04	RPV
Nitrogen (Kjeldahl) as "N"	0.22		mg/L	0.070	0.210	351.2	08/23 10:00	08/23 14:57	MSG
Total Dissolved Solids (TDS)	16910		mg/L	1.00	3.00	SM 2540C	08/22 15:33	08/23 15:13	LYR

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SUBMISSION # 1108-565				CHAIN OF CUSTODY RECORD										DUE DATE Requested																			
Logged in LIMS by  CSM assigned		<div><div><input type="checkbox"/> 1460 W. McNab Road Ft. Laud. FL 33309 <input type="checkbox"/> 630 Indian Street Savannah, GA 31401 <input type="checkbox"/> 528 Gooch Road Fort Meade, FL 33841 <input type="checkbox"/> 610 Parrot Ave. N, Okeechobee, FL 34972</div><div><div>Tel: (954) 978-6400 Tel: (912) 238-5050 Tel: (863) 285-8145 Tel: (863) 763-3336</div><div><div>Fax: (954) 978-2233 Fax: (912) 234-4815 Fax: (863) 285-7030 Fax: (863) 763-1544</div></div></div></div>										RUSH RESERVATION #																					
		Original-Return w/report					Yellow-Lab File Copy					Pink - Sampler Copy					Rush Surcharges apply																
Report to: (company name) LAYNE CHRISTENSEN COMPANY 4														Report to Address: 5061 LUCKETT RD., FT. MYERS, FL 33905																			
Invoice to: (company name) LAYNE CHRISTENSEN COMPANY														Invoice to Address: 5061 LUCKETT RD., FT. MYERS, FL 33905																			
Project Name and/or Number FPL Turkey Point (EXPLORATORY WELL)														Site Location: Turkey Point, Homestead, FL 33035																			
Project Contact: BROOKE ALLEN / CRAIG BEUGER														Phone: 239.275.1029 / 239.275.1025																			
Sampler Name: (printed) DRILLER														Affiliation: LAYNE CHRISTENSEN COMPANY																			
Email: CJBUEGER@LAYNECHRISTENSEN.COM BSALLEN@LAYNECHRISTENSEN.COM																																	
ORDER # Lab Control Number		Sample ID		Date Sampled		Time Sampled		Matrix		Bottle & Pres.		Number of Containers Received & NELAC Letter Suffixes # A-?		Analysis Required								Field Tests											
Shaded Areas For Laboratory Use Only								DW SW GW WW S SED HW BIO SEA OIL X AIR		Combo Codes				CHLORIDE TDS SP. CONDUCT		TKN NH3										TEMP °C		PH		COND		CHLOR	
1		77782		EW-1-PH 1704 FT		8/13/11		1930		GW		SU		2		1		1										33.7		10.9		9500	
2		77783		EW-1-PH 1794 FT		8/15/11		1930		GW		SU		2		1		1										28.2		9.29		14,673	
3		77784		EW-1-PH 1884 FT		8/16/11		1530		GW		SU		2		1		1										25.5		8.57		20,400	
4		77785		EW-1-PH 1974 FT		8/17/11		0804		GW		SU		2		1		1										24.3		8.22		25,00	
5																																	
6																																	
7																																	
8																																	
9																																	
10																																	
Special Comments:														Total		Signature M. P. Laxue Affiliation Date/Time																	
"I waive NELAC protocol" (sign here) >																1 Relinquished by: M. P. Laxue 8/18/2008 12:20																	
Deliverables:														QA/QC Report Needed? Yes No (additional charge)		1 Received by: Angelio Piffener 8-18-11 12:20																	
Sample Custody & Field Comments				Bottle Type				Preservatives				2 Relinquished by: Angelio Piffener 8-18-11 15:00																					
Temp as received 4 C				A-liter amber				A-ascorbic acid P-H3PO4				2 Received by: Angelio Piffener 8-18-11 15:00																					
Custody seals? Y N				B-Bacteria bag/bottle				C-HCL P-H2SO4				3 Relinquished by: Angelio Piffener 8-18-11 15:00																					
FIELD TIME:				F-500 ml O-125 ml				Cu-CuSO4 T-Na2S2O3																									
Sampling _____ hrs				L-liter bottle				H-HNO3 U-Unpreserved																									
Pick-Up _____ hrs				S4-4 oz soil jar / S8-8 oz soil jar				M-MCAB N-NaOH																									
Misc. Charges _____				T-250 ml				Z-zinc acetate NH4-NH4CL																									
				V-40 ml vial				Additional Preservatives																									
				W-wide mouth				Hex-Hex Cr Buffer																									
				X-other TED-Tedlar Air Bag				EDA-Ethylene Diamine																									
				Additional Bottle Types																													
				B-brown liter plastic																													
																www.flenviro.com COC Page _____ of _____																	



Report To:
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Page 1 of 4
Report Printed: 08/31/11
Submission # 1108000745
Order # 78642

Project: FPL Turkey Point, Pilot Hole
Site Location: Turkey Point, Homestead, FL
Matrix: Water


Sample I.D.: EW-1-PH-2064 FT
Collected: 08/19/11 10:45
Received: 08/25/11 15:00
Collected by: Client

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Specific Conductance (Field)(grab)	35850		uS/cm	1.0	3.0	120.1	08/19 10:45	08/19 10:45	Client
Specific Conductance (grab)	37000		uS/cm	1.0	3.0	120.1	08/26 10:02	08/26 10:02	DGK
Chloride	14400		mg/L	22.00	66.00	300.0	08/25 15:18	08/25 15:18	DGK
Nitrogen (Ammonia) as N	U	U	mg/L	0.01	0.03	350.1	08/29 14:33	08/29 14:33	RPV
Nitrogen (Kjeldahl) as "N"	0.071	I	mg/L	0.070	0.210	351.2	08/30 09:00	08/30 12:42	MSG
Total Dissolved Solids (TDS)	24280		mg/L	1.00	3.00	SM 2540C	08/26 12:13	08/29 14:13	LYR

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630 Indian St.
Savannah, GA 31401

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All NELAP certified analyses are performed in accordance with Chapter 64E-1 Florida Administrative Code, which has been determined to be equivalent to NELAC standards. Analyses certified by programs other than NELAP are designated with a "~".

FPL-005B-309

Report To:
Brooke Allen
Layne Christensen Co-FL
5061 Lockett Road
Fort Myers, FL 33905

Page 2 of 4
Report Printed: 08/31/11
Submission # 1108000745
Order # 78643

Project: FPL Turkey Point, Pilot Hole
Site Location: Turkey Point, Homestead, FL
Matrix: Water

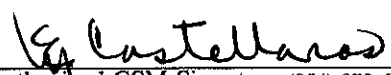
Sample I.D.: EW-1-PH-2154 FT
Collected: 08/21/11 00:30
Received: 08/25/11 15:00
Collected by: Client

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Specific Conductance (Field)(grab)	27777		uS/cm	1.0	3.0	120.1	08/21 00:30	08/21 00:30	Client
Specific Conductance (grab)	30000		uS/cm	1.0	3.0	120.1	08/26 10:02	08/26 10:02	DGK
Chloride	11000		mg/L	22.00	66.00	300.0	08/25 15:18	08/25 15:18	DGK
Nitrogen (Ammonia) as N	U	U	mg/L	0.01	0.03	350.1	08/29 14:33	08/29 14:33	RPV
Nitrogen (Kjeldahl) as "N"	0.32		mg/L	0.070	0.210	351.2	08/30 09:00	08/30 12:42	MSG
Total Dissolved Solids (TDS)	18525		mg/L	1.00	3.00	SM 2540C	08/26 12:14	08/29 14:14	LYR

Unless indicated, soil results are reported based on actual (wet) weight basis.

Analytes not currently NELAC certified denoted by ~.
Work performed by outside (subcontract) labs denoted by Cert.ID in Analyst Field.
Results relate only to this sample.
QC=Qualifier Codes as defined by DEP 62-160
U=Analyzed for but not detected.
Q=Sample held beyond accepted holding time.
I=Value is between MDL and PQL.
J=Estimated value.


Authorized CSM Signature (954) 978-6400
Florida-Spectrum Environmental Services, Inc.
Certification # E86006

Report To:
Brooke Allen
Layne Christensen Co-FL
5061 Lockett Road
Fort Myers, FL 33905

Page 3 of 4
Report Printed: 08/31/11
Submission # 1108000745
Order # 78645

Project: FPL Turkey Point, Pilot Hole
Site Location: Turkey Point, Homestead, FL
Matrix: Water

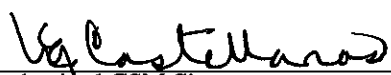
Sample I.D.: EW-1-PH-2244 FT
Collected: 08/21/11 05:30
Received: 08/25/11 15:00
Collected by: Client

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Specific Conductance (Field)(grab)	29550		uS/cm	1.0	3.0	120.1	08/21 05:30	08/21 05:30	Client
Specific Conductance (grab)	32100		uS/cm	1.0	3.0	120.1	08/26 10:02	08/26 10:02	DGK
Chloride	11500		mg/L	22.00	66.00	300.0	08/25 15:18	08/25 15:18	DGK
Nitrogen (Ammonia) as N	U	U	mg/L	0.01	0.03	350.1	08/29 14:33	08/29 14:33	RPV
Nitrogen (Kjeldahl) as "N"	0.17	I	mg/L	0.070	0.210	351.2	08/30 09:00	08/30 12:42	MSG
Total Dissolved Solids (TDS)	16967		mg/L	1.00	3.00	SM 2540C	08/26 12:14	08/29 14:14	LYR

Unless indicated, soil results are reported based on actual (wet) weight basis.

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Q=Sample held beyond accepted holding time.
I=Value is between MDL and PQL.
J=Estimated value.


Authorized CSM Signature (954) 978-6400
Florida-Spectrum Environmental Services, Inc.
Certification # E86006

Report To:
Brooke Allen
Layne Christensen Co-FL
5061 Lockett Road
Fort Myers, FL 33905

Page 4 of 4
Report Printed: 08/31/11
Submission # 1108000745
Order # 78646

Project: FPL Turkey Point, Pilot Hole
Site Location: Turkey Point, Homestead, FL
Matrix: Water


Sample I.D.: EW-1-PH-2334 FT
Collected: 08/23/11 06:30
Received: 08/25/11 15:00
Collected by: Client


LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Specific Conductance (Field)(grab)	56200		uS/cm	1.0	3.0	120.1	08/23 06:30	08/23 06:30	Client
Specific Conductance (grab)	60100		uS/cm	1.0	3.0	120.1	08/26 10:02	08/26 10:02	DGK
Chloride	26000		mg/L	22.00	66.00	300.0	08/25 15:18	08/25 15:18	DGK
Nitrogen (Ammonia) as N	U	U	mg/L	0.01	0.03	350.1	08/29 14:33	08/29 14:33	RPV
Nitrogen (Kjeldahl) as "N"	0.44		mg/L	0.070	0.210	351.2	08/30 09:00	08/30 12:42	MSG
Total Dissolved Solids (TDS)	40400		mg/L	1.00	3.00	SM 2540C	08/26 12:14	08/29 14:14	LYR

Unless indicated, soil results are reported based on actual (wet) weight basis.

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U=Analyzed for but not detected.
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I=Value is between MDL and PQL.
J=Estimated value.


Authorized CSM Signature (954) 978-6400
Florida-Spectrum Environmental Services, Inc.
Certification # E86006

SUBMISSION # <div style="font-size: 1.2em; font-weight: bold;">1108-745</div>				CHAIN OF CUSTODY RECORD						DUE DATE Requested RUSH RESERVATION # <i>Rush Surcharges apply</i>			
Logged in LIMS by <u>AD</u> CSM assigned				<input type="checkbox"/> 1460 W. McNab Road Ft Laud. FL 33309 Tel: (954) 978-6400 Fax: (954) 978-2233 <input type="checkbox"/> 630 Indian Street Savannah, GA 31401 Tel: (912) 238-5050 Fax: (912) 234-4815 <input type="checkbox"/> 528 Gooch Road Fort Meade, FL 33841 Tel: (863) 285-8145 Fax: (863) 285-7030 <input type="checkbox"/> 610 Parrot Ave. N, Okeechobee, FL 34972 Tel: (863) 763-3336 Fax: (863) 763-1544									
		Original-Return w/report		Yellow-Lab File Copy				Pink - Sampler Copy					
Report to: (company name) <u>LAYNE CHRISTENSEN COMPANY</u>				Report to Address: <u>5061 LUCKETT RD, FT. MYERS, FL 33905</u>									
Invoice to: (company name) <u>LAYNE CHRISTENSEN COMPANY</u>				Invoice to Address: <u>5061 LUCKETT RD, FT. MYERS, FL 33905</u>									
Project Name and/or Number <u>FPL TURKEY POINT (PILOT HOLE SAMPLES)</u>				Site Location: <u>TURKEY POINT, HOMESTEAD FL 33035</u>									
Project <u>BROOKE ALLEN</u> Contact: <u>CRIG BRUGGER</u>				Phone: <u>239.275.1029</u> <u>239.275.1025</u>				Fax: _____ Email: <u>CJBRUGGER@LAYNECHRISTENSEN.COM</u> <u>BSALLEN@LAYNECHRISTENSEN.COM</u>					
Sampler Name: (printed) <u>DELLER</u>				Affiliation: <u>LAYNE CHRISTENSEN</u>				Sampler Signature _____					

ORDER # <small>Lab Control Number</small>	Sample ID	Date Sampled	Time Sampled	Matrix	Bottle & Pres.	Number of Containers Received & NELAC Letter Suffixes	Analysis Required						Field Tests					
							CHLORIDE	TDS	SP. COND	TKN	NH3					TEMP °C	PH	COND
1	78642	EW-1-PH-2064FT	8/19/11	10:45	GW	SU	2	1	1						27.6	8.02	3500	X
2	78643	EW-1-PH-2154FT	8/21/11	0030	GW	SU	2	1	1						25.0	7.9	2111	X
3	78645	EW-1-PH-2244FT	8/21/11	0530	GW	SU	2	1	1						23.9	7.91	2953	X
4	78646	EW-1-PH-2334FT	8/23/11	0630	GW	SU	2	1	1						22.4	8.01	5620	X
5																		
6																		
7																		
8																		
9																		
10																		

Special Comments: PLEASE RETURN ALL SAMPLES TO
JOB SITE AFTER ANALYSIS HAS BEEN RUN.

“I waive NELAC protocol” (sign here) _____

Deliverables: QA/QC Report Needed? Yes No (additional charge)

Signature	Affiliation	Date/Time
1 Relinquished by: <u>Sam H. Durrell</u>		8/25/2011 12:10
1 Received by: <u>Arnelio Piffenor</u>		8-25-11 12:20
2 Relinquished by: <u>Arnelio Piffenor</u>		8-25-11 15:00
2 Received by: <u>Arnelio Piffenor</u>		8/25/11 1500
3 Relinquished by:		
3 Received by:		

Sample Custody & Field Comments

Temp as received 4 °C

Custody seals? Y N

FIELD TIME: _____ hrs

Sampling _____ hrs

Pick-Up _____ hrs

Misc. Charges _____

Bottle Type	Preservatives	Additional Preservatives
A-liter amber B-Bacteria bag/bottle F-500 ml O-125 ml L-liter bottle S4-4 oz soil jar / S8-8 oz soil jar T-250 ml V-40 ml vial W-wide mouth X-other TED-Tedlar Air Bag Additional Bottle Types B-brown liter plastic	A-ascorbic acid P-H3PO4 C-HCL S-H2SO4 Cu-CuSO4 T-Na2S2O3 H-HNO3 U-Unpreserved M-MCAB N-NaOH Z-zinc acetate NH4-NH4CL	Hex-Hex Cr Buffer EDA-Ethylene Diamine

www.flenviro.com COC Page _____ of _____



Report To:
 Brooke Allen
 Layne Christensen Co-FL
 5061 Lockett Road
 Fort Myers, FL 33905

Page 1 of 3
Report Printed: 09/08/11
Submission # 1109000044
Order # 79491

Project: FPL Turkey Point (Exploratory)
Site Location: Turkey Point, Homestead, FL 33035
Matrix: Water


Sample I.D.: EW-1-PH-2514 Ft (79491)
Collected: 08/26/11 07:30
Received: 09/01/11 15:25
Collected by: Client

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Specific Conductance (Field)(grab)	39130		uS/cm	1.0	3.0	120.1	08/26 07:30	08/26 07:30	Client
Specific Conductance (grab)	42500		uS/cm	1.0	3.0	120.1	09/01 17:35	09/01 17:35	CEB
Chloride	14200		mg/L	55.00	165.00	300.0	09/01 17:08	09/01 17:08	DGK
Nitrogen (Ammonia) as N	U	U	mg/L	0.01	0.03	350.1	09/06 10:44	09/06 10:44	MSG
Nitrogen (Kjeldahl) as "N"	0.18	I	mg/L	0.070	0.210	351.2	09/06 09:30	09/06 14:01	MSG
Total Dissolved Solids (TDS)	26867		mg/L	1.00	3.00	SM 2540C	09/02 11:45	09/06 11:35	LYR

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 J=Estimated value.


 Authorized CSM Signature (954) 978-6400
 Florida-Spectrum Environmental Services, Inc.
 Certification # E86006

Florida-Spectrum Environmental Services, Inc.
 1460 W. McNab Road, Fort Lauderdale, FL 33309

Pembroke Laboratory
 528 Gooch Rd.
 Fort Meade, FL 33841

Big Lake Laboratory
 610 North Parrot Ave.
 Okeechobee, FL 34972

Spectrum Laboratories
 630 Indian St.
 Savannah, GA 31401

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FPL-005B-314

Report To:
Brooke Allen
Layne Christensen Co-FL
5061 Lockett Road
Fort Myers, FL 33905

Page 2 of 3
Report Printed: 09/08/11
Submission # 1109000044
Order # 79492

Project: FPL Turkey Point (Exploratory)
Site Location: Turkey Point, Homestead, FL 33035
Matrix: Water

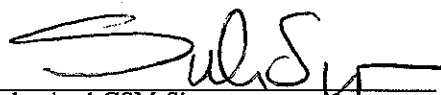
Sample I.D.: EW-1-PH-2604 Ft (79492)
Collected: 08/29/11 21:40
Received: 09/01/11 15:25
Collected by: Client

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Specific Conductance (Field)(grab)	48400		uS/cm	1.0	3.0	120.1	08/29 21:40	08/29 21:40	Client
Specific Conductance (grab)	52200		uS/cm	1.0	3.0	120.1	09/01 17:35	09/01 17:35	CEB
Chloride	17400		mg/L	55.00	165.00	300.0	09/01 17:08	09/01 17:08	DGK
Nitrogen (Ammonia) as N	U	U	mg/L	0.01	0.03	350.1	09/06 10:44	09/06 10:44	MSG
Nitrogen (Kjeldahl) as "N"	0.13	I	mg/L	0.070	0.210	351.2	09/06 09:30	09/06 14:01	MSG
Total Dissolved Solids (TDS)	32767		mg/L	1.00	3.00	SM 2540C	09/02 11:46	09/06 11:36	LYR

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J=Estimated value.


Authorized CSM Signature (954) 978-6400
Florida-Spectrum Environmental Services, Inc.
Certification # ES6006

Report To:
Brooke Allen
Layne Christensen Co-FL
5061 Lockett Road
Fort Myers, FL 33905

Page 3 of 3
Report Printed: 09/08/11
Submission # 1109000044
Order # 79683

Project: FPL Turkey Point (Exploratory)
Site Location: Turkey Point, Homestead, FL 33035
Matrix: Water

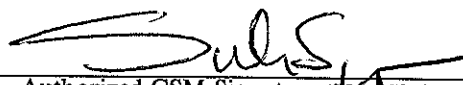
Sample I.D.: EW-1-PH-2424ft (79683)
Collected: 08/25/11 19:20
Received: 09/02/11 15:45
Collected by: Client

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Specific Conductance (Field)(grab)	38200		uS/cm	1.0	3.0	120.1	08/25 19:20	08/25 19:20	Client
Specific Conductance (grab)	40400		uS/cm	1.0	3.0	120.1	09/03 10:36	09/03 10:36	DGK
Chloride	14200		mg/L	55.00	165.00	300.0	09/02 17:05	09/02 17:05	DGK
Nitrogen (Ammonia) as N	U	U	mg/L	0.01	0.03	350.1	09/06 10:44	09/06 10:44	MSG
Nitrogen (Kjeldahl) as "N"	0.17	I	mg/L	0.070	0.210	351.2	09/06 09:30	09/06 14:01	MSG
Total Dissolved Solids (TDS)	23200	Q	mg/L	1.00	3.00	SM 2540C	09/06 14:43	09/07 14:43	CEB

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Authorized CSM Signature (954) 978-6400
Florida-Spectrum Environmental Services, Inc.
Certification # E86006

SUBMISSION #

1109-044

Logged in LIMS by

CSM assigned



CHAIN OF CUSTODY RECORD

☐ 1460 W. McNab Road Ft Laud. FL 33309

☐ 630 Indian Street Savannah, GA 31401

☐ 528 Gooch Road Fort Meade, FL 33841

☐ 610 Parrot Ave. N, Okeechobee, FL 34972

Tel: (954) 978-6400

Tel: (912) 238-5050

Tel: (863) 285-8145

Tel: (863) 763-3336

Fax: (954) 978-2233

Fax: (912) 234-4815

Fax: (863) 285-7030

Fax: (863) 763-1544

DUE DATE Requested

RUSH RESERVATION #

Rush Surcharges apply

Report to:

(company name) LAYNE CHRISTENSEN COMPANY

Invoice to:

(company name) LAYNE CHRISTENSEN COMPANY

Purchase

Order #

Project Name

and/or Number FPL TURKEY POINT (EXPLORATORY WELL)

Project

Contact: BROOKE ALLEN / CRAIG BRUGGER

Phone:

239.275.1029 / 239.275.1025

Sampler Name:

(printed) MILLER

Affiliation:

LAYNE CHRISTENSEN COMPANY

Report to

Address: 5061 LUCKETT RD., FT. MYERS, FL 33905

Invoice to

Address: 5061 LUCKETT RD., FT. MYERS, FL 33905

Site

Location: TURKEY POINT, HOMESTEAD, FL 33035

Fax:

Email: CJBROUGGER@LAYNECHRISTENSEN.COM

BSALLEN@LAYNECHRISTENSEN.COM

Sampler

Signature

ORDER #

Lab Control Number

Sample

ID

Date

Sampled

Time

Sampled

Matrix

DW SW

GW WW

S SED

HW BIO

SEA OIL

X AIR

Bottle

&

Pres.

Combo

Codes

Number of

Containers

Received

& NELAC

Letter

Suffixes

A-?

Analysis Required

Field Tests

TEMP °C

PH

COND

CHLOR

1 79683

EW-1-PH-2424 FT

8/25/11

1920

GW

SU

2

1

1

26.1

7.78

33.2

X

2 79491

EW-1-PH-2514 FT

8/24/11

0730

GW

SU

2

1

1

23.8

7.93

31.2

X

3 79492

EW-1-PH-2604 FT

8/29/11

21:40

GW

SU

2

1

1

27.3

7.99

48.1

X

4

5

6

7

8

9

10

Received 2/24/11 9/12/11

Special Comments:

"I waive NELAC protocol" (sign here) >

Deliverables:

QA/QC Report Needed?

Yes No

(additional charge)

Sample Custody & Field Comments

Bottle Type

A-liter amber

B-Bacteria bag/bottle

F-500 ml

O-125 ml

L-liter bottle

S4-4 oz soil jar / S8-8 oz soil jar

T-250 ml

V-40 ml vial

W-wide mouth

X-other

TED-Tedlar Air Bag

Additional Bottle Types

B-brown liter plastic

Preservatives

A-ascorbic acid

C-HCL

Cu-CuSO4

H-HNO3

M-MCAB

Z-zinc acetate

P-H3PO4

S-H2SO4

T-Na2S2O3

U-Unpreserved

N-NaOH

NH4-NH4CL

Additional Preservatives

Hex-Hex Cr Buffer

EDA-Ethylene Diamine

Total

Signature

Affiliation

Date/Time

1 Relinquished by: [Signature] MHC 9/1/11 1130

1 Received by: Angelio PIERRE 9-1-11 11:30

2 Relinquished by: Angelio PIERRE 9-1-11 11:30

2 Received by: Akashi PSEB 9/1/11 1525

3 Relinquished by:

3 Received by: [Signature] FSO 9/2/11 1545

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COC Page EPL-0056-317



Report To:
Craig Brugger
Layne Christensen Co-FL
5061 Lockett Road
Fort Myers, FL 33905

Page 1 of 6
Report Printed: 09/15/11
Submission # 1109000174
Order # 80205

Project: FPL Turkey Point (Exploratory)
Site Location: Turkey Point, Homestead, FL
Matrix: Water


Sample I.D.: EW-1-PH-2694
Collected: 09/04/11 10:00
Received: 09/08/11 15:10
Collected by: Client

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Specific Conductance (Field)(grab)	63800		uS/cm	1.0	3.0	120.1	09/04 10:00	09/04 10:00	Client
Specific Conductance (grab)	67100		uS/cm	1.0	3.0	120.1	09/13 14:11	09/13 14:11	DGK
Chloride	27200		mg/L	55.00	165.00	300.0	09/08 18:32	09/08 18:32	RPV
Nitrogen (Ammonia) as N	U	U	mg/L	0.01	0.03	350.1	09/15 14:49	09/15 14:49	MSG
Nitrogen (Kjeldahl) as "N"	0.118	I	mg/L	0.07	0.21	351.2	09/09 17:37	09/09 17:37	RPV
Total Dissolved Solids (TDS)	41500		mg/L	1.00	3.00	SM 2540C	09/10 12:40	09/12 14:14	CEB

Unless indicated, soil results are reported based on actual (wet) weight basis.

Analytes not currently NELAC certified denoted by ~.
Work performed by outside (subcontract) labs denoted by Cert.ID in Analyst Field.
Results relate only to this sample.
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U=Analyzed for but not detected.
Q=Sample held beyond accepted holding time.
I=Value is between MDL and PQL.
J=Estimated value.


Authorized CSM Signature (954) 978-6400
Florida-Spectrum Environmental Services, Inc.
Certification # E86006

Florida-Spectrum Environmental Services, Inc.
1460 W. McNab Road, Fort Lauderdale, FL 33309

Pembroke Laboratory
528 Gooch Rd.
Fort Meade, FL 33841

Big Lake Laboratory
610 North Parrot Ave.
Okeechobee, FL 34972

Spectrum Laboratories
630 Indian St.
Savannah, GA 31401

www.flenviro.com

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FPL-005B-318

Report To:
Craig Brugger
Layne Christensen Co-FL
5061 Lockett Road
Fort Myers, FL 33905

Page 2 of 6
Report Printed: 09/15/11
Submission # 1109000174
Order # 80206

Project: FPL Turkey Point (Exploratory)
Site Location: Turkey Point, Homestead, FL
Matrix: Water


Sample I.D.: EW-1-PH-2784
Collected: 09/04/11 20:30
Received: 09/08/11 15:10
Collected by: Client

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Specific Conductance (Field)(grab)	59600		uS/cm	1.0	3.0	120.1	09/04 20:30	09/04 20:30	Client
Specific Conductance (grab)	63800		uS/cm	1.0	3.0	120.1	09/13 14:11	09/13 14:11	DGK
Chloride	25800		mg/L	55.00	165.00	300.0	09/08 18:32	09/08 18:32	RPV
Nitrogen (Ammonia) as N	U	U	mg/L	0.01	0.03	350.1	09/15 14:49	09/15 14:49	MSG
Nitrogen (Kjeldahl) as "N"	0.119	I	mg/L	0.070	0.210	351.2	09/09 17:38	09/09 17:38	RPV
Total Dissolved Solids (TDS)	40400		mg/L	1.00	3.00	SM 2540C	09/10 12:40	09/12 14:14	CEB

Unless indicated, soil results are reported based on actual (wet) weight basis.

Analytes not currently NELAC certified denoted by ~.
Work performed by outside (subcontract) labs denoted by Cert.ID in Analyst Field.
Results relate only to this sample.
QC=Qualifier Codes as defined by DEP 62-160
U=Analyzed for but not detected.
Q=Sample held beyond accepted holding time.
I=Value is between MDL and PQL.
J=Estimated value.


Authorized CSM Signature (954) 978-6400
Florida-Spectrum Environmental Services, Inc.
Certification # E86006

Report To:
Craig Brugger
Layne Christensen Co-FL
5061 Luckett Road
Fort Myers, FL 33905

Page 3 of 6
Report Printed: 09/15/11
Submission # 1109000174
Order # 80207

Project: FPL Turkey Point (Exploratory)
Site Location: Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: EW-1-PH-2874
Collected: 09/05/11 06:45
Received: 09/08/11 15:10
Collected by: Client

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Specific Conductance (Field)(grab)	52200		uS/cm	1.0	3.0	120.1	09/05 06:45	09/05 06:45	Client
Specific Conductance (grab)	55100		uS/cm	1.0	3.0	120.1	09/13 14:11	09/13 14:11	DGK
Chloride	25600		mg/L	55.00	165.00	300.0	09/08 18:32	09/08 18:32	RPV
Nitrogen (Ammonia) as N	U	U	mg/L	0.01	0.03	350.1	09/15 14:49	09/15 14:49	MSG
Nitrogen (Kjeldahl) as "N"	0.247		mg/L	0.070	0.210	351.2	09/09 17:38	09/09 17:38	RPV
Total Dissolved Solids (TDS)	34000		mg/L	1.00	3.00	SM 2540C	09/10 12:40	09/12 14:14	CEB

Unless indicated, soil results are reported based on actual (wet) weight basis.

Analytes not currently NELAC certified denoted by ~.
Work performed by outside (subcontract) labs denoted by Cert.ID in Analyst Field.
Results relate only to this sample.
QC=Qualifier Codes as defined by DEP 62-160
U=Analyzed for but not detected.
Q=Sample held beyond accepted holding time.
I=Value is between MDL and PQL.
J=Estimated value.


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Florida-Spectrum Environmental Services, Inc.
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Report To:
Craig Brugger
Layne Christensen Co-FL
5061 Luckett Road
Fort Myers, FL 33905

Page 4 of 6
Report Printed: 09/15/11
Submission # 1109000174
Order # 80208

Project: FPL Turkey Point (Exploratory)
Site Location: Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: EW-1-PH-2964
Collected: 09/05/11 20:35
Received: 09/08/11 15:10
Collected by: Client

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Specific Conductance (Field)(grab)	47240		uS/cm	1.0	3.0	120.1	09/05 20:35	09/05 20:35	Client
Specific Conductance (grab)	51400		uS/cm	1.0	3.0	120.1	09/13 14:11	09/13 14:11	DGK
Chloride	17900		mg/L	55.00	165.00	300.0	09/08 18:32	09/08 18:32	RPV
Nitrogen (Ammonia) as N	U	U	mg/L	0.01	0.03	350.1	09/15 14:49	09/15 14:49	MSG
Nitrogen (Kjeldahl) as "N"	0.279		mg/L	0.070	0.210	351.2	09/09 17:38	09/09 17:38	RPV
Total Dissolved Solids (TDS)	31200		mg/L	1.00	3.00	SM 2540C	09/10 12:40	09/12 14:14	CEB

Unless indicated, soil results are reported based on actual (wet) weight basis.

Analytes not currently NELAC certified denoted by ~.
Work performed by outside (subcontract) labs denoted by Cert.ID in Analyst Field.
Results relate only to this sample.
QC=Qualifier Codes as defined by DEP 62-160
U=Analyzed for but not detected.
Q=Sample held beyond accepted holding time.
I=Value is between MDL and PQL.
J=Estimated value.


Authorized CSM Signature (954) 978-6400
Florida-Spectrum Environmental Services, Inc.
Certification # B86006

Report To:
Craig Brugger
Layne Christensen Co-FL
5061 Luckett Road
Fort Myers, FL 33905

Page 5 of 6
Report Printed: 09/15/11
Submission # 1109000174
Order # 80209

Project: FPL Turkey Point (Exploratory)
Site Location: Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: EW-1-PH-3054
Collected: 09/06/11 12:15
Received: 09/08/11 15:10
Collected by: Client

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Specific Conductance (Field)(grab)	50000		uS/cm	1.0	3.0	120.1	09/06 12:15	09/06 12:15	Client
Specific Conductance (grab)	52300		uS/cm	1.0	3.0	120.1	09/13 14:11	09/13 14:11	DGK
Chloride	19500		mg/L	55.00	165.00	300.0	09/08 18:32	09/08 18:32	RPV
Nitrogen (Ammonia) as N	U	U	mg/L	0.01	0.03	350.1	09/15 14:49	09/15 14:49	MSG
Nitrogen (Kjeldahl) as "N"	0.245		mg/L	0.070	0.210	351.2	09/09 17:38	09/09 17:38	RPV
Total Dissolved Solids (TDS)	32000		mg/L	1.00	3.00	SM 2540C	09/10 12:40	09/12 14:14	CEB

Unless indicated, soil results are reported based on actual (wet) weight basis.

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Work performed by outside (subcontract) labs denoted by Cert.ID in Analyst Field.
Results relate only to this sample.
QC=Qualifier Codes as defined by DEP 62-160
U=Analyzed for but not detected.
Q=Sample held beyond accepted holding time.
I=Value is between MDL and PQL.
J=Estimated value.


Authorized CSM Signature (954) 978-6400
Florida-Spectrum Environmental Services, Inc.
Certification # E86006

Report To:
Craig Brugger
Layne Christensen Co-FL
5061 Lockett Road
Fort Myers, FL 33905

Page 6 of 6
Report Printed: 09/15/11
Submission # 1109000174
Order # 80210

Project: FPL Turkey Point (Exploratory)
Site Location: Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: EW-1-PH-3144
Collected: 09/06/11 22:45
Received: 09/08/11 15:10
Collected by: Client

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Specific Conductance (Field)(grab)	49900		uS/cm	1.0	3.0	120.1	09/06 22:45	09/06 22:45	Drille
Specific Conductance (grab)	53100		uS/cm	1.0	3.0	120.1	09/13 14:12	09/13 14:12	DGK
Chloride	19500		mg/L	55.00	165.00	300.0	09/08 18:32	09/08 18:32	RPV
Nitrogen (Ammonia) as N	U	U	mg/L	0.01	0.03	350.1	09/15 14:49	09/15 14:49	MSG
Nitrogen (Kjeldahl) as "N"	0.469		mg/L	0.070	0.210	351.2	09/09 17:39	09/09 17:39	RPV
Total Dissolved Solids (TDS)	33100		mg/L	1.00	3.00	SM 2540C	09/10 12:40	09/12 14:15	CEB

Unless indicated, soil results are reported based on actual (wet) weight basis.

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Work performed by outside (subcontract) labs denoted by Cert.ID in Analyst Field.
Results relate only to this sample.
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I=Value is between MDL and PQL.
J=Estimated value.


Authorized CSM Signature (954) 978-6400
Florida-Spectrum Environmental Services, Inc.
Certification # E86006

SUBMISSION # <div style="font-size: 1.5em; font-family: cursive;">1109-174</div>				CHAIN OF CUSTODY RECORD						DUE DATE Requested RUSH RESERVATION # <i>Rush Surcharges apply</i>			
Logged in LIMS by <u>AD</u> CSM assigned _____				<input type="checkbox"/> 1460 W. McNab Road Ft Laud. FL 33309 <input type="checkbox"/> 630 Indian Street Savannah, GA 31401 <input type="checkbox"/> 528 Gooch Road Fort Meade, FL 33841 <input type="checkbox"/> 610 Parrot Ave. N, Okeechobee, FL 34972		Tel: (954) 978-6400 Tel: (912) 238-5050 Tel: (863) 285-8145 Tel: (863) 763-3336		Fax: (954) 978-2233 Fax: (912) 234-4815 Fax: (863) 285-7030 Fax: (863) 763-1544					
Original-Return w/report				Yellow-Lab File Copy				Pink - Sampler Copy					
Report to: (company name) <u>LAYNE CHRISTENSEN COMPANY</u>						Report to: Address: <u>5061 LUCKETT RD, FT MYERS, FL 33905</u>							
Invoice to: (company name) <u>LAYNE CHRISTENSEN COMPANY</u>						Purchase Order # _____		Invoice to: Address: <u>5061 LUCKETT RD, FT MYERS, FL 33905</u>					
Project Name and/or Number <u>FPL TURKEY POINT (EXPLORATORY WELL)</u>						Site Location: <u>TURKEY POINT, HOMESTEAD FL 33035</u>							
Project Contact: <u>CRAG BRUGGER</u>						Phone: _____		Fax: _____		Email: <u>CB BRUGGER@LAYNECHRISTENSEN.COM</u>			
Sampler Name: (printed) <u>DRILLER</u>						Affiliation: _____		Sampler Signature _____					

ORDER # <small>Lab Control Number</small>	Sample ID	Date Sampled	Time Sampled	Matrix	Bottle & Pres.	Number of Containers Received & NELAC Letter Suffixes # A-?	Analysis Required								Field Tests			
							CHLORIDE	TDS	SILICA	TURB	NH3	TEMP °C	PH	COND	CHLOR			
1	80205	EW-1-PH-2694	9/4/11	1000	GW	SU	2	1	1						25.0	6.54	52.800	X
2	80206	EW-1-PH-2784	9/4/11	2030	GW	SU	2	1	1						24.4	7.91	57.600	X
3	80207	EW-1-PH-2874	9/5/11	0645	GW	SU	2	1	1						25.1	7.95	52.200	X
4	80208	EW-1-PH-2964	9/5/11	2035	GW	SU	2	1	1						23.9	7.99	47.600	X
5	80209	EW-1-PH-3054	9/6/11	1215	GW	SU	2	1	1						26.8	7.82	50.700	X
6	80210	EW-1-PH-3144	9/6/11	22:45	GW	SU	2	1	1						26.6	7.82	49.900	X
7																		
8																		
9																		
10																		

Special Comments:

"I waive NELAC protocol" (sign here) >

Deliverables: QA/QC Report Needed? Yes No (additional charge)

Signature	Affiliation	Date/Time
1	Relinquished by: <u>EDM Mays/MHC</u>	<u>9/8/11 @ 1300</u>
1	Received by: <u>Arogho P. Piffenger</u>	<u>9-8-11 13:00</u>
2	Relinquished by: <u>Arogho Piffenger</u>	<u>9-8-11 15:10</u>
2	Received by: <u>Arogho Piffenger</u>	<u>9/8/11 1510</u>
3	Relinquished by:	
3	Received by:	

Sample Custody & Field Comments

Temp as received 4 C

Custody seals? Y N

FIELD TIME:

Sampling _____ hrs

Pick-Up _____ hrs

Misc. Charges _____

<p>Bottle Type</p> <p>A-liter amber</p> <p>B-Bacteria bag/bottle</p> <p>F-500 ml O-125 ml</p> <p>L-liter bottle</p> <p>S4-4 oz soil jar / S8-8 oz soil jar</p> <p>T-250 ml</p> <p>V-40 ml vial</p> <p>W-wide mouth</p> <p>X-other TED-Tedlar Air Bag</p> <p style="text-align: center;">Additional Bottle Types</p> <p>B-brown liter plastic</p>	<p>Preservatives</p> <p>A-ascorbic acid P-H3PO4</p> <p>C-HCL S-H2SO4</p> <p>Cu-CuSO4 T-Na2S2O3</p> <p>H-HNO3 U-Unpreserved</p> <p>M-MCAB N-NaOH</p> <p>Z-zinc acetate NH4-NH4CL</p> <p style="text-align: center;">Additional Preservatives</p> <p>Hex-Hex Cr Buffer</p> <p>EDA-Ethylene Diamine</p>
--	--

www.flenviro.com COC Page _____ of _____



Report To:
Craig Brugger
Layne Christensen Co-FL
5061 Luckett Road
Fort Myers, FL 33905

Page 1 of 1
Report Printed: 11/07/11
Submission # 1110000798
Order # 87302

Project: FPL Turkey Point(Pilot Hole)
Site Location: Turkey Point, FL.
Matrix: Water


Sample I.D.: EW1-PH-3234
Collected: 10/23/11 16:00
Received: 10/29/11 12:11
Collected by: Driller

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Specific Conductance (Field)(grab)	52700		uS/cm	1.0	3.0	120.1	10/23 16:00	10/23 16:00	Client
Specific Conductance (grab)	52100		uS/cm	1.0	3.0	120.1	10/29 14:13	10/29 14:13	DGK
Chloride	21100		mg/L	55.00	165.00	300.0	10/29 13:45	10/29 13:45	DGK
Nitrogen (Ammonia) as N	U	U	mg/L	0.01	0.03	350.1	10/31 15:41	10/31 15:41	CEB
Nitrogen (Kjeldahl) as "N"	0.54		mg/L	0.070	0.210	351.2	11/01 09:00	11/01 12:57	MSG
Total Dissolved Solids (TDS)	40250		mg/L	1.00	3.00	SM 2540C	10/29 13:15	10/31 14:38	LYR

Unless indicated, soil results are reported based on actual (wet) weight basis.

Analytes not currently NELAC certified denoted by ~.
Work performed by outside (subcontract) labs denoted by Cert.ID in Analyst Field.
Results relate only to this sample.
QC=Qualifier Codes as defined by DEP 62-160
U=Analyzed for but not detected.
Q=Sample held beyond accepted holding time.
I=Value is between MDL and PQL.
J=Estimated value.


Authorized CSM Signature (954) 978-6400
Florida-Spectrum Environmental Services, Inc.
Certification # E86006

Florida-Spectrum Environmental Services, Inc.
1460 W. McNab Road, Fort Lauderdale, FL 33309

Pembroke Laboratory
528 Gooch Rd.
Fort Meade, FL 33841


Big Lake Laboratory
610 North Parrot Ave.
Okeechobee, FL 34972

Spectrum Laboratories
630 Indian St.
Savannah, GA 31401

www.flenviro.com

All NELAP certified analyses are performed in accordance with Chapter 64E-1 Florida Administrative Code, which has been determined to be equivalent to NELAC standards. Analyses certified by programs other than NELAP are designated with a "~".

FPL-005B-325

SUBMISSION # 1110-798 Logged in LIMS by <i>MEC</i> CSM assigned <i>MEC</i>				CHAIN OF CUSTODY RECORD <input type="checkbox"/> 1460 W. McNab Road Ft Laud. FL 33309 Tel: (954) 978-6400 Fax: (954) 978-2233 <input type="checkbox"/> 630 Indian Street Savannah, GA 31401 Tel: (912) 238-5050 Fax: (912) 234-4815 <input type="checkbox"/> 528 Gooch Road Fort Meade, FL 33841 Tel: (863) 285-8145 Fax: (863) 285-7030 <input type="checkbox"/> 610 Parrot Ave. N, Okeechobee, FL 34972 Tel: (863) 763-3336 Fax: (863) 763-1544				DUE DATE Requested RUSH RESERVATION # <i>Rush Surcharges apply</i>															
		Original-Return w/report		Yellow-Lab File Copy		Pink - Sampler Copy																	
Report to: (company name) <i>Layne Christensen Company</i>				Report to: Address: <i>5061 Lockett Rd, Ft Myers, FL 33905</i>																			
Invoice to: (company name) <i>Layne Christensen Company</i>				Invoice to: Address: <i>5061 Lockett Rd, Ft Myers, FL 33905</i>																			
Project Name and/or Number <i>FPL Turkey Point (Pilot hole samples)</i>				Site Location: 																			
Project Contact: <i>Orville Allen</i> <i>Sraig Bruggar</i>				Phone: <i>239-275-1029</i> <i>239-275-1025</i>		Fax: 																	
Sampler Name: (printed) <i>Driller</i>				Affiliation: <i>Layne Christensen</i>		Email: <i>SBruggar@LayneChristensen.com</i>																	
ORDER # Lab Control Number <i>Shaded Areas For Laboratory Use Only</i>		Sample ID	Date Sampled	Time Sampled	Matrix DW SW GW WW S SED HW BIO SEA OIL X AIR	Bottle & Pres. Combo Codes	Number of Containers Received & NELAC Letter Suffixes # A-?	Analysis Required				Field Tests											
									Chloride TDS Sp Cond.	TKN	NH ₃					TEM °C	PH	COND	CHLOR				
1		87302	EWL-PH-3234	10/29/11	1600	GW			1	1						23.3	7.16	5270	X				
2																							
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							
Special Comments: <i>Please return all samples to Job Site (Turkey Point)</i> <i>"I waive TNI protocol" (sign here) > after analysis has been performed</i>								Total 2															
Deliverables:								QA/QC Report Needed? Yes No (additional charge)															
Sample Custody & Field Comments																							
Temp as received <i>4°C</i> Custody seals? Y N FIELD TIME: Sampling _____ hrs Pick-Up _____ hrs Misc. Charges _____								Bottle Type A-liter amber B-Bacteria bag/bottle F-500 ml O-125 ml H-Plastic Amber Liter L-liter bottle S2-2 oz soil jar S4-4 oz soil jar / S8-8 oz soil jar T-250 ml V-40 ml vial W-wide mouth X-other TED-Tedlar Air Bag Additional Bottle Types B-brown liter plastic								Preservatives A-ascorbic acid P-H3PO4 C-HCL S-H2SO4 Cu-CuSO4 T-Na2S2O3 DI-DI water U-Unpreserved H-HNO3 N-NaOH M-MCAB NH4-NH4CL MeOH-Methanol Z-zinc acetate Additional Preservatives Hex-Hex Cr Buffer EDA-Ethylene Diamine							
								Signature Affiliation Date/Time															
								1 Relinquished by: <i>DW Dgl</i> <i>MCC</i> <i>10/29/11/1010</i>															
								1 Received by: <i>Aracilio P. FERRER</i> <i>10-29-11</i> <i>10:10</i>															
								2 Relinquished by: <i>Aracilio P. FERRER</i> <i>10-29-11</i> <i>12:11</i>															
								2 Received by: <i>Aracilio P. FERRER</i> <i>10-29-11</i> <i>12:11</i>															
								3 Relinquished by: <i>Aracilio P. FERRER</i> <i>10/29/11</i> <i>12:11</i>															
								3 Received by: _____															
								www.flenviro.com COC Page FPL-009B-326															

Appendix P

Core Samples Laboratory Report



Ardaman & Associates, Inc.

Geotechnical, Environmental and
Materials Consultants

December 21, 2011
File Number 11-13-0163

Layne Christensen Company
5061 Lockett Road
Ft. Myers, FL 33905

Attention: Craig Brugger
Project Manager

Subject: Rock Core Testing, Florida Power & Light Company, Turkey Point Exploratory
Well EW-1, P.O. # 106777

Gentlemen:

As requested, vertical and horizontal permeability, unconfined compression and specific gravity tests have been completed on sixteen rock cores provided for testing by your firm. The cores were received on September 20 and 22, 2011 and were designated as follows:

Core Number	Depth (feet)
1	2652.80-2653.50
2	2296.00-2296.75
3	2296.75-2297.50
4	2295.20-2296.00
5	2639.30-2639.70
5a	2639.70-2640.20
6	2029.40-2030.40
7	2030.40-2031.30
8	2036.20-2036.70
8a	2036.70-2637.90
9	2652.00-2652.80
10	2675.10-2675.60
10a	2675.60-2676.10
11	2676.10-2677.00
12	2645.10-2645.50
12a	2645.50-2646.50
13	2576.00-2577.00
14	2399.90-2400.90
15	2026.40-2027.00
16	2027.00-2027.50

Photographs of the cores are attached.

Permeability Tests

Permeability tests were performed in general accordance with ASTM Standard D5084 "Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter" using either the constant head (Method A) or the falling head/rising tailwater

(Method C) test method. The permeability test results are presented on the attached hydraulic conductivity test reports. A total of 32 permeability tests were performed.

Unconfined Compression Tests

Unconfined compression tests were performed in general accordance with ASTM Standard D7012 "Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures" using the unconfined test method (Method C). The unconfined compression test results are presented on the attached test reports. Unconfined compression tests were performed on 15 samples.

Specific Gravity

The measured mineral specific gravities are presented on the attached test reports. The specific gravity tests were performed in general accordance with ASTM Standard D854 "Specific Gravity of Soil Solids by Water Pycnometer" using 68 to 80 gram specimens ground to pass the U.S. Standard No. 40 sieve. A total of 16 specific gravity tests were performed.

The test samples were reported to be from the client-specified designations herein. The test results are indicative of only the specimens that were actually tested. The test results presented are based upon accepted industry practice as well as test method(s) listed. Ardaman & Associates, Inc. neither accepts responsibility for, nor makes claims to the final use and purpose of the test results.

Please contact us if you have any questions about the test results or require additional information.

Very truly yours,
ARDAMAN & ASSOCIATES, INC.

Thomas S. Ingra, P.E.
Laboratory Director
Florida License No. 31987

C:\Documents and Settings\jan.wildman\Documents\Projects\10\10-13-0223\report01.wpd

ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Layne Christensen Company
 PROJECT: FP&L - Turkey Point Exploratory Well EW-1
 FILE NO.: 11-13-0163
 DATE SAMPLE RECEIVED: 09/20/11 SET UP: 09/29/11
 DATE REPORTED: 12/21/11

INCOMING LABORATORY SAMPLE NO.: Core 1, 2652.80-2653.50'
 LABORATORY IDENTIFICATION NO.: 11163/1-2652V
 SAMPLE DESCRIPTION: Light brown and brown layered limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
☐ B - Falling Head; Constant Tailwater
☐ C - Falling Head; Rising Tailwater
☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 90 (stable) % ☒ Beginning of Test;
☐ End of Test
 $\Delta\sigma_c$ (psi): 8, 13, 18

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☐ Yes ☒ No
 As-Received Length (inch): 8.0/7.5* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☒ Vertical ☐ Horizontal

SPECIFIC GRAVITY, G_s : 2.71 ☐ Assumed
☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity k_{20} (cm/sec)
H (cm)	D (cm)	V (cm ³)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm ³)	t (days)	WDS (g)	w_c (%)	S (%)	
8.16	9.85	621.77	16.6	112.9	0.332	91	30	160	31	1.0	1	1124.8	17.2	94	2.3E-06
COMMENTS: (1) Core sample was cut to length, air-dried, deaired under vacuum for a minimum of 24 hours, and then saturated with deaired tap water from the bottom up while maintaining the vacuum. (2) Final w_c from horizontal permeability test specimen. WDS calculated from measured wet mass and final w_c . *First length is total sample length. Second length is useable length at full core diameter.															
The test data and all associated project information presented hereon shall be held in confidence and disclosed to other parties only with the authorization of the Client. Physical and electronic records of each project are kept for a minimum of 7 years. Test samples are kept in storage for at least 10 working days after mailing of the test report, prior to being discarded, unless a longer storage period is requested in writing and accepted by Ardaman & Associates, Inc.															
Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.															

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 Form SR-2B: Rev. 0

Date: 12/21/11

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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Layne Christensen Company
 PROJECT: FP&L - Turkey Point Exploratory Well EW-1
 FILE NO.: 11-13-0163
 DATE SAMPLE RECEIVED: 09/20/11 SET UP: 10/05/11
 DATE REPORTED: 12/21/11

INCOMING LABORATORY SAMPLE NO.: Core 1, 2652.80-2653.50'
 LABORATORY IDENTIFICATION NO.: 11163/1-2652H
 SAMPLE DESCRIPTION: Light brown and brown layered limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
☐ B - Falling Head; Constant Tailwater
☐ C - Falling Head; Rising Tailwater
☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 70 (stable) % ☐ Beginning of Test;
☒ End of Test
 $\Delta\sigma_c$ (psi): 4, 8

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☒ Yes ☐ No
 As-Received Length (inch): 8.0/7.5* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☐ Vertical ☒ Horizontal

SPECIFIC GRAVITY, G_s : 2.71 ☐ Assumed
☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity k_{20} (cm/sec)
H (cm)	D (cm)	V (cm ³)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm ³)	t (days)	WDS (g)	w_c (%)	S (%)	
6.83	5.06	137.51	15.6	114.0	0.326	87	30	160	11	1.9	1	251.23	17.2	96	2.5E-05

COMMENTS: (1) Horizontal permeability test specimen was cross-cored from the corresponding vertical test specimen.
 *First length is total sample length. Second length is useable length at full core diameter.

The test data and all associated project information presented hereon shall be held in confidence and disclosed to other parties only with the authorization of the Client. Physical and electronic records of each project are kept for a minimum of 7 years. Test samples are kept in storage for at least 10 working days after mailing of the test report, prior to being discarded, unless a longer storage period is requested in writing and accepted by Ardaman & Associates, Inc.

Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Layne Christensen Company
 PROJECT: FP&L - Turkey Point Exploratory Well EW-1
 FILE NO.: 11-13-0163
 DATE SAMPLE RECEIVED: 09/20/11 SET UP: 09/29/11
 DATE REPORTED: 12/21/11

INCOMING LABORATORY SAMPLE NO.: Core 2, 2296.00-2296.75'
 LABORATORY IDENTIFICATION NO.: 11163/2-2296V
 SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
☐ B - Falling Head; Constant Tailwater
☐ C - Falling Head; Rising Tailwater
☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 94(stable) % ☒ Beginning of Test;
☐ End of Test
 $\Delta\sigma_c$ (psi): 5, 11, 16

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☐ Yes ☒ No
 As-Received Length (inch): 8.0/7.25* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☒ Vertical ☐ Horizontal

SPECIFIC GRAVITY, G_s : 2.72 ☐ Assumed
☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity k_{20} (cm/sec)
H (cm)	D (cm)	V (cm ³)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm ³)	t (days)	WDS (g)	w_c (%)	S (%)	
7.08	9.76	529.73	22.4	105.4	0.379	100	30	160	25	10.9	1	894.85	22.4	100	8.4E-05
COMMENTS: (1) Core sample was cut to length, air-dried, deaired under vacuum for a minimum of 24 hours, and then saturated with deaired tap water from the bottom up while maintaining the vacuum. (2) Final w_c from horizontal permeability test specimen. WDS calculated from measured wet mass and final w_c . *First length is total sample length. Second length is useable length at full core diameter.															
The test data and all associated project information presented hereon shall be held in confidence and disclosed to other parties only with the authorization of the Client. Physical and electronic records of each project are kept for a minimum of 7 years. Test samples are kept in storage for at least 10 working days after mailing of the test report, prior to being discarded, unless a longer storage period is requested in writing and accepted by Ardaman & Associates, Inc.															
Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.															

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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Layne Christensen Company

PROJECT: FP&L - Turkey Point Exploratory Well EW-1

FILE NO.: 11-13-0163

DATE SAMPLE RECEIVED: 09/20/11 SET UP: 10/11/11

DATE REPORTED: 12/21/11

INCOMING LABORATORY SAMPLE NO.: Core 2, 2296.00-2296.75'

LABORATORY IDENTIFICATION NO.: 11163/2-2296H

SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☐ A - Constant Head
☐ B - Falling Head; Constant Tailwater
☒ C - Falling Head; Rising Tailwater
☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 59 (stable) % ☐ Beginning of Test;

☒ End of Test

$\Delta\sigma_c$ (psi): 6, 11, 16

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☒ Yes ☐ No

As-Received Length (inch): 8.0/7.25* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☐ Vertical ☒ Horizontal

SPECIFIC GRAVITY, G_s : 2.72 ☐ Assumed
☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity k_{20} (cm/sec)
H (cm)	D (cm)	V (cm ³)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm ³)	t (days)	WDS (g)	w_c (%)	S (%)	
7.10	5.06	142.86	22.1	105.2	0.380	98	30	70	2.6	6.0	1	240.79	22.4	99	2.5E-04

COMMENTS: (1) Horizontal permeability test specimen was cross-cored from the corresponding vertical test specimen.
 *First length is total sample length. Second length is useable length at full core diameter.

The test data and all associated project information presented hereon shall be held in confidence and disclosed to other parties only with the authorization of the Client. Physical and electronic records of each project are kept for a minimum of 7 years. Test samples are kept in storage for at least 10 working days after mailing of the test report, prior to being discarded, unless a longer storage period is requested in writing and accepted by Ardaman & Associates, Inc.

Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Layne Christensen Company
 PROJECT: FP&L - Turkey Point Exploratory Well EW-1
 FILE NO.: 11-13-0163
 DATE SAMPLE RECEIVED: 09/20/11 SET UP: 09/29/11
 DATE REPORTED: 12/21/11

INCOMING LABORATORY SAMPLE NO.: Core 3, 2296.75-2297.50'
 LABORATORY IDENTIFICATION NO.: 11163/3-2296V
 SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
☐ B - Falling Head; Constant Tailwater
☐ C - Falling Head; Rising Tailwater
☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 95 (stable) %

- ☒ Beginning of Test;
☐ End of Test

$\Delta\sigma_c$ (psi): 5, 11, 16

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☐ Yes ☒ No
 As-Received Length (inch): 8.0/7.0* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☒ Vertical ☐ Horizontal

SPECIFIC GRAVITY, G_s : 2.72 ☐ Assumed
☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity k_{20} (cm/sec)
H (cm)	D (cm)	V (cm ³)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm ³)	t (days)	WDS (g)	w_c (%)	S (%)	
7.81	9.86	596.34	22.5	104.4	0.385	98	30	160	23	45.5	1	998.02	22.5	98	1.0E-04
COMMENTS: (1) Core sample was cut to length, air-dried, deaired under vacuum for a minimum of 24 hours, and then saturated with deaired tap water from the bottom up while maintaining the vacuum. (2) Final w_c from horizontal permeability test specimen. WDS calculated from measured wet mass and final w_c . *First length is total sample length. Second length is useable length at full core diameter.															
The test data and all associated project information presented hereon shall be held in confidence and disclosed to other parties only with the authorization of the Client. Physical and electronic records of each project are kept for a minimum of 7 years. Test samples are kept in storage for at least 10 working days after mailing of the test report, prior to being discarded, unless a longer storage period is requested in writing and accepted by Ardaman & Associates, Inc.															
Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.															

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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Layne Christensen Company
 PROJECT: FP&L - Turkey Point Exploratory Well EW-1
 FILE NO.: 11-13-0163
 DATE SAMPLE RECEIVED: 09/20/11 SET UP: 10/11/11
 DATE REPORTED: 12/21/11

INCOMING LABORATORY SAMPLE NO.: Core 3, 2296.75-2297.50'
 LABORATORY IDENTIFICATION NO.: 11163/3-2296H
 SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
☐ B - Falling Head; Constant Tailwater
☐ C - Falling Head; Rising Tailwater
☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 90 (stable) % ☐ Beginning of Test;
☒ End of Test
 $\Delta\sigma_c$ (psi): 6, 12, 17

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☒ Yes ☐ No
 As-Received Length (inch): 8.0/7.0* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☐ Vertical ☒ Horizontal

SPECIFIC GRAVITY, G_s : 2.72 ☐ Assumed
☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity k_{20} (cm/sec)
H (cm)	D (cm)	V (cm ³)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm ³)	t (days)	WDS (g)	w_c (%)	S (%)	
7.51	5.06	150.67	22.2	104.4	0.385	97	30	160	25	14.3	1	252.14	22.5	98	1.0E-04

COMMENTS: (1) Horizontal permeability test specimen was cross-cored from the corresponding vertical test specimen.
 *First length is total sample length. Second length is useable length at full core diameter.

The test data and all associated project information presented hereon shall be held in confidence and disclosed to other parties only with the authorization of the Client. Physical and electronic records of each project are kept for a minimum of 7 years. Test samples are kept in storage for at least 10 working days after mailing of the test report, prior to being discarded, unless a longer storage period is requested in writing and accepted by Ardaman & Associates, Inc.

Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

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 Form SR-2B: Rev. 0

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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Layne Christensen Company
 PROJECT: FP&L - Turkey Point Exploratory Well EW-1
 FILE NO.: 11-13-0163
 DATE SAMPLE RECEIVED: 09/20/11 SET UP: 09/30/11
 DATE REPORTED: 12/21/11

INCOMING LABORATORY SAMPLE NO.: Core 4, 2295.20-2296.00'
 LABORATORY IDENTIFICATION NO.: 11163/4-2295V
 SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
☐ B - Falling Head; Constant Tailwater
☐ C - Falling Head; Rising Tailwater
☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 95 (stable) % ☒ Beginning of Test;
☐ End of Test
 $\Delta\sigma_c$ (psi): 7, 13, 18

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☐ Yes ☒ No
 As-Received Length (inch): 10.25/9.0* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☒ Vertical ☐ Horizontal

SPECIFIC GRAVITY, G_s : 2.74 ☐ Assumed
☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity k_{20} (cm/sec)
H (cm)	D (cm)	V (cm ³)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm ³)	t (days)	WDS (g)	w_c (%)	S (%)	
11.51	9.77	862.22	22.8	103.5	0.395	96	30	160	12	5.9	1	1429.6	22.9	96	1.9E-04

COMMENTS: (1) Core sample was cut to length, air-dried, deaired under vacuum for a minimum of 24 hours, and then saturated with deaired tap water from the bottom up while maintaining the vacuum. (2) Final w_c from horizontal permeability test specimen. WDS calculated from measured wet mass and final w_c .
 *First length is total sample length. Second length is useable length at full core diameter.

The test data and all associated project information presented hereon shall be held in confidence and disclosed to other parties only with the authorization of the Client. Physical and electronic records of each project are kept for a minimum of 7 years. Test samples are kept in storage for at least 10 working days after mailing of the test report, prior to being discarded, unless a longer storage period is requested in writing and accepted by Ardaman & Associates, Inc.

Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

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Date: 12/21/11

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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Layne Christensen Company
 PROJECT: FP&L - Turkey Point Exploratory Well EW-1
 FILE NO.: 11-13-0163
 DATE SAMPLE RECEIVED: 09/20/11 SET UP: 10/05/11
 DATE REPORTED: 12/21/11

INCOMING LABORATORY SAMPLE NO.: Core 4, 2295.20-2296.00'
 LABORATORY IDENTIFICATION NO.: 11163/4-2295H
 SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☐ A - Constant Head
☐ B - Falling Head; Constant Tailwater
☒ C - Falling Head; Rising Tailwater
☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 61 (stable) % ☐ Beginning of Test;
☒ End of Test
 $\Delta\sigma_c$ (psi): 3, 6

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☒ Yes ☐ No
 As-Received Length (inch): 10.25/9.0* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☐ Vertical ☒ Horizontal

SPECIFIC GRAVITY, G_s : 2.74 ☐ Assumed
☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity k_{20} (cm/sec)
H (cm)	D (cm)	V (cm ³)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm ³)	t (days)	WDS (g)	w_c (%)	S (%)	
7.65	5.06	153.78	22.9	103.0	0.397	95	30	70	2.5	4.6	1	253.91	22.9	95	5.9E-04

COMMENTS: (1) Horizontal permeability test specimen was cross-cored from the corresponding vertical test specimen.
 *First length is total sample length. Second length is useable length at full core diameter.

The test data and all associated project information presented hereon shall be held in confidence and disclosed to other parties only with the authorization of the Client. Physical and electronic records of each project are kept for a minimum of 7 years. Test samples are kept in storage for at least 10 working days after mailing of the test report, prior to being discarded, unless a longer storage period is requested in writing and accepted by Ardaman & Associates, Inc.

Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

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 Form SR-2B: Rev. 0

Date: 12/21/11

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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Layne Christensen Company
 PROJECT: FP&L - Turkey Point Exploratory Well EW-1
 FILE NO.: 11-13-0163
 DATE SAMPLE RECEIVED: 09/20/11 SET UP: 09/29/11
 DATE REPORTED: 12/21/11

INCOMING LABORATORY SAMPLE NO.: Core 5, 2639.30-2639.70'
 LABORATORY IDENTIFICATION NO.: 11163/5-2639V
 SAMPLE DESCRIPTION: Light brown and brown layered limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
☐ B - Falling Head; Constant Tailwater
☐ C - Falling Head; Rising Tailwater
☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 94 (stable) %

- ☒ Beginning of Test;
☐ End of Test

$\Delta\sigma_c$ (psi): 5, 11, 16

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☐ Yes ☒ No
 As-Received Length (inch): 6.25/5.0* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☒ Vertical ☐ Horizontal

SPECIFIC GRAVITY, G_s : 2.69 ☐ Assumed
☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity k_{20} (cm/sec)
H (cm)	D (cm)	V (cm ³)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm ³)	t (days)	WDS (g)	w_c (%)	S (%)	
9.88	9.89	759.10	18.9	111.3	0.337	100	30	160	36	1.2	1	1353.7	18.9	100	1.6E-06
COMMENTS: (1) Core sample was cut to length, air-dried, deaired under vacuum for a minimum of 24 hours, and then saturated with deaired tap water from the bottom up while maintaining the vacuum. (2) Final w_c from horizontal permeability test specimen. WDS calculated from measured wet mass and final w_c . *First length is total sample length. Second length is useable length at full core diameter.															
The test data and all associated project information presented hereon shall be held in confidence and disclosed to other parties only with the authorization of the Client. Physical and electronic records of each project are kept for a minimum of 7 years. Test samples are kept in storage for at least 10 working days after mailing of the test report, prior to being discarded, unless a longer storage period is requested in writing and accepted by Ardaman & Associates, Inc.															
Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.															

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 Form SR-2B: Rev. 0

Date: 12/21/11

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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Layne Christensen Company
 PROJECT: FP&L - Turkey Point Exploratory Well EW-1
 FILE NO.: 11-13-0163
 DATE SAMPLE RECEIVED: 09/20/11 SET UP: 10/10/11
 DATE REPORTED: 12/21/11

INCOMING LABORATORY SAMPLE NO.: Core 5, 2639.30-2639.70'
 LABORATORY IDENTIFICATION NO.: 11163/5-2639H
 SAMPLE DESCRIPTION: Light brown and brown layered limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
☐ B - Falling Head; Constant Tailwater
☐ C - Falling Head; Rising Tailwater
☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 63 (stable) % ☐ Beginning of Test;
☒ End of Test
 $\Delta\sigma_c$ (psi): 6, 11, 16

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☒ Yes ☐ No
 As-Received Length (inch): 6.25/5.0* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☐ Vertical ☒ Horizontal

SPECIFIC GRAVITY, G_s : 2.69 ☐ Assumed
☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity k_{20} (cm/sec)
H (cm)	D (cm)	V (cm ³)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm ³)	t (days)	WDS (g)	w_c (%)	S (%)	
7.25	5.06	146.03	18.8	110.4	0.342	97	30	70	21	10.1	1	258.45	18.9	98	8.4E-05

COMMENTS: (1) Horizontal permeability test specimen was cross-cored from the corresponding vertical test specimen.
 *First length is total sample length. Second length is useable length at full core diameter.

The test data and all associated project information presented hereon shall be held in confidence and disclosed to other parties only with the authorization of the Client. Physical and electronic records of each project are kept for a minimum of 7 years. Test samples are kept in storage for at least 10 working days after mailing of the test report, prior to being discarded, unless a longer storage period is requested in writing and accepted by Ardaman & Associates, Inc.

Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

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 Form SR-2B: Rev. 0

Date: 12/21/11

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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Layne Christensen Company
 PROJECT: FP&L - Turkey Point Exploratory Well EW-1
 FILE NO.: 11-13-0163
 DATE SAMPLE RECEIVED: 09/20/11 SET UP: 09/30/11
 DATE REPORTED: 12/21/11

INCOMING LABORATORY SAMPLE NO.: Core 6, 2029.40-2030.40'
 LABORATORY IDENTIFICATION NO.: 11163/6-2029V
 SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
☐ B - Falling Head; Constant Tailwater
☐ C - Falling Head; Rising Tailwater
☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 94 (stable) %

- ☒ Beginning of Test;
☐ End of Test

$\Delta\sigma_c$ (psi): 6, 9, 15

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☐ Yes ☒ No
 As-Received Length (inch): 11.8/11.0* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☒ Vertical ☐ Horizontal

SPECIFIC GRAVITY, G_s : 2.71 ☐ Assumed
☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity k_{20} (cm/sec)
H (cm)	D (cm)	V (cm ³)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm ³)	t (days)	WDS (g)	w_c (%)	S (%)	
7.71	9.72	571.57	17.9	112.3	0.336	96	30	160	38	0.85	1	1029.0	18.0	97	1.0E-05
COMMENTS: (1) Core sample was cut to length, air-dried, deaired under vacuum for a minimum of 24 hours, and then saturated with deaired tap water from the bottom up while maintaining the vacuum. (2) Final w_c from horizontal permeability test specimen. WDS calculated from measured wet mass and final w_c . *First length is total sample length. Second length is useable length at full core diameter.															
The test data and all associated project information presented hereon shall be held in confidence and disclosed to other parties only with the authorization of the Client. Physical and electronic records of each project are kept for a minimum of 7 years. Test samples are kept in storage for at least 10 working days after mailing of the test report, prior to being discarded, unless a longer storage period is requested in writing and accepted by Ardaman & Associates, Inc.															
Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.															

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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Layne Christensen Company
 PROJECT: FP&L - Turkey Point Exploratory Well EW-1
 FILE NO.: 11-13-0163
 DATE SAMPLE RECEIVED: 09/20/11 SET UP: 10/05/11
 DATE REPORTED: 12/21/11

INCOMING LABORATORY SAMPLE NO.: Core 6, 2029.40-2030.40'
 LABORATORY IDENTIFICATION NO.: 11163/6-2029H
 SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
☐ B - Falling Head; Constant Tailwater
☐ C - Falling Head; Rising Tailwater
☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 92 (stable) % ☐ Beginning of Test;
☒ End of Test
 $\Delta\sigma_c$ (psi): 6, 9

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☒ Yes ☐ No
 As-Received Length (inch): 11.8/11.0* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☐ Vertical ☒ Horizontal

SPECIFIC GRAVITY, G_s : 2.71 ☐ Assumed
☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity k_{20} (cm/sec)
H (cm)	D (cm)	V (cm ³)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm ³)	t (days)	WDS (g)	w_c (%)	S (%)	
7.36	5.07	148.49	18.0	112.5	0.335	97	30	160	35	4.4	1	267.65	18.0	97	2.8E-05

COMMENTS: (1) Horizontal permeability test specimen was cross-cored from the corresponding vertical test specimen.
 *First length is total sample length. Second length is useable length at full core diameter.

The test data and all associated project information presented hereon shall be held in confidence and disclosed to other parties only with the authorization of the Client. Physical and electronic records of each project are kept for a minimum of 7 years. Test samples are kept in storage for at least 10 working days after mailing of the test report, prior to being discarded, unless a longer storage period is requested in writing and accepted by Ardaman & Associates, Inc.

Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Layne Christensen Company
 PROJECT: FP&L - Turkey Point Exploratory Well EW-1
 FILE NO.: 11-13-0163
 DATE SAMPLE RECEIVED: 09/20/11 SET UP: 09/29/11
 DATE REPORTED: 12/21/11

INCOMING LABORATORY SAMPLE NO.: Core 7, 2030.40-2031.30'
 LABORATORY IDENTIFICATION NO.: 11163/7-2030V
 SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
☐ B - Falling Head; Constant Tailwater
☐ C - Falling Head; Rising Tailwater
☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 87 (stable) %

- ☒ Beginning of Test;
☐ End of Test

$\Delta\sigma_c$ (psi): 6, 9, 16

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☐ Yes ☒ No
 As-Received Length (inch): 11.0/10.0* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☒ Vertical ☐ Horizontal

SPECIFIC GRAVITY, G_s : 2.71 ☐ Assumed
☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity k_{20} (cm/sec)
H (cm)	D (cm)	V (cm ³)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm ³)	t (days)	WDS (g)	w_c (%)	S (%)	
13.27	9.93	1027.27	21.2	107.3	0.366	100	30	160	17	1.2	1	1766.2	21.3	100	3.0E-05
COMMENTS: (1) Core sample was cut to length, air-dried, deaired under vacuum for a minimum of 24 hours, and then saturated with deaired tap water from the bottom up while maintaining the vacuum. (2) Final w_c from horizontal permeability test specimen. WDS calculated from measured wet mass and final w_c . *First length is total sample length. Second length is useable length at full core diameter.															
The test data and all associated project information presented hereon shall be held in confidence and disclosed to other parties only with the authorization of the Client. Physical and electronic records of each project are kept for a minimum of 7 years. Test samples are kept in storage for at least 10 working days after mailing of the test report, prior to being discarded, unless a longer storage period is requested in writing and accepted by Ardaman & Associates, Inc.															
Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.															

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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Layne Christensen Company
 PROJECT: FP&L - Turkey Point Exploratory Well EW-1
 FILE NO.: 11-13-0163
 DATE SAMPLE RECEIVED: 09/20/11 SET UP: 10/04/11
 DATE REPORTED: 12/21/11

INCOMING LABORATORY SAMPLE NO.: Core 7, 2030.40-2031.30'
 LABORATORY IDENTIFICATION NO.: 11163/7-2030H
 SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☐ A - Constant Head
☐ B - Falling Head; Constant Tailwater
☒ C - Falling Head; Rising Tailwater
☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 56 (stable) % ☐ Beginning of Test;
☒ End of Test
 $\Delta\sigma_c$ (psi): 5, 10, 14

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☒ Yes ☐ No
 As-Received Length (inch): 11.0/10.0* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☐ Vertical ☒ Horizontal

SPECIFIC GRAVITY, G_s : 2.71 ☐ Assumed
☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity k_{20} (cm/sec)
H (cm)	D (cm)	V (cm ³)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm ³)	t (days)	WDS (g)	w_c (%)	S (%)	
7.11	5.07	143.32	21.1	106.1	0.373	96	30	70	3.0	4.6	3	243.67	21.3	97	1.3E-04

COMMENTS: (1) Horizontal permeability test specimen was cross-cored from the corresponding vertical test specimen.
 *First length is total sample length. Second length is useable length at full core diameter.

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Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Layne Christensen Company
 PROJECT: FP&L - Turkey Point Exploratory Well EW-1
 FILE NO.: 11-13-0163
 DATE SAMPLE RECEIVED: 09/20/11 SET UP: 09/28/11
 DATE REPORTED: 12/21/11

INCOMING LABORATORY SAMPLE NO.: Core 8, 2036.20-2036.70'
 LABORATORY IDENTIFICATION NO.: 11163/8-2036V
 SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
☐ B - Falling Head; Constant Tailwater
☐ C - Falling Head; Rising Tailwater
☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 89 (stable) % ☒ Beginning of Test;
☐ End of Test
 $\Delta\sigma_c$ (psi): 6, 13, 17

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☐ Yes ☒ No
 As-Received Length (inch): 6.25/5.5* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☒ Vertical ☐ Horizontal

SPECIFIC GRAVITY, G_s : 2.72 ☐ Assumed
☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity k_{20} (cm/sec)
H (cm)	D (cm)	V (cm ³)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm ³)	t (days)	WDS (g)	w_c (%)	S (%)	
13.77	10.02	1084.97	19.0	109.5	0.355	94	30	160	9.5	2.9	1	1854.7	19.0	94	7.6E-05
COMMENTS: (1) Core sample was cut to length, air-dried, deaired under vacuum for a minimum of 24 hours, and then saturated with deaired tap water from the bottom up while maintaining the vacuum. (2) Final w_c from horizontal permeability test specimen. WDS calculated from measured wet mass and final w_c . *First length is total sample length. Second length is useable length at full core diameter.															
The test data and all associated project information presented hereon shall be held in confidence and disclosed to other parties only with the authorization of the Client. Physical and electronic records of each project are kept for a minimum of 7 years. Test samples are kept in storage for at least 10 working days after mailing of the test report, prior to being discarded, unless a longer storage period is requested in writing and accepted by Ardaman & Associates, Inc.															
Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.															

Checked By: PM
 Form SR-2B: Rev. 0

Date: 12/21/11

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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Layne Christensen Company
 PROJECT: FP&L - Turkey Point Exploratory Well EW-1
 FILE NO.: 11-13-0163
 DATE SAMPLE RECEIVED: 09/20/11 SET UP: 10/10/11
 DATE REPORTED: 12/21/11

INCOMING LABORATORY SAMPLE NO.: Core 8, 2036.20-2036.70'
 LABORATORY IDENTIFICATION NO.: 11163/8-2036H
 SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
☐ B - Falling Head; Constant Tailwater
☐ C - Falling Head; Rising Tailwater
☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 95 (stable) % ☐ Beginning of Test;
☒ End of Test
 $\Delta\sigma_c$ (psi): 4, 9, 15

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☒ Yes ☐ No
 As-Received Length (inch): 6.25/5.5* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☐ Vertical ☒ Horizontal

SPECIFIC GRAVITY, G_s : 2.72 ☐ Assumed
☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity k_{20} (cm/sec)
H (cm)	D (cm)	V (cm ³)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm ³)	t (days)	WDS (g)	w_c (%)	S (%)	
7.16	5.06	143.71	18.8	110.7	0.348	95	30	70	12	6.8	2	254.74	19.0	97	1.1E-04

COMMENTS: (1) Horizontal permeability test specimen was cross-cored from the corresponding vertical test specimen.
 *First length is total sample length. Second length is useable length at full core diameter.

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Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

Checked By: PM
 Form SR-2B: Rev. 0

Date: 12/21/11

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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Layne Christensen Company
 PROJECT: FP&L - Turkey Point Exploratory Well EW-1
 FILE NO.: 11-13-0163
 DATE SAMPLE RECEIVED: 09/20/11 SET UP: 09/27/11
 DATE REPORTED: 12/21/11

INCOMING LABORATORY SAMPLE NO.: Core 9, 2652.00-2652.80'
 LABORATORY IDENTIFICATION NO.: 11163/9-2652V
 SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
☐ B - Falling Head; Constant Tailwater
☐ C - Falling Head; Rising Tailwater
☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 94 (stable) % ☐ Beginning of Test;
☒ End of Test
 $\Delta\sigma_c$ (psi): 5, 14, 20

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☐ Yes ☒ No
 As-Received Length (inch): 10.25/8.5* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☒ Vertical ☐ Horizontal

SPECIFIC GRAVITY, G_s : 2.71 ☐ Assumed
☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity k_{20} (cm/sec)
H (cm)	D (cm)	V (cm ³)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm ³)	t (days)	WDS (g)	w_c (%)	S (%)	
10.64	9.84	809.84	18.7	110.8	0.345	96	30	160	22	0.68	1	1437.6	18.7	96	2.8E-06
COMMENTS: (1) Core sample was cut to length, air-dried, deaired under vacuum for a minimum of 24 hours, and then saturated with deaired tap water from the bottom up while maintaining the vacuum. (2) Final w_c from horizontal permeability test specimen. WDS calculated from measured wet mass and final w_c . *First length is total sample length. Second length is useable length at full core diameter.															
The test data and all associated project information presented hereon shall be held in confidence and disclosed to other parties only with the authorization of the Client. Physical and electronic records of each project are kept for a minimum of 7 years. Test samples are kept in storage for at least 10 working days after mailing of the test report, prior to being discarded, unless a longer storage period is requested in writing and accepted by Ardaman & Associates, Inc.															
Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.															

Checked By: TM
 Form SR-2B: Rev. 0

Date: 12/21/11

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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Layne Christensen Company
 PROJECT: FP&L - Turkey Point Exploratory Well EW-1
 FILE NO.: 11-13-0163
 DATE SAMPLE RECEIVED: 09/20/11 SET UP: 10/04/11
 DATE REPORTED: 12/21/11

INCOMING LABORATORY SAMPLE NO.: Core 9, 2652.00-2652.80'
 LABORATORY IDENTIFICATION NO.: 11163/9-2652H
 SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
☐ B - Falling Head; Constant Tailwater
☐ C - Falling Head; Rising Tailwater
☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 89 (stable) % ☐ Beginning of Test;
☒ End of Test
 $\Delta\sigma_c$ (psi): 3, 7

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☒ Yes ☐ No
 As-Received Length (inch): 10.25/8.5* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☐ Vertical ☒ Horizontal

SPECIFIC GRAVITY, G_s : 2.71 ☐ Assumed
☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity k_{20} (cm/sec)
H (cm)	D (cm)	V (cm ³)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm ³)	t (days)	WDS (g)	w_c (%)	S (%)	
7.25	5.06	145.88	18.7	110.5	0.346	95	30	160	34	1.2	2	258.36	18.7	95	4.6E-06

COMMENTS: (1) Horizontal permeability test specimen was cross-cored from the corresponding vertical test specimen.
 *First length is total sample length. Second length is useable length at full core diameter.

The test data and all associated project information presented hereon shall be held in confidence and disclosed to other parties only with the authorization of the Client. Physical and electronic records of each project are kept for a minimum of 7 years. Test samples are kept in storage for at least 10 working days after mailing of the test report, prior to being discarded, unless a longer storage period is requested in writing and accepted by Ardaman & Associates, Inc.

Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

Checked By: PM
 Form SR-2B: Rev. 0

Date: 12/21/11

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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Layne Christensen Company
 PROJECT: FP&L - Turkey Point Exploratory Well EW-1
 FILE NO.: 11-13-0163
 DATE SAMPLE RECEIVED: 09/20/11 SET UP: 09/29/11
 DATE REPORTED: 12/21/11

INCOMING LABORATORY SAMPLE NO.: Core 10, 2675.10-2675.60'
 LABORATORY IDENTIFICATION NO.: 11163/10-2675V
 SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
☐ B - Falling Head; Constant Tailwater
☐ C - Falling Head; Rising Tailwater
☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 94 (stable) % ☒ Beginning of Test;
☐ End of Test
 $\Delta\sigma_c$ (psi): 7, 13, 18

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☐ Yes ☒ No
 As-Received Length (inch): 6.0/5.25* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☒ Vertical ☐ Horizontal

SPECIFIC GRAVITY, G_s : 2.71 ☐ Assumed
☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity k_{20} (cm/sec)
H (cm)	D (cm)	V (cm ³)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm ³)	t (days)	WDS (g)	w_c (%)	S (%)	
12.85	9.72	954.36	23.2	102.3	0.395	96	30	160	12	9.5	1	1565.3	23.2	96	2.7E-04

COMMENTS: (1) Core sample was cut to length, air-dried, deaired under vacuum for a minimum of 24 hours, and then saturated with deaired tap water from the bottom up while maintaining the vacuum. (2) Final w_c from horizontal permeability test specimen. WDS calculated from measured wet mass and final w_c .
 *First length is total sample length. Second length is useable length at full core diameter.

The test data and all associated project information presented hereon shall be held in confidence and disclosed to other parties only with the authorization of the Client. Physical and electronic records of each project are kept for a minimum of 7 years. Test samples are kept in storage for at least 10 working days after mailing of the test report, prior to being discarded, unless a longer storage period is requested in writing and accepted by Ardaman & Associates, Inc.

Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

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 Form SR-2B: Rev. 0

Date: 12/21/11

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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Layne Christensen Company
 PROJECT: FP&L - Turkey Point Exploratory Well EW-1
 FILE NO.: 11-13-0163
 DATE SAMPLE RECEIVED: 09/20/11 SET UP: 10/04/11
 DATE REPORTED: 12/21/11

INCOMING LABORATORY SAMPLE NO.: Core 10, 2675.10-2675.60'
 LABORATORY IDENTIFICATION NO.: 11163/10-2675H
 SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☐ A - Constant Head
☐ B - Falling Head; Constant Tailwater
☒ C - Falling Head; Rising Tailwater
☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 72 (stable) % ☐ Beginning of Test;
☒ End of Test
 $\Delta\sigma_c$ (psi): 3, 6

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☒ Yes ☐ No
 As-Received Length (inch): 6.0/5.25* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☐ Vertical ☒ Horizontal

SPECIFIC GRAVITY, G_s : 2.71 ☐ Assumed
☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity k_{20} (cm/sec)
H (cm)	D (cm)	V (cm ³)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm ³)	t (days)	WDS (g)	w_c (%)	S (%)	
7.14	5.07	144.06	22.8	102.9	0.392	96	30	70	2.9	4.2	2	237.46	23.2	98	2.9E-04

COMMENTS: (1) Horizontal permeability test specimen was cross-cored from the corresponding vertical test specimen.
 *First length is total sample length. Second length is useable length at full core diameter.

The test data and all associated project information presented hereon shall be held in confidence and disclosed to other parties only with the authorization of the Client. Physical and electronic records of each project are kept for a minimum of 7 years. Test samples are kept in storage for at least 10 working days after mailing of the test report, prior to being discarded, unless a longer storage period is requested in writing and accepted by Ardaman & Associates, Inc.

Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

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Date: 12/21/11

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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Layne Christensen Company
 PROJECT: FP&L - Turkey Point Exploratory Well EW-1
 FILE NO.: 11-13-0163
 DATE SAMPLE RECEIVED: 09/20/11 SET UP: 09/28/11
 DATE REPORTED: 12/21/11

INCOMING LABORATORY SAMPLE NO.: Core 11, 2676.10-2677.00'
 LABORATORY IDENTIFICATION NO.: 11163/11-2676V
 SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
☐ B - Falling Head; Constant Tailwater
☐ C - Falling Head; Rising Tailwater
☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 95 (stable) % ☒ Beginning of Test;
☐ End of Test
 $\Delta\sigma_c$ (psi): 5, 11, 16

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☐ Yes ☒ No
 As-Received Length (inch): 12.0/11.0* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☒ Vertical ☐ Horizontal

SPECIFIC GRAVITY, G_s : 2.72 ☐ Assumed
☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity k_{20} (cm/sec)
H (cm)	D (cm)	V (cm ³)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm ³)	t (days)	WDS (g)	w_c (%)	S (%)	
6.75	9.64	492.33	27.0	96.1	0.434	96	30	160	42	3.4	1	757.92	27.0	96	1.1E-06
COMMENTS: (1) Core sample was cut to length, air-dried, deaired under vacuum for a minimum of 24 hours, and then saturated with deaired tap water from the bottom up while maintaining the vacuum. (2) Final w_c from horizontal permeability test specimen. WDS calculated from measured wet mass and final w_c . (3) The specimen appears to be homogenous, yet the horizontal hydraulic conductivity is about 500 times faster. After comparison with the other cores, the vertical hydraulic conductivity is suspect. *First length is total sample length. Second length is useable length at full core diameter.															
The test data and all associated project information presented hereon shall be held in confidence and disclosed to other parties only with the authorization of the Client. Physical and electronic records of each project are kept for a minimum of 7 years. Test samples are kept in storage for at least 10 working days after mailing of the test report, prior to being discarded, unless a longer storage period is requested in writing and accepted by Ardaman & Associates, Inc.															
Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.															

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Date: 12/21/11

ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Layne Christensen Company
 PROJECT: FP&L - Turkey Point Exploratory Well EW-1
 FILE NO.: 11-13-0163
 DATE SAMPLE RECEIVED: 09/20/11 SET UP: 10/10/11
 DATE REPORTED: 12/21/11

INCOMING LABORATORY SAMPLE NO.: Core 11, 2676.10-2677.00'
 LABORATORY IDENTIFICATION NO.: 11163/11-2676H
 SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☐ A - Constant Head
☐ B - Falling Head; Constant Tailwater
☒ C - Falling Head; Rising Tailwater
☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 57 (stable) % ☐ Beginning of Test;
☒ End of Test
 $\Delta\sigma_c$ (psi): 6, 11, 16

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☒ Yes ☐ No
 As-Received Length (inch): 12.0/11.0* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☐ Vertical ☒ Horizontal

SPECIFIC GRAVITY, G_s : 2.72 ☐ Assumed
☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity k_{20} (cm/sec)
H (cm)	D (cm)	V (cm ³)	w _c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u _b (psi)	i _{avg}	Q (cm ³)	t (days)	WDS (g)	w _c (%)	S (%)	
7.31	5.07	147.26	26.9	96.5	0.431	96	30	70	2.6	6.3	1	227.73	27.0	97	5.3E-04

COMMENTS: (1) Horizontal permeability test specimen was cross-cored from the corresponding vertical test specimen.
 *First length is total sample length. Second length is useable length at full core diameter.

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Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k₂₀ = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Layne Christensen Company
 PROJECT: FP&L - Turkey Point Exploratory Well EW-1
 FILE NO.: 11-13-0163
 DATE SAMPLE RECEIVED: 09/20/11 SET UP: 09/29/11
 DATE REPORTED: 12/21/11

INCOMING LABORATORY SAMPLE NO.: Core 12, 2645.10-2645.50'
 LABORATORY IDENTIFICATION NO.: 11163/12-2645V
 SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
☐ B - Falling Head; Constant Tailwater
☐ C - Falling Head; Rising Tailwater
☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 98 %

- ☒ Beginning of Test;
☐ End of Test

$\Delta\sigma_c$ (psi): 6, 9, 15

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☐ Yes ☒ No
 As-Received Length (inch): 5.25/3.75* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☒ Vertical ☐ Horizontal

SPECIFIC GRAVITY, G_s : 2.70 ☐ Assumed
☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity k_{20} (cm/sec)
H (cm)	D (cm)	V (cm ³)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm ³)	t (days)	WDS (g)	w_c (%)	S (%)	
11.24	9.80	847.88	20.2	106.4	0.369	94	30	160	18	1.2	1	1445.6	20.4	94	1.4E-05
COMMENTS: (1) Core sample was cut to length, air-dried, deaired under vacuum for a minimum of 24 hours, and then saturated with deaired tap water from the bottom up while maintaining the vacuum. (2) Final w_c from horizontal permeability test specimen. WDS calculated from measured wet mass and final w_c . *First length is total sample length. Second length is useable length at full core diameter.															
The test data and all associated project information presented hereon shall be held in confidence and disclosed to other parties only with the authorization of the Client. Physical and electronic records of each project are kept for a minimum of 7 years. Test samples are kept in storage for at least 10 working days after mailing of the test report, prior to being discarded, unless a longer storage period is requested in writing and accepted by Ardaman & Associates, Inc.															
Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.															

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 Form SR-2B: Rev. 0

Date: 12/21/11

ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Layne Christensen Company
 PROJECT: FP&L - Turkey Point Exploratory Well EW-1
 FILE NO.: 11-13-0163
 DATE SAMPLE RECEIVED: 09/20/11 SET UP: 10/04/11
 DATE REPORTED: 12/21/11

INCOMING LABORATORY SAMPLE NO.: Core 12, 2645.10-2645.50'
 LABORATORY IDENTIFICATION NO.: 11163/12-2645H
 SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
☐ B - Falling Head; Constant Tailwater
☐ C - Falling Head; Rising Tailwater
☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 85 (stable) % ☐ Beginning of Test;
☒ End of Test
 $\Delta\sigma_c$ (psi): 3, 8

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☒ Yes ☐ No
 As-Received Length (inch): 5.25/3.75* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☐ Vertical ☒ Horizontal

SPECIFIC GRAVITY, G_s : 2.70 ☐ Assumed
☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity k_{20} (cm/sec)
H (cm)	D (cm)	V (cm ³)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm ³)	t (days)	WDS (g)	w_c (%)	S (%)	
7.41	5.06	149.19	20.4	107.7	0.361	97	30	160	32.4	1.0	2	257.38	20.4	97	6.2E-06

COMMENTS: (1) Horizontal permeability test specimen was cross-cored from the corresponding vertical test specimen.
 *First length is total sample length. Second length is useable length at full core diameter.

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Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

Checked By: TM
 Form SR-2B: Rev. 0

Date: 12/21/11

ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Layne Christensen Company
 PROJECT: FP&L - Turkey Point Exploratory Well EW-1
 FILE NO.: 11-13-0163
 DATE SAMPLE RECEIVED: 09/20/11 SET UP: 09/27/11
 DATE REPORTED: 12/21/11

INCOMING LABORATORY SAMPLE NO.: Core 13, 2576.00-2577.00'
 LABORATORY IDENTIFICATION NO.: 11163/13-2576V
 SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
☐ B - Falling Head; Constant Tailwater
☐ C - Falling Head; Rising Tailwater
☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 83 (stable) % ☐ Beginning of Test;
☒ End of Test
 $\Delta\sigma_c$ (psi): 9, 14, 19

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☐ Yes ☒ No
 As-Received Length (inch): 11.0/6.5* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☒ Vertical ☐ Horizontal

SPECIFIC GRAVITY, G_s : 2.71 ☐ Assumed
☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity k_{20} (cm/sec)
H (cm)	D (cm)	V (cm ³)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm ³)	t (days)	WDS (g)	w_c (%)	S (%)	
6.26	9.72	464.98	23.4	99.1	0.414	90	30	160	32	12.2	1	738.51	24.9	96	1.9E-04
COMMENTS: (1) Core sample was cut to length, air-dried, deaired under vacuum for a minimum of 24 hours, and then saturated with deaired tap water from the bottom up while maintaining the vacuum. (2) Final w_c from horizontal permeability test specimen. WDS calculated from measured wet mass and final w_c . *First length is total sample length. Second length is useable length at full core diameter.															
The test data and all associated project information presented hereon shall be held in confidence and disclosed to other parties only with the authorization of the Client. Physical and electronic records of each project are kept for a minimum of 7 years. Test samples are kept in storage for at least 10 working days after mailing of the test report, prior to being discarded, unless a longer storage period is requested in writing and accepted by Ardaman & Associates, Inc.															
Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.															

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Date: 12/21/11

ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Layne Christensen Company
 PROJECT: FP&L - Turkey Point Exploratory Well EW-1
 FILE NO.: 11-13-0163
 DATE SAMPLE RECEIVED: 09/20/11 SET UP: 10/04/11
 DATE REPORTED: 12/21/11

INCOMING LABORATORY SAMPLE NO.: Core 13, 2576.00-2577.00'
 LABORATORY IDENTIFICATION NO.: 11163/13-2576H
 SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☐ A - Constant Head
☐ B - Falling Head; Constant Tailwater
☒ C - Falling Head; Rising Tailwater
☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 70 (stable) %

- ☐ Beginning of Test;
☒ End of Test

$\Delta\sigma_c$ (psi): 5, 10

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☒ Yes ☐ No
 As-Received Length (inch): 11.0/6.5* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☐ Vertical ☒ Horizontal

SPECIFIC GRAVITY, G_s : 2.71 ☐ Assumed
☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity k_{20} (cm/sec)
H (cm)	D (cm)	V (cm ³)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm ³)	t (days)	WDS (g)	w_c (%)	S (%)	
7.39	5.06	148.49	21.8	99.0	0.415	83	30	70	2.6	6.9	3	235.51	24.9	95	2.5E-04

COMMENTS: (1) Horizontal permeability test specimen was cross-cored from the corresponding vertical test specimen.
 *First length is total sample length. Second length is useable length at full core diameter.

The test data and all associated project information presented hereon shall be held in confidence and disclosed to other parties only with the authorization of the Client. Physical and electronic records of each project are kept for a minimum of 7 years. Test samples are kept in storage for at least 10 working days after mailing of the test report, prior to being discarded, unless a longer storage period is requested in writing and accepted by Ardaman & Associates, Inc.

Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

Checked By: PM
 Form SR-2B: Rev. 0

Date: 12/21/11

ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Layne Christensen Company
 PROJECT: FP&L - Turkey Point Exploratory Well EW-1
 FILE NO.: 11-13-0163
 DATE SAMPLE RECEIVED: 09/20/11 SET UP: 09/29/11
 DATE REPORTED: 12/21/11

INCOMING LABORATORY SAMPLE NO.: Core 14, 2399.90-2400.90'
 LABORATORY IDENTIFICATION NO.: 11163/14-2399V
 SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
☐ B - Falling Head; Constant Tailwater
☐ C - Falling Head; Rising Tailwater
☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 97 (stable) % ☒ Beginning of Test;
☐ End of Test
 $\Delta\sigma_c$ (psi): 6, 9, 16

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☐ Yes ☒ No
 As-Received Length (inch): 12.0/8.25* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☒ Vertical ☐ Horizontal

SPECIFIC GRAVITY, G_s : 2.70 ☐ Assumed
☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity k ₂₀ (cm/sec)
H (cm)	D (cm)	V (cm ³)	w _c (%)	γ _d (pcf)	n	S (%)	σ̄ _c (psi)	u _b (psi)	i _{avg}	Q (cm ³)	t (days)	WDS (g)	w _c (%)	S (%)	
11.30	9.84	859.03	22.5	103.3	0.387	96	30	160	12.5	92.0	1	1422.6	22.5	96	5.5E-04
COMMENTS: (1) Core sample was cut to length, air-dried, deaired under vacuum for a minimum of 24 hours, and then saturated with deaired tap water from the bottom up while maintaining the vacuum. (2) Final w _c from horizontal permeability test specimen. WDS calculated from measured wet mass and final w _c . *First length is total sample length. Second length is useable length at full core diameter.															
The test data and all associated project information presented hereon shall be held in confidence and disclosed to other parties only with the authorization of the Client. Physical and electronic records of each project are kept for a minimum of 7 years. Test samples are kept in storage for at least 10 working days after mailing of the test report, prior to being discarded, unless a longer storage period is requested in writing and accepted by Ardaman & Associates, Inc.															
Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w _c = Water content (ASTM D2216); γ _d = Dry density; S = Saturation; σ̄ _c = Isotropic effective confining stress; u _b = Back-pressure; i _{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k ₂₀ = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G _s = Specific gravity.															

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Date: 12/21/11

ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Layne Christensen Company
 PROJECT: FP&L - Turkey Point Exploratory Well EW-1
 FILE NO.: 11-13-0163
 DATE SAMPLE RECEIVED: 09/20/11 SET UP: 10/04/11
 DATE REPORTED: 12/21/11

INCOMING LABORATORY SAMPLE NO.: Core 14, 2399.90-2400.90'
 LABORATORY IDENTIFICATION NO.: 11163/14-2399H
 SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☐ A - Constant Head
☐ B - Falling Head; Constant Tailwater
☒ C - Falling Head; Rising Tailwater
☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 61 (stable) % ☐ Beginning of Test;
☒ End of Test
 $\Delta\sigma_c$ (psi): 3, 9

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☒ Yes ☐ No
 As-Received Length (inch): 12.0/8.25* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☐ Vertical ☒ Horizontal

SPECIFIC GRAVITY, G_s : 2.70 ☐ Assumed
☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity k ₂₀ (cm/sec)
H (cm)	D (cm)	V (cm ³)	w _c (%)	γ _d (pcf)	n	S (%)	σ̄ _c (psi)	u _b (psi)	i _{avg}	Q (cm ³)	t (days)	WDS (g)	w _c (%)	S (%)	
7.66	5.07	154.55	22.2	102.7	0.390	94	30	70	2.6	5.1	2	254.47	22.5	95	5.4E-04

COMMENTS: (1) Horizontal permeability test specimen was cross-cored from the corresponding vertical test specimen.
*First length is total sample length. Second length is useable length at full core diameter.

The test data and all associated project information presented hereon shall be held in confidence and disclosed to other parties only with the authorization of the Client. Physical and electronic records of each project are kept for a minimum of 7 years. Test samples are kept in storage for at least 10 working days after mailing of the test report, prior to being discarded, unless a longer storage period is requested in writing and accepted by Ardaman & Associates, Inc.

Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; σ̄_c = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k₂₀ = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

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Date: 12/21/11

ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Layne Christensen Company
 PROJECT: FP&L - Turkey Point Exploratory Well EW-1
 FILE NO.: 11-13-0163
 DATE SAMPLE RECEIVED: 09/20/11 SET UP: 09/27/11
 DATE REPORTED: 12/21/11

INCOMING LABORATORY SAMPLE NO.: Core 15, 2026.40-2027.00'
 LABORATORY IDENTIFICATION NO.: 11163/15-2026V
 SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
☐ B - Falling Head; Constant Tailwater
☐ C - Falling Head; Rising Tailwater
☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 98 (stable) % ☐ Beginning of Test;
☒ End of Test
 $\Delta\sigma_c$ (psi): 9, 14

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☐ Yes ☒ No
 As-Received Length (inch): 9.0/7.5* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☒ Vertical ☐ Horizontal

SPECIFIC GRAVITY, G_s : 2.71 ☐ Assumed
☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity k_{20} (cm/sec)
H (cm)	D (cm)	V (cm ³)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm ³)	t (days)	WDS (g)	w_c (%)	S (%)	
8.57	9.96	667.91	13.2	122.8	0.274	95	30	160	24	1.2	1	1314.4	13.2	95	3.3E-06
COMMENTS: (1) Core sample was cut to length, air-dried, deaired under vacuum for a minimum of 24 hours, and then saturated with deaired tap water from the bottom up while maintaining the vacuum. (2) Final w_c from horizontal permeability test specimen. WDS calculated from measured wet mass and final w_c . *First length is total sample length. Second length is useable length at full core diameter.															
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Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.															

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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Layne Christensen Company
 PROJECT: FP&L - Turkey Point Exploratory Well EW-1
 FILE NO.: 11-13-0163
 DATE SAMPLE RECEIVED: 09/20/11 SET UP: 10/10/11
 DATE REPORTED: 12/21/11

INCOMING LABORATORY SAMPLE NO.: Core 15, 2026.40-2027.00'
 LABORATORY IDENTIFICATION NO.: 11163/15-2026H
 SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
☐ B - Falling Head; Constant Tailwater
☐ C - Falling Head; Rising Tailwater
☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 84 (stable) % ☐ Beginning of Test;
☒ End of Test
 $\Delta\sigma_c$ (psi): 6, 12, 17

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☒ Yes ☐ No
 As-Received Length (inch): 9.0/7.5* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☐ Vertical ☒ Horizontal

SPECIFIC GRAVITY, G_s : 2.71 ☐ Assumed
☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity k_{20} (cm/sec)
H (cm)	D (cm)	V (cm ³)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm ³)	t (days)	WDS (g)	w_c (%)	S (%)	
7.10	5.06	142.54	13.1	123.6	0.269	97	30	160	33	1.6	1	282.32	13.2	97	3.2E-06
COMMENTS: (1) Horizontal permeability test specimen was cross-cored from the corresponding vertical test specimen. *First length is total sample length. Second length is useable length at full core diameter.															
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Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.															

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Date: 12/21/11

ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Layne Christensen Company
 PROJECT: FP&L - Turkey Point Exploratory Well EW-1
 FILE NO.: 11-13-0163
 DATE SAMPLE RECEIVED: 09/20/11 SET UP: 09/27/11
 DATE REPORTED: 12/21/11

INCOMING LABORATORY SAMPLE NO.: Core 16, 2027.00-2027.50'
 LABORATORY IDENTIFICATION NO.: 11163/16-2027V
 SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
☐ B - Falling Head; Constant Tailwater
☐ C - Falling Head; Rising Tailwater
☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 96 (stable) % ☐ Beginning of Test;
☒ End of Test
 $\Delta\sigma_c$ (psi): 5, 14, 20

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☐ Yes ☒ No
 As-Received Length (inch): 7.5/6.0* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☒ Vertical ☐ Horizontal

SPECIFIC GRAVITY, G_s : 2.70 ☐ Assumed
☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity k_{20} (cm/sec)
H (cm)	D (cm)	V (cm ³)	w _c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm ³)	t (days)	WDS (g)	w _c (%)	S (%)	
12.88	10.01	1013.17	19.5	109.5	0.350	98	30	160	7.5	10.6	1	1778.7	19.6	99	3.7E-04
COMMENTS: (1) Core sample was cut to length, air-dried, deaired under vacuum for a minimum of 24 hours, and then saturated with deaired tap water from the bottom up while maintaining the vacuum. (2) Final w _c from horizontal permeability test specimen. WDS calculated from measured wet mass and final w _c . *First length is total sample length. Second length is useable length at full core diameter.															
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Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w _c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.															

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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Layne Christensen Company
 PROJECT: FP&L - Turkey Point Exploratory Well EW-1
 FILE NO.: 11-13-0163
 DATE SAMPLE RECEIVED: 09/20/11 SET UP: 10/04/11
 DATE REPORTED: 12/21/11

INCOMING LABORATORY SAMPLE NO.: Core 16, 2027.00-2027.50'
 LABORATORY IDENTIFICATION NO.: 11163/16-2027H
 SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☐ A - Constant Head
☐ B - Falling Head; Constant Tailwater
☒ C - Falling Head; Rising Tailwater
☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 54 (stable) % ☐ Beginning of Test;
☒ End of Test
 $\Delta\sigma_c$ (psi): 4.9

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☒ Yes ☐ No
 As-Received Length (inch): 7.5/6.0* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☐ Vertical ☒ Horizontal

SPECIFIC GRAVITY, G_s : 2.70 ☐ Assumed
☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity k_{20} (cm/sec)
H (cm)	D (cm)	V (cm ³)	w _c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm ³)	t (days)	WDS (g)	w _c (%)	S (%)	
7.10	5.07	143.05	19.1	108.7	0.355	94	30	70	2.8	5.3	1	249.14	19.6	96	7.8E-04
COMMENTS: (1) Horizontal permeability test specimen was cross-cored from the corresponding vertical test specimen. *First length is total sample length. Second length is useable length at full core diameter.															
The test data and all associated project information presented hereon shall be held in confidence and disclosed to other parties only with the authorization of the Client. Physical and electronic records of each project are kept for a minimum of 7 years. Test samples are kept in storage for at least 10 working days after mailing of the test report, prior to being discarded, unless a longer storage period is requested in writing and accepted by Ardaman & Associates, Inc.															
Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w _c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.															

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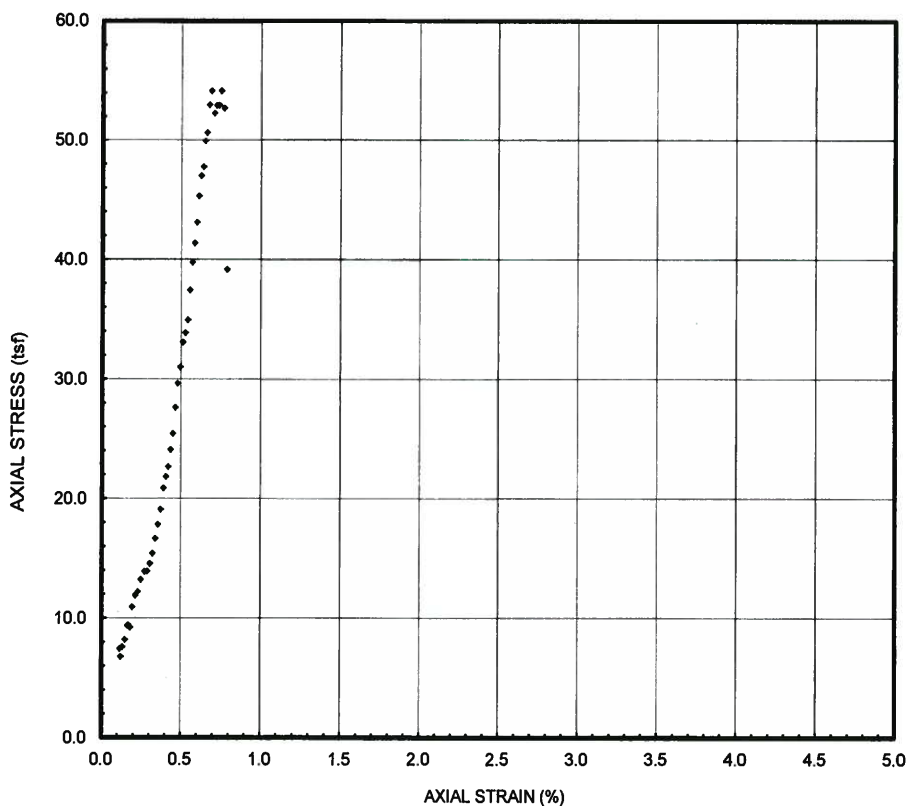
INTACT ROCK CORE UNCONFINED COMPRESSION TEST REPORT

CLIENT: Layne Christensen Company
 PROJECT: FP&L – Turkey Point EW-1
 FILE NO.: 11-13-0163

INCOMING SAMPLE NO.: Core 1
 BORING - SAMPLE -
 DEPTH 2652.80-2653.50 ☒ ft; ☐ m
 LABORATORY IDENTIFICATION NO.: 11163/1-2652
 SAMPLE DESCRIPTION: Light brown limestone

DATE SAMPLE RECEIVED: 09/20/11
 DATE TEST SET-UP: 09/29/11
 DATE REPORTED: 12/21/11

Specimen Dimensions			Initial Conditions			Rate of Loading		Time to Failure (minutes)	Unconfined Compressive Strength, σ_a (ult) (lb/in ²)	Young's Modulus, E at 50% σ_a (ult) (lb/in ²)
H (cm)	D (cm)	H/D	w _c (%)	γ_d (lb/ft ³)	S (%)	$\dot{\epsilon}$ (cm/minute)	$\dot{\epsilon}$ (%/minute)			
10.67	5.05	2.1	11.1	113.2	61	0.047	0.44	1.7	752	1.6x10 ⁵



TEST PROCEDURES

ASTM Standard D7012
 [Method A]

Air Temperature (°C): 21

Capping Material: ☐ None
☒ Lab-Stone
☐ Sulfur

$E_{50}/(\sigma_a(ult))$ 213

Comments: Time to failure slightly below D7012 specified range of 2 to 15 minutes

SPECIMEN PREPARATION

Original Core Diameter (inch): 4

Specimen Sub-Cored for Testing:
☒ Yes
☐ No

G_s: 2.71 ☐ Assumed
☒ Measured

FAILURE SKETCH



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Where: H = Specimen height; D = Specimen diameter; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\dot{\epsilon}$ = Vertical displacement rate; and G_s = Specific gravity.

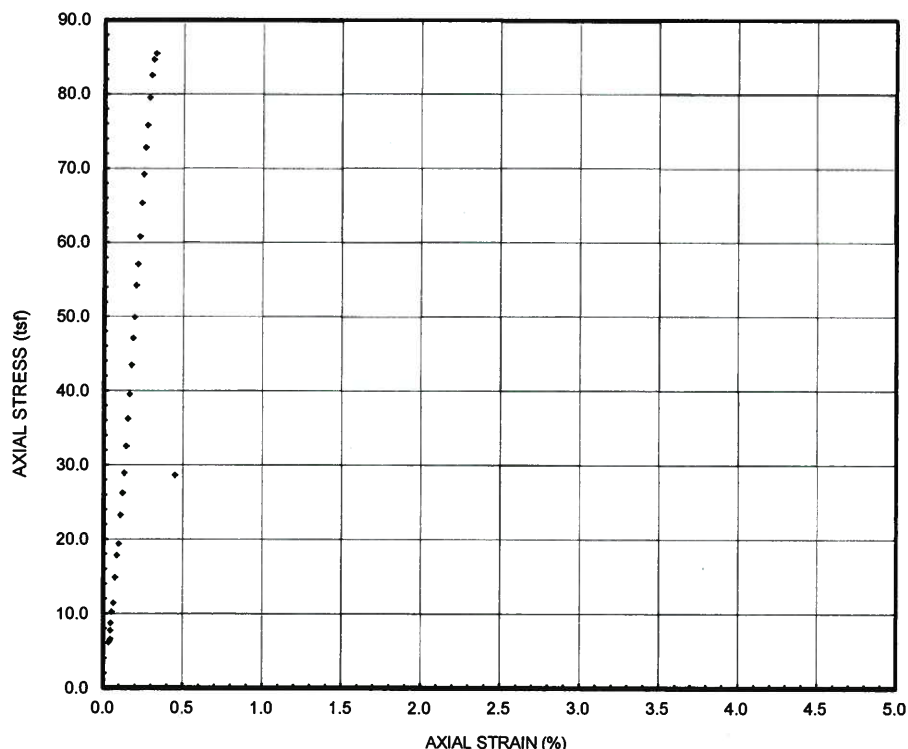
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INTACT ROCK CORE UNCONFINED COMPRESSION TEST REPORT

CLIENT: <u>Layne Christensen Company</u>	INCOMING SAMPLE NO.: <u>Core 2</u>
PROJECT: <u>FP&L – Turkey Point EW-1</u>	BORING - <u> </u> SAMPLE - <u> </u>
FILE NO.: <u>11-13-0163</u>	DEPTH <u>2296.00-2296.75</u> <input checked="" type="checkbox"/> ft; <input type="checkbox"/> m
DATE SAMPLE RECEIVED: <u>09/20/11</u>	LABORATORY IDENTIFICATION NO.: <u>11163/2-2296</u>
DATE TEST SET-UP: <u>09/29/11</u>	SAMPLE DESCRIPTION: <u>Light brown limestone</u>
DATE REPORTED: <u>12/21/11</u>	

Specimen Dimensions			Initial Conditions			Rate of Loading		Time to Failure (minutes)	Unconfined Compressive Strength, σ_a (ult) (lb/in ²)	Young's Modulus, E at 50% σ_a (ult) (lb/in ²)
H (cm)	D (cm)	H/D	w _c (%)	γ_d (lb/ft ³)	S (%)	$\dot{\epsilon}$ (cm/minute)	$\dot{\epsilon}$ (%/minute)			
10.60	5.06	2.1	17.8	103.6	76	0.030	0.28	1.2	1187	4.6x10 ⁵



TEST PROCEDURES

ASTM Standard D7012
[Method A]

Air Temperature (°C): 21

Capping Material: ☐ None
☒ Lab-Stone
☐ Sulfur

$E_{50}/(\sigma_a(ult))$ 388

Comments: Time to failure below D7012 specified range of 2 to 15 minutes

SPECIMEN PREPARATION

Original Core Diameter (inch): 4

Specimen Sub-Cored for Testing:
☒ Yes
☐ No

G_s: 2.72 ☐ Assumed
☒ Measured

FAILURE SKETCH



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Where: H = Specimen height; D = Specimen diameter; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\dot{\epsilon}$ = Vertical displacement rate; and G_s = Specific gravity.

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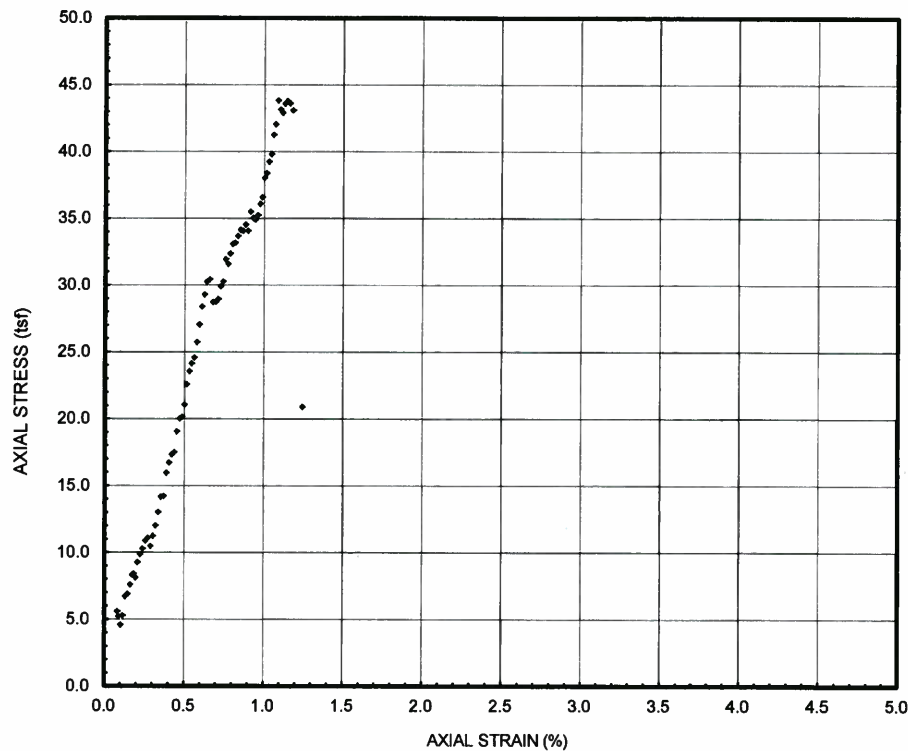
INTACT ROCK CORE UNCONFINED COMPRESSION TEST REPORT

CLIENT: Layne Christensen Company
 PROJECT: FP&L – Turkey Point EW-1
 FILE NO.: 11-13-0163

INCOMING SAMPLE NO.: Core 3
 BORING - SAMPLE -
 DEPTH 2296.75-2297.50 ☒ ft; ☐ m
 LABORATORY IDENTIFICATION NO.: 11163/3-2296
 SAMPLE DESCRIPTION: Light brown limestone

DATE SAMPLE RECEIVED: 09/20/11
 DATE TEST SET-UP: 09/29/11
 DATE REPORTED: 12/21/11

Specimen Dimensions			Initial Conditions			Rate of Loading		Time to Failure (minutes)	Unconfined Compressive Strength, σ_a (ult) (lb/in ²)	Young's Modulus, E at 50% σ_a (ult) (lb/in ²)
H (cm)	D (cm)	H/D	w _c (%)	γ_d (lb/ft ³)	S (%)	$\dot{\epsilon}$ (cm/minute)	$\dot{\epsilon}$ (%/minute)			
10.47	5.05	2.1	17.2	104.4	75	0.048	0.46	2.5	608	7.2×10^4



TEST PROCEDURES

ASTM Standard D7012
 [Method A]

Air Temperature (°C): 21

Capping Material: ☐ None
☒ Lab-Stone
☐ Sulfur

$E_{50}/(\sigma_a(\text{ult}))$ 118

Comments:

SPECIMEN PREPARATION

Original Core Diameter (inch): 4

Specimen Sub-Cored for Testing:
☒ Yes
☐ No

G_s: 2.72 ☐ Assumed
☒ Measured

FAILURE SKETCH



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Where: H = Specimen height; D = Specimen diameter; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\dot{\epsilon}$ = Vertical displacement rate; and G_s = Specific gravity.

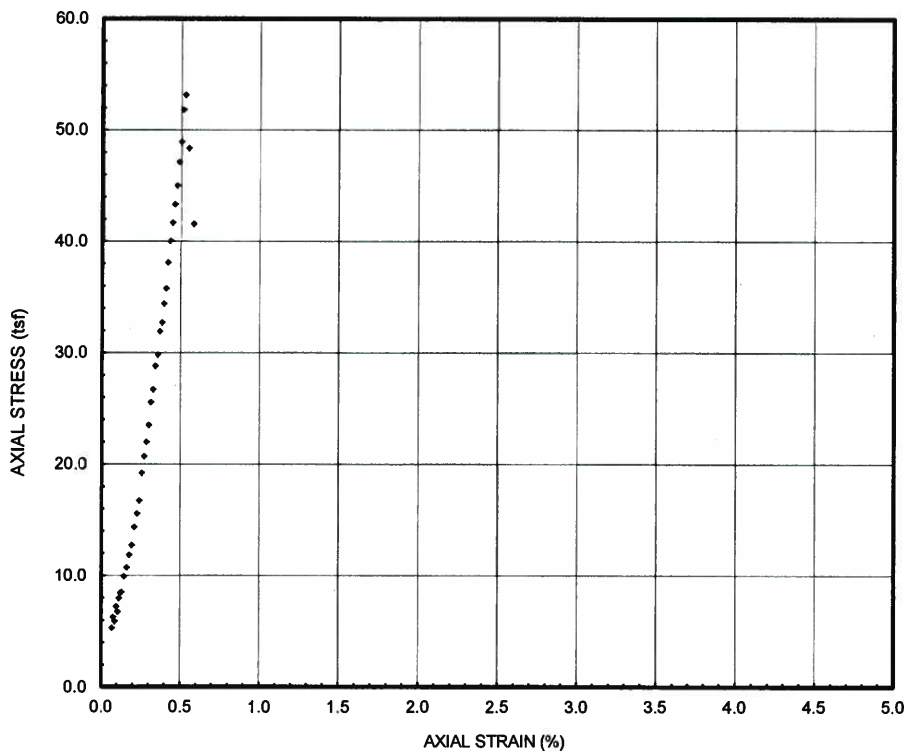
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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

INTACT ROCK CORE UNCONFINED COMPRESSION TEST REPORT

CLIENT: <u>Layne Christensen Company</u>	INCOMING SAMPLE NO.: <u>Core 4</u>
PROJECT: <u>FP&L – Turkey Point EW-1</u>	BORING - _____ SAMPLE - _____
FILE NO.: <u>11-13-0163</u>	DEPTH <u>2295.20-2296.00</u> <input checked="" type="checkbox"/> ft; <input type="checkbox"/> m
DATE SAMPLE RECEIVED: <u>09/20/11</u>	LABORATORY IDENTIFICATION NO.: <u>11163/4-2295</u>
DATE TEST SET-UP: <u>09/29/11</u>	SAMPLE DESCRIPTION: <u>Light brown limestone</u>
DATE REPORTED: <u>12/21/11</u>	

Specimen Dimensions			Initial Conditions			Rate of Loading		Time to Failure (minutes)	Unconfined Compressive Strength, σ_a (ult) (lb/in ²)	Young's Modulus, E at 50% σ_a (ult) (lb/in ²)
H (cm)	D (cm)	H/D	w _c (%)	Y _d (lb/ft ³)	S (%)	$\dot{\epsilon}$ (cm/minute)	$\dot{\epsilon}$ (%/minute)			
10.45	5.06	2.1	16.1	108.2	76	0.039	0.37	1.4	738	1.6x10 ⁵



TEST PROCEDURES

ASTM Standard D7012
[Method A]

Air Temperature (°C): 21

Capping Material: ☐ None
☒ Lab-Stone
☐ Sulfur

$E_{50}/(\sigma_a(ult))$: 217

Comments: Time to failure below D7012 specified range of 2 to 15 minutes

SPECIMEN PREPARATION

Original Core Diameter (inch): 4

Specimen Sub-Cored for Testing:
☒ Yes
☐ No

G_s: 2.74 ☐ Assumed
☒ Measured

FAILURE SKETCH



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Where: H = Specimen height; D = Specimen diameter; w_c = Water content (ASTM D2216); Y_d = Dry density; S = Saturation; $\dot{\epsilon}$ = Vertical displacement rate; and G_s = Specific gravity.

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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

INTACT ROCK CORE UNCONFINED COMPRESSION TEST REPORT

CLIENT: <u>Layne Christensen Company</u>	INCOMING SAMPLE NO.: <u>Core 5a</u>
PROJECT: <u>FP&L – Turkey Point EW-1</u>	BORING - <u> </u> SAMPLE - <u> </u>
FILE NO.: <u>11-13-0163</u>	DEPTH <u>2639.70-2640.20</u> <input checked="" type="checkbox"/> ft; <input type="checkbox"/> m
DATE SAMPLE RECEIVED: <u>09/22/11</u>	LABORATORY IDENTIFICATION NO.: <u>11163/5a-2639</u>
DATE TEST SET-UP: <u>09/28/11</u>	SAMPLE DESCRIPTION: <u>Light brown limestone</u>
DATE REPORTED: <u>12/21/11</u>	

Specimen Dimensions			Initial Conditions			Rate of Loading		Time to Failure (minutes)	Unconfined Compressive Strength, σ_a (ult) (lb/in ²)	Young's Modulus, E at 50% σ_a (ult) (lb/in ²)
H (cm)	D (cm)	H/D	w _c (%)	γ_d (lb/ft ³)	S (%)	$\dot{\epsilon}$ (cm/minute)	$\dot{\epsilon}$ (%/minute)			
10.55	5.06	2.1	11.8	112.8	65	0.030	0.28	1.4	1629	6.9x10 ⁵

TEST PROCEDURES

ASTM Standard D7012
[Method A]

Air Temperature (°C): 21

Capping Material: ☐ None
☒ Lab-Stone
☐ Sulfur

$E_{50}/(\sigma_a(ult))$ 426

Comments: Time to failure below D7012 specified range of 2 to 15 minutes

SPECIMEN PREPARATION

Original Core Diameter (inch): 4

Specimen Sub-Cored for Testing:
☒ Yes
☐ No

G_s: 2.69 ☐ Assumed
☒ Measured

FAILURE SKETCH

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Where: H = Specimen height; D = Specimen diameter; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\dot{\epsilon}$ = Vertical displacement rate; and G_s = Specific gravity.

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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

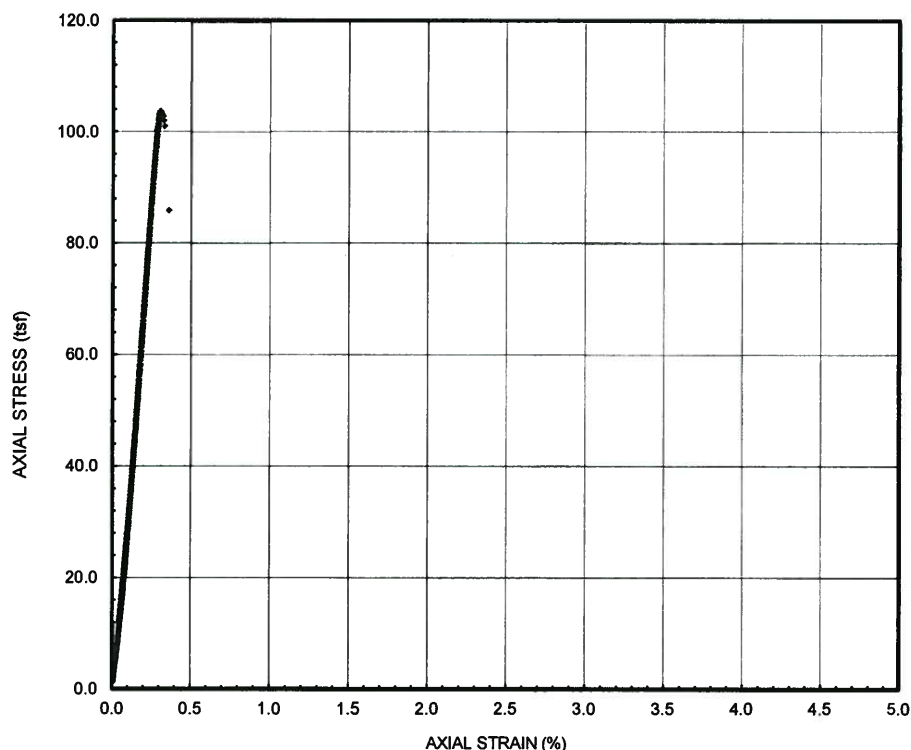
INTACT ROCK CORE UNCONFINED COMPRESSION TEST REPORT

CLIENT: Layne Christensen Company
 PROJECT: FP&L – Turkey Point EW-1
 FILE NO.: 11-13-0163

INCOMING SAMPLE NO.: Core 6
 BORING - SAMPLE -
 DEPTH 2029.40-2030.40 ☒ ft; ☐ m
 LABORATORY IDENTIFICATION NO.: 11163/6-2029
 SAMPLE DESCRIPTION: Light brown limestone

DATE SAMPLE RECEIVED: 09/20/11
 DATE TEST SET-UP: 09/28/11
 DATE REPORTED: 12/21/11

Specimen Dimensions			Initial Conditions			Rate of Loading		Time to Failure (minutes)	Unconfined Compressive Strength, $\sigma_a(ult)$ (lb/in ²)	Young's Modulus, E at 50% $\sigma_a(ult)$ (lb/in ²)
H (cm)	D (cm)	H/D	w _c (%)	γ_d (lb/ft ³)	S (%)	$\dot{\epsilon}$ (cm/minute)	$\dot{\epsilon}$ (%/minute)			
20.82	9.95	2.1	11.4	109.4	57	0.0048	0.023	13.1	1440	5.5×10^5



TEST PROCEDURES

ASTM Standard D7012
 [Method A]

Air Temperature (°C): 21

Capping Material: ☐ None
☒ Lab-Stone
☐ Sulfur

$E_{50}/(\sigma_a(ult))$ 382

Comments:

SPECIMEN PREPARATION

Original Core Diameter (inch): 4

Specimen Sub-Cored for Testing:
☐ Yes
☒ No

G_s: 2.71 ☐ Assumed
☒ Measured

FAILURE SKETCH



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Where: H = Specimen height; D = Specimen diameter; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\dot{\epsilon}$ = Vertical displacement rate; and G_s = Specific gravity.

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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

INTACT ROCK CORE UNCONFINED COMPRESSION TEST REPORT

CLIENT: Layne Christensen Company

PROJECT: FP&L – Turkey Point EW-1

FILE NO.: 11-13-0163

DATE SAMPLE RECEIVED: 09/20/11

DATE TEST SET-UP: 09/29/11

DATE REPORTED: 12/21/11

INCOMING SAMPLE NO.: Core 7

BORING - SAMPLE -

DEPTH 2030.40-2031.30 ☒ ft; ☐ m

LABORATORY IDENTIFICATION NO.: 11163/7-2030

SAMPLE DESCRIPTION: Light brown limestone

Specimen Dimensions			Initial Conditions			Rate of Loading		Time to Failure (minutes)	Unconfined Compressive Strength, $\sigma_a(ult)$ (lb/in ²)	Young's Modulus, E at 50% $\sigma_a(ult)$ (lb/in ²)
H (cm)	D (cm)	H/D	w _c (%)	γ_d (lb/ft ³)	S (%)	$\dot{\epsilon}$ (cm/minute)	$\dot{\epsilon}$ (%/minute)			
10.68	5.07	2.1	12.9	111.6	68	0.010	0.10	1.9	1551	9.8×10^5

TEST PROCEDURES

ASTM Standard D7012
[Method A]

Air Temperature (°C): 21

Capping Material: ☐ None
☒ Lab-Stone
☐ Sulfur

$E_{50}/(\sigma_a(ult))$ 632

Comments: Time to failure slightly below D7012 specified range of 2 to 15 minutes

SPECIMEN PREPARATION

Original Core Diameter (inch): 4

Specimen Sub-Cored for Testing:
☒ Yes
☐ No

G_s: 2.71 ☐ Assumed
☒ Measured

FAILURE SKETCH

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Where: H = Specimen height; D = Specimen diameter; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\dot{\epsilon}$ = Vertical displacement rate; and G_s = Specific gravity.

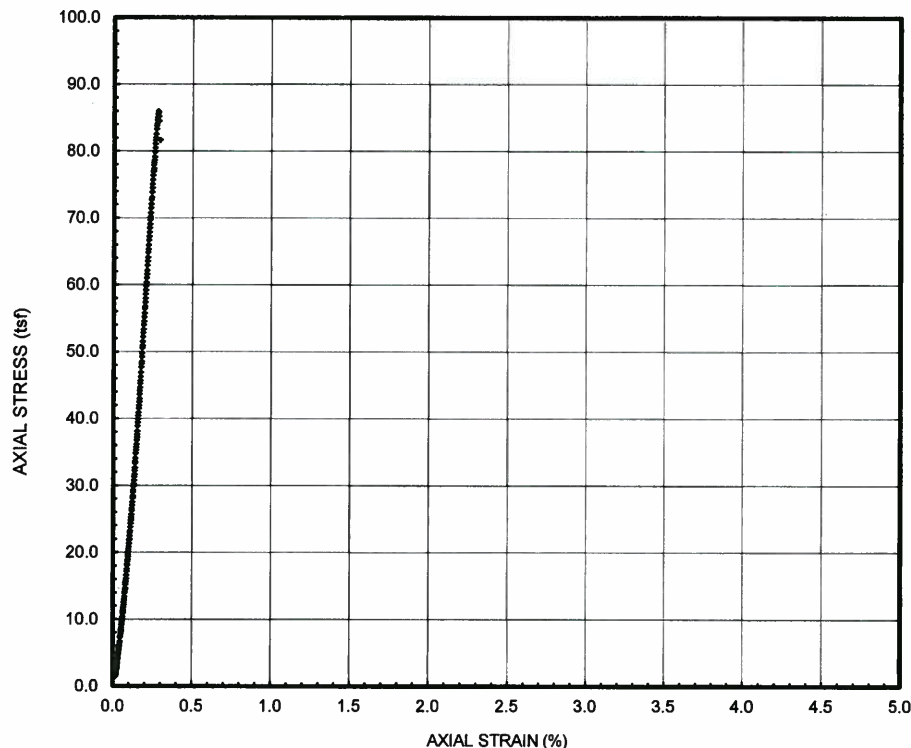
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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

INTACT ROCK CORE UNCONFINED COMPRESSION TEST REPORT

CLIENT: <u>Layne Christensen Company</u>	INCOMING SAMPLE NO.: <u>Core 8a</u>
PROJECT: <u>FP&L – Turkey Point EW-1</u>	BORING - <u> </u> SAMPLE - <u> </u>
FILE NO.: <u>11-13-0163</u>	DEPTH <u>2036.70-2637.90</u> <input checked="" type="checkbox"/> ft; <input type="checkbox"/> m
DATE SAMPLE RECEIVED: <u>09/22/11</u>	LABORATORY IDENTIFICATION NO.: <u>11163/8a-2036</u>
DATE TEST SET-UP: <u>09/28/11</u>	SAMPLE DESCRIPTION: <u>Light brown limestone</u>
DATE REPORTED: <u>12/21/11</u>	

Specimen Dimensions			Initial Conditions			Rate of Loading		Time to Failure (minutes)	Unconfined Compressive Strength, σ_a (ult) (lb/in ²)	Young's Modulus, E at 50% σ_a (ult) (lb/in ²)
H (cm)	D (cm)	H/D	w _c (%)	γ_d (lb/ft ³)	S (%)	$\dot{\epsilon}$ (cm/minute)	$\dot{\epsilon}$ (%/minute)			
20.75	9.97	2.1	8.7	109.0	42	0.0080	0.038	7.4	1193	5.3x10 ⁵



TEST PROCEDURES

ASTM Standard D7012
[Method A]

Air Temperature (°C): 21

Capping Material: ☐ None
☒ Lab-Stone
☐ Sulfur

$E_{50}/(\sigma_a(ult))$ 444

Comments:

SPECIMEN PREPARATION

Original Core Diameter (inch): 4

Specimen Sub-Cored for Testing:
☐ Yes
☒ No

G_s: 2.72 ☐ Assumed
☒ Measured

FAILURE SKETCH



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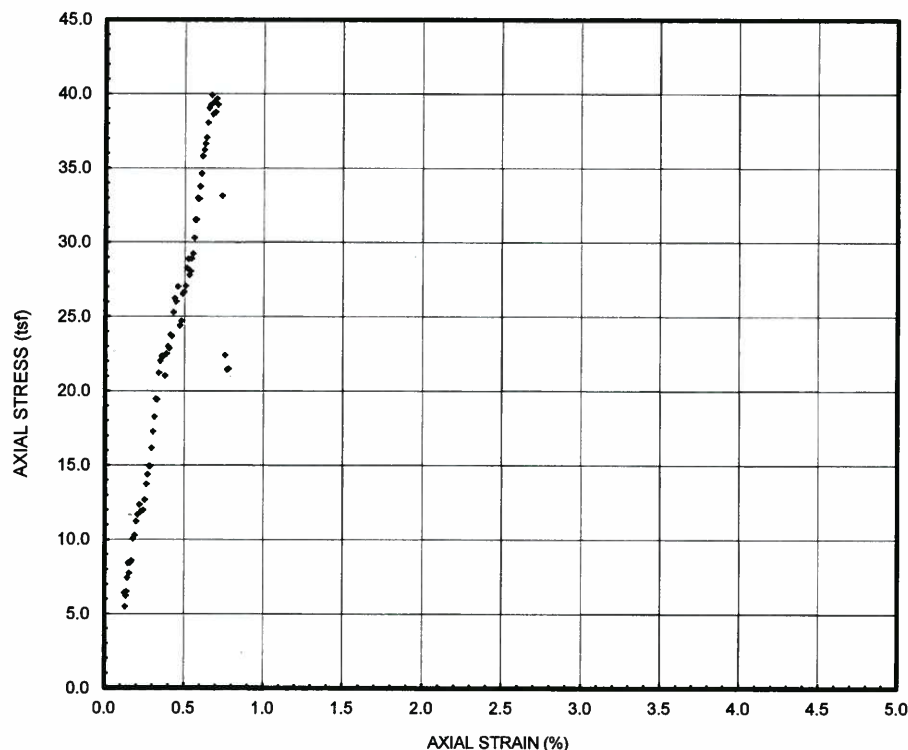
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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

INTACT ROCK CORE UNCONFINED COMPRESSION TEST REPORT

CLIENT: <u>Layne Christensen Company</u>	INCOMING SAMPLE NO.: <u>Core 9</u>
PROJECT: <u>FP&L – Turkey Point EW-1</u>	BORING - <u> </u> SAMPLE - <u> </u>
FILE NO.: <u>11-13-0163</u>	DEPTH <u>2652.00-2652.80</u> <input checked="" type="checkbox"/> ft; <input type="checkbox"/> m
DATE SAMPLE RECEIVED: <u>09/20/11</u>	LABORATORY IDENTIFICATION NO.: <u>11163/9-2652</u>
DATE TEST SET-UP: <u>09/29/11</u>	SAMPLE DESCRIPTION: <u>Light brown limestone</u>
DATE REPORTED: <u>12/21/11</u>	

Specimen Dimensions			Initial Conditions			Rate of Loading		Time to Failure (minutes)	Unconfined Compressive Strength, $\sigma_a(ult)$ (lb/in ²)	Young's Modulus, E at 50% $\sigma_a(ult)$ (lb/in ²)
H (cm)	D (cm)	H/D	w _c (%)	γ_d (lb/ft ³)	S (%)	$\dot{\epsilon}$ (cm/minute)	$\dot{\epsilon}$ (%/minute)			
10.64	5.06	2.1	15.8	105.2	70	0.027	0.25	2.7	554	8.2×10^4



TEST PROCEDURES

ASTM Standard D7012
[Method A]

Air Temperature (°C): 21

Capping Material: ☐ None
☒ Lab-Stone
☐ Sulfur

$E_{50}/(\sigma_a(ult))$ 148

Comments:

SPECIMEN PREPARATION

Original Core Diameter (inch): 4

Specimen Sub-Cored for Testing:
☒ Yes
☐ No

G_s: 2.71 ☐ Assumed
☒ Measured

FAILURE SKETCH



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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

INTACT ROCK CORE UNCONFINED COMPRESSION TEST REPORT

CLIENT: <u>Layne Christensen Company</u>	INCOMING SAMPLE NO.: <u>Core 10a</u>
PROJECT: <u>FP&L – Turkey Point EW-1</u>	BORING - <u> </u> SAMPLE - <u> </u>
FILE NO.: <u>11-13-0163</u>	DEPTH <u>2675.60-2676.10</u> <input checked="" type="checkbox"/> ft; <input type="checkbox"/> m
DATE SAMPLE RECEIVED: <u>09/22/11</u>	LABORATORY IDENTIFICATION NO.: <u>11163/10a-2675</u>
DATE TEST SET-UP: <u>09/28/11</u>	SAMPLE DESCRIPTION: <u>Light brown limestone</u>
DATE REPORTED: <u>12/21/11</u>	

Specimen Dimensions			Initial Conditions			Rate of Loading		Time to Failure (minutes)	Unconfined Compressive Strength, $\sigma_a(ult)$ (lb/in ²)	Young's Modulus, E at 50% $\sigma_a(ult)$ (lb/in ²)
H (cm)	D (cm)	H/D	w _c (%)	γ_d (lb/ft ³)	S (%)	$\dot{\epsilon}$ (cm/minute)	$\dot{\epsilon}$ (%/minute)			
10.87	5.07	2.1	15.9	103.9	69	0.015	0.14	1.9	1057	5.8×10^5

TEST PROCEDURES

ASTM Standard D7012
[Method A]

Air Temperature (°C): 21

Capping Material: ☐ None
☒ Lab-Stone
☐ Sulfur

$E_{50}/(\sigma_a(ult))$ 549

Comments: Time to failure slightly below D7012 specified range of 2 to 15 minutes

SPECIMEN PREPARATION

Original Core Diameter (inch): 4

Specimen Sub-Cored for Testing:
☒ Yes
☐ No

G_s: 2.71 ☐ Assumed
☒ Measured

FAILURE SKETCH

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Where: H = Specimen height; D = Specimen diameter; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\dot{\epsilon}$ = Vertical displacement rate; and G_s = Specific gravity.

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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

INTACT ROCK CORE UNCONFINED COMPRESSION TEST REPORT

CLIENT: Layne Christensen Company

PROJECT: FP&L – Turkey Point EW-1

FILE NO.: 11-13-0163

DATE SAMPLE RECEIVED: 09/20/11

DATE TEST SET-UP: 09/28/11

DATE REPORTED: 12/21/11

INCOMING SAMPLE NO.: Core 11

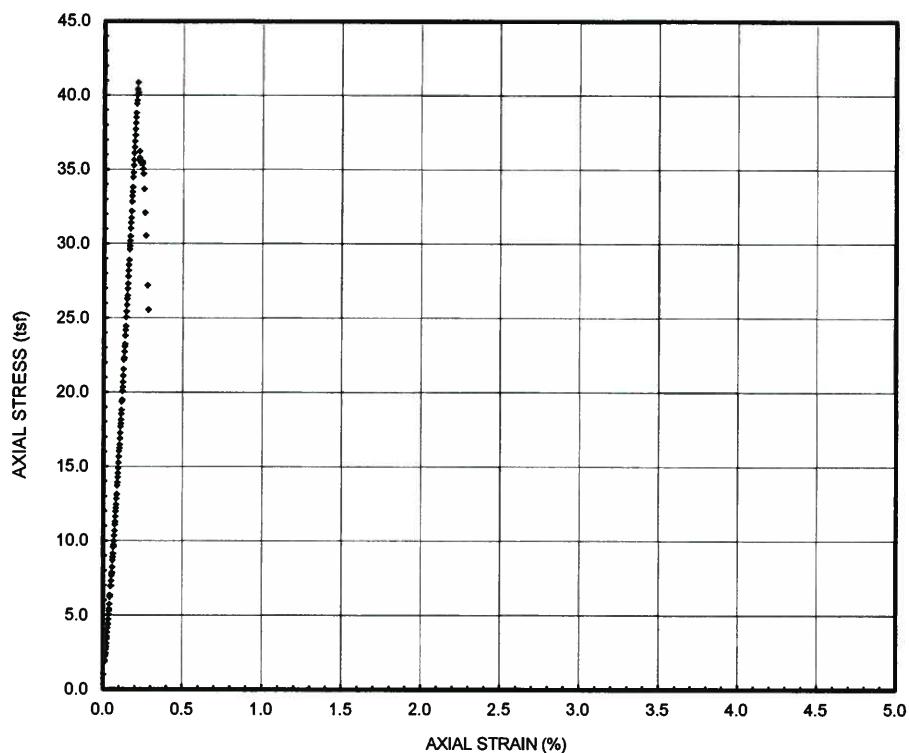
BORING - SAMPLE -

DEPTH 2676.10-2677.00 ☒ ft; ☐ m

LABORATORY IDENTIFICATION NO.: 11163/11-2676

SAMPLE DESCRIPTION: Light brown limestone

Specimen Dimensions			Initial Conditions			Rate of Loading		Time to Failure (minutes)	Unconfined Compressive Strength, $\sigma_a(ult)$ (lb/in ²)	Young's Modulus, E at 50% $\sigma_a(ult)$ (lb/in ²)
H (cm)	D (cm)	H/D	w _c (%)	γ_d (lb/ft ³)	S (%)	$\dot{\epsilon}$ (cm/minute)	$\dot{\epsilon}$ (%/minute)			
21.03	9.65	2.2	19.8	95.4	70	0.011	0.051	4.2	567	3.0×10^5



TEST PROCEDURES

ASTM Standard D7012

[Method A]

Air Temperature (°C): 21

Capping Material: ☐ None
☒ Lab-Stone
☐ Sulfur

$E_{50}/(\sigma_a(ult))$ 529

Comments:

SPECIMEN PREPARATION

Original Core Diameter (inch): 4

Specimen Sub-Cored for Testing:

☐ Yes

☒ No

G_s: 2.72 ☐ Assumed

☒ Measured

FAILURE SKETCH



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Where: H = Specimen height; D = Specimen diameter; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\dot{\epsilon}$ = Vertical displacement rate; and G_s = Specific gravity.

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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

INTACT ROCK CORE UNCONFINED COMPRESSION TEST REPORT

CLIENT: Layne Christensen Company

PROJECT: FP&L - Turkey Point EW-1

FILE NO.: 11-13-0163

DATE SAMPLE RECEIVED: 09/22/11

DATE TEST SET-UP: 09/28/11

DATE REPORTED: 12/21/11

INCOMING SAMPLE NO.: Core 12a

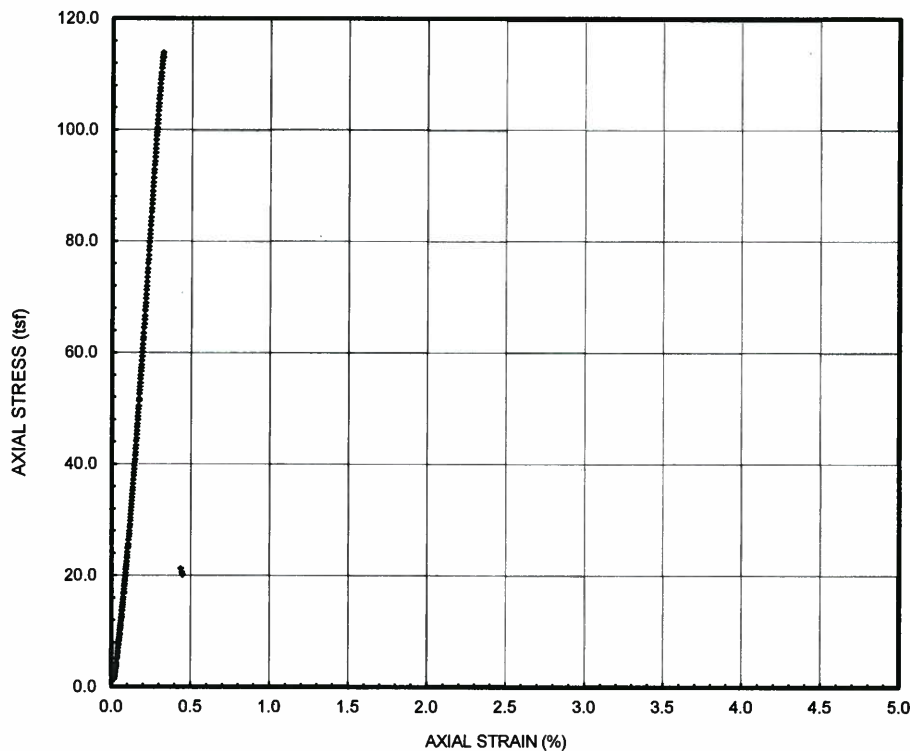
BORING - SAMPLE -

DEPTH 2645.50-2646.50 ☒ ft; ☐ m

LABORATORY IDENTIFICATION NO.: 11163/12a-2645

SAMPLE DESCRIPTION: Light brown limestone

Specimen Dimensions			Initial Conditions			Rate of Loading		Time to Failure (minutes)	Unconfined Compressive Strength, $\sigma_a(ult)$ (lb/in ²)	Young's Modulus, E at 50% $\sigma_a(ult)$ (lb/in ²)
H (cm)	D (cm)	H/D	w _c (%)	γ_d (lb/ft ³)	S (%)	$\dot{\epsilon}$ (cm/minute)	$\dot{\epsilon}$ (%/minute)			
20.75	9.96	2.1	9.6	112.1	51	0.0087	0.042	7.5	1581	6.0x10 ⁵



TEST PROCEDURES

ASTM Standard D7012
[Method A]

Air Temperature (°C): 21

Capping Material: ☐ None
☒ Lab-Stone
☐ Sulfur

$E_{50}/(\sigma_a(ult))$ 380

Comments:

SPECIMEN PREPARATION

Original Core Diameter (inch): 4

Specimen Sub-Cored for Testing:
☐ Yes
☒ No

G_s: 2.70 ☐ Assumed
☒ Measured

FAILURE SKETCH



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Where: H = Specimen height; D = Specimen diameter; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\dot{\epsilon}$ = Vertical displacement rate; and G_s = Specific gravity.

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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

INTACT ROCK CORE UNCONFINED COMPRESSION TEST REPORT

CLIENT: Layne Christensen Company

PROJECT: FP&L – Turkey Point EW-1

FILE NO.: 11-13-0163

DATE SAMPLE RECEIVED: 09/20/11

DATE TEST SET-UP: 09/29/11

DATE REPORTED: 12/21/11

INCOMING SAMPLE NO.: Core 13

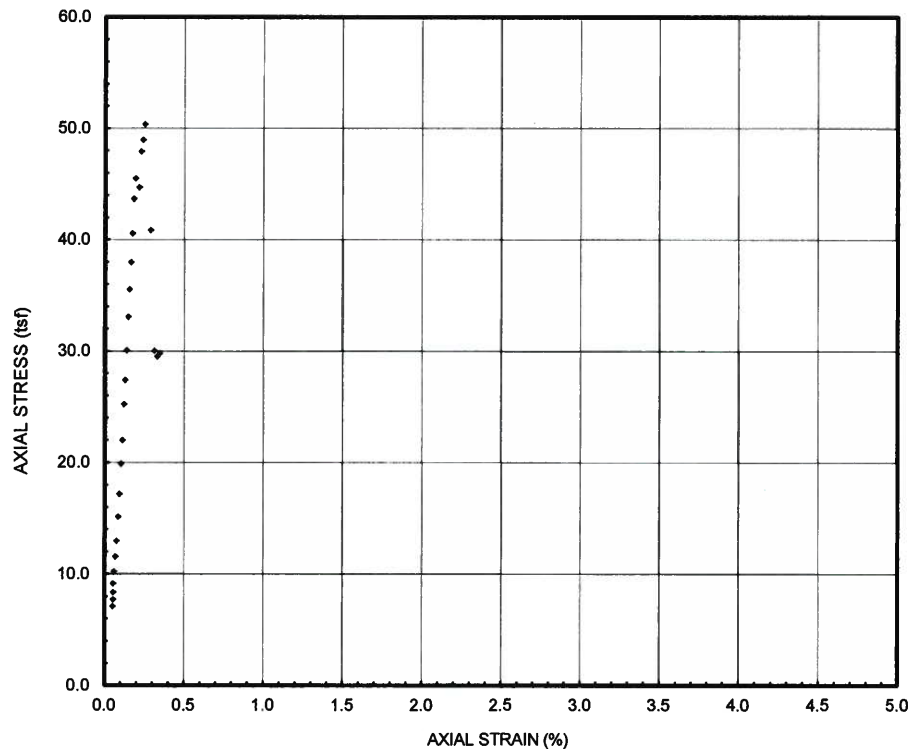
BORING - SAMPLE -

DEPTH 2576.00-2577.00 ☒ ft; ☐ m

LABORATORY IDENTIFICATION NO.: 11163/13-2576

SAMPLE DESCRIPTION: Light brown limestone

Specimen Dimensions			Initial Conditions			Rate of Loading		Time to Failure (minutes)	Unconfined Compressive Strength, $\sigma_a(ult)$ (lb/in ²)	Young's Modulus, E at 50% $\sigma_a(ult)$ (lb/in ²)
H (cm)	D (cm)	H/D	w _c (%)	γ_d (lb/ft ³)	S (%)	$\dot{\epsilon}$ (cm/minute)	$\dot{\epsilon}$ (%/minute)			
10.47	5.05	2.1	14.9	102.2	62	0.025	0.24	1.1	699	3.9×10^5



TEST PROCEDURES

ASTM Standard D7012
[Method A]

Air Temperature (°C): 21

Capping Material: ☐ None
☒ Lab-Stone
☐ Sulfur

$E_{50}/(\sigma_a(ult))$ 558

Comments: Time to failure below D7012 specified range of 2 to 15 minutes

SPECIMEN PREPARATION

Original Core Diameter (inch): 4

Specimen Sub-Cored for Testing:
☒ Yes
☐ No

G_s: 2.71 ☐ Assumed
☒ Measured

FAILURE SKETCH



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Where: H = Specimen height; D = Specimen diameter; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\dot{\epsilon}$ = Vertical displacement rate; and G_s = Specific gravity.

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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

INTACT ROCK CORE UNCONFINED COMPRESSION TEST REPORT

CLIENT: Layne Christensen Company

PROJECT: FP&L – Turkey Point EW-1

FILE NO.: 11-13-0163

DATE SAMPLE RECEIVED: 09/20/11

DATE TEST SET-UP: 09/29/11

DATE REPORTED: 12/21/11

INCOMING SAMPLE NO.: Core 14

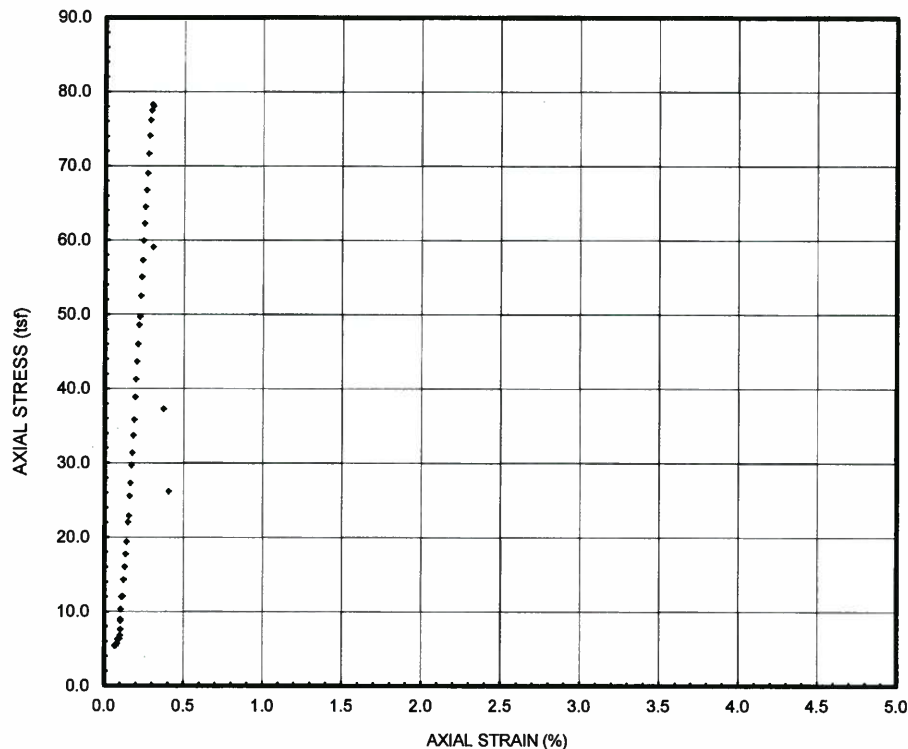
BORING - SAMPLE -

DEPTH 2399.90-2400.90 ☒ ft; ☐ m

LABORATORY IDENTIFICATION NO.: 11163/14-2399

SAMPLE DESCRIPTION: Light brown limestone

Specimen Dimensions			Initial Conditions			Rate of Loading		Time to Failure (minutes)	Unconfined Compressive Strength, $\sigma_a(ult)$ (lb/in ²)	Young's Modulus, E at 50% $\sigma_a(ult)$ (lb/in ²)
H (cm)	D (cm)	H/D	w _c (%)	γ_d (lb/ft ³)	S (%)	$\dot{\epsilon}$ (cm/minute)	$\dot{\epsilon}$ (%/minute)			
10.53	5.05	2.1	15.6	103.7	67	0.016	0.15	2.0	1087	6.1x10 ⁵



TEST PROCEDURES

ASTM Standard D7012
[Method A]

Air Temperature (°C): 21

Capping Material: ☐ None
☒ Lab-Stone
☐ Sulfur

$E_{50}/(\sigma_a(ult))$ 561

Comments:

SPECIMEN PREPARATION

Original Core Diameter (inch): 4

Specimen Sub-Cored for Testing:

☒ Yes

☐ No

G_s: 2.70 ☐ Assumed

☒ Measured

FAILURE SKETCH



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Where: H = Specimen height; D = Specimen diameter; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\dot{\epsilon}$ = Vertical displacement rate; and G_s = Specific gravity.

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ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

INTACT ROCK CORE UNCONFINED COMPRESSION TEST REPORT

CLIENT: Layne Christensen Company

PROJECT: FP&L – Turkey Point EW-1

FILE NO.: 11-13-0163

DATE SAMPLE RECEIVED: 09/20/11

DATE TEST SET-UP: 09/29/11

DATE REPORTED: 12/21/11

INCOMING SAMPLE NO.: Core 15

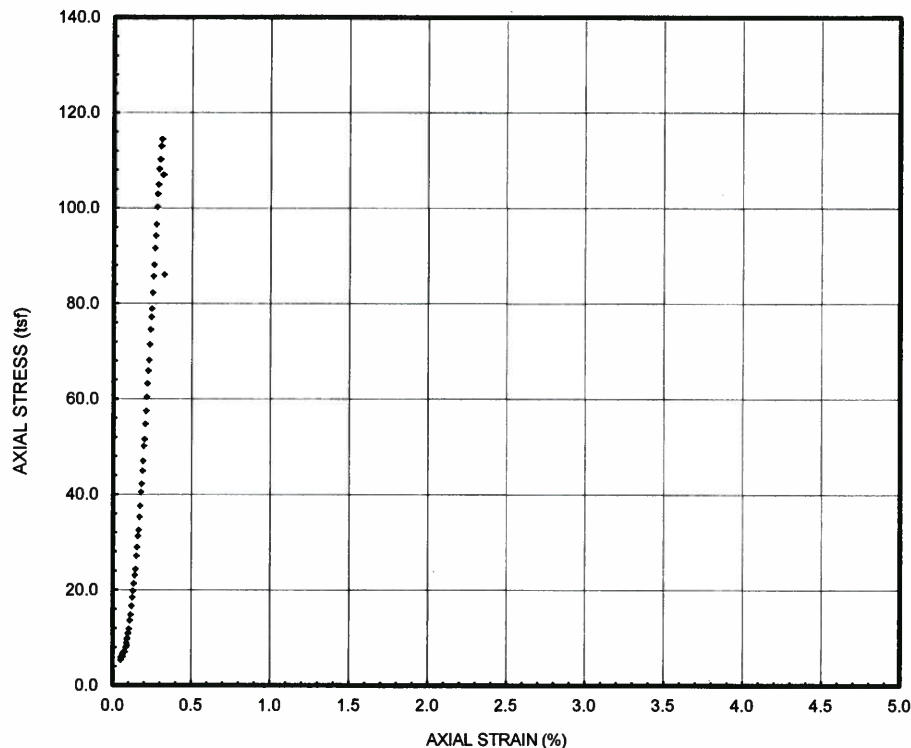
BORING - SAMPLE -

DEPTH 2026.40-2027.00 ☒ ft; ☐ m

LABORATORY IDENTIFICATION NO.: 11163/15-2026

SAMPLE DESCRIPTION: Light brown limestone

Specimen Dimensions			Initial Conditions			Rate of Loading		Time to Failure (minutes)	Unconfined Compressive Strength, $\sigma_a(ult)$ (lb/in ²)	Young's Modulus, E at 50% $\sigma_a(ult)$ (lb/in ²)
H (cm)	D (cm)	H/D	w _c (%)	γ_d (lb/ft ³)	S (%)	$\dot{\epsilon}$ (cm/minute)	$\dot{\epsilon}$ (%/minute)			
10.31	5.05	2.0	9.4	126.2	75	0.013	0.12	2.5	1588	8.2×10^5



TEST PROCEDURES

ASTM Standard D7012
[Method A]

Air Temperature (°C): 21

Capping Material: ☐ None
☒ Lab-Stone
☐ Sulfur

$E_{50}/(\sigma_a(ult))$ 516

Comments:

SPECIMEN PREPARATION

Original Core Diameter (inch): 4

Specimen Sub-Cored for Testing:

☒ Yes

☐ No

G_s: 2.71 ☐ Assumed

☒ Measured

FAILURE SKETCH



The test data and all associated project information presented hereon shall be held in confidence and disclosed to other parties only with the authorization of the Client. Physical and electronic records of each project are kept for a minimum of 7 years. Test samples are kept in storage for at least 10 working days after mailing of the test report, prior to being discarded, unless a longer storage period is requested in writing and accepted by Ardaman & Associates, Inc.

Where: H = Specimen height; D = Specimen diameter; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\dot{\epsilon}$ = Vertical displacement rate; and G_s = Specific gravity.

Checked By: PM Date: 12/21/11 G:\Lab\Soils - Geotechnical-QC Manual\Appendix D1\Form SR-5 Rev. 1.docx

Appendix Q
Packer Test Water Quality
Samples Summary and
Laboratory Reports

Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Packer Test Water Quality Data Summary Table

Test #	Test Interval (ft. bpl)	Specific Conductance (umhos/cm)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)	Ammonia (mg/L)	Temperature (Celsius)	pH (standard units)
1	1,505 - 1,535	22,420	7,990	13,890	0.22	0.18	25.8	7.55
2	1,400 - 1,430	9,850	3,230	5,780	0.13	0.11	24.4	7.55
3	1,225 - 1,285	5,340	1,500	3,120	0.16	0.08	26.8	7.80
4	1,102 - 1,162	4,980	1,270	2,984	0.34	0.32	24.9	7.86
5	1,930 - 1,952	45,300	16,800	32,167	0.26	0.092	24.2	7.48
6	2,989 - 3,011	(Moved packers up 5 feet due to test interval productivity during conditioning)						
	2,984 - 3,006	(Terminated due to test interval productivity during conditioning)						
7	3,020 - 3,232	50,100	19,100	39,900	U	U	24.1	8.04
8	1,970 - 1,992	41,480	15,200	26,400	0.15	0.038	26.7	6.7
9	2,058 - 2,080	54,800	19,500	35,800	0.18	0.134*	21.7	7.53
10	2,183 - 2,205	(Terminated due to packers not isolating the test interval or too productive)						
11	2,552 - 2,574	(Terminated due to packers not isolating the test interval or too productive)						
12	2,634 - 2,656	(Terminated due to packers not isolating the test interval or too productive)						
13	2,844 - 2,866	(Terminated due to packers not isolating the test interval or too productive)						
14	2,480 - 2,502	(Terminated due to packers not isolating the test interval or too productive)						
15	2,552 - 2,574	(Terminated due to packers not isolating the test interval or too productive)						
16	2,694 - 2,716	(Terminated due to packers not isolating the test interval or too productive)						
17	2,220 - 2,242	54,500	18,700	38,800	0.11	U	24.9	7.62
18	2,400 - 2,422	(Terminated due to packers not isolating the test interval or too productive)						
19	2478 - 2500	52,400	18,200	37,100	U	U	24.8	7.22

ft. bpl = feet below pad level
gpm = gallons per minutes
umhos/cm - micromhos per centimeter
mg/L = milligrams per liter
TDS = total dissolved solids
TKN = total Kjeldahl nitrogen
U = analyzed for but not detected
* = Matrix spikes outside recovery limit



Report To:
Brooke Allen
Layne Christensen Co-FL
5061 Luckett Road
Fort Myers, FL 33905

Page 1 of 1
Report Printed: 07/19/11
Submission # 1107000345
Order # 72920

Project: Packer Test WQ Samples PT-1
Site Location: Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: EW-1-PT-1(1505-1535)
Collected: 07/14/11 14:45
Received: 07/14/11 17:45
Collected by: Client

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Specific Conductance (Field)(grab)	22420		uS/cm	0.2	0.6	120.1	07/14 14:45	07/14 14:45	Client
Chloride	7990		mg/L	11.00	33.00	300.0	07/15 16:35	07/15 16:35	DGK
Nitrogen (Ammonia) as N	0.18		mg/L	0.01	0.03	350.1	07/18 14:05	07/18 14:05	RPV
Nitrogen (Kjeldahl) as "N"	0.22		mg/L	0.070	0.210	351.2	07/19 09:00	07/19 11:47	MSG
Total Dissolved Solids (TDS)	13890		mg/L	1.0	3.0	SM 2540C	07/15 16:34	07/15 16:34	DGK

Unless indicated, soil results are reported based on actual (wet) weight basis.

Analytes not currently NELAC certified denoted by ~.
Work performed by outside (subcontract) labs denoted by Cert.ID in Analyst Field.
Results relate only to this sample.
QC=Qualifier Codes as defined by DEP 62-160
U=Analyzed for but not detected.
Q=Sample held beyond accepted holding time.
I=Value is between MDL and PQL.
J=Estimated value.


Authorized CSM Signature (954) 978-6400
Florida-Spectrum Environmental Services, Inc.
Certification # E86006

Florida-Spectrum Environmental Services, Inc.
1460 W. McNab Road, Fort Lauderdale, FL 33309

Pembroke Laboratory
528 Gooch Rd.
Fort Meade, FL 33841


Big Lake Laboratory
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FPL-005B-379

SUBMISSION # <u>1107-345</u>				CHAIN OF CUSTODY RECORD				DUE DATE Requested <u>7/15/11</u> RUSH RESERVATION # <u>LC 7/15</u> <i>Rush Surcharges apply</i>			
Logged in LIMS by <u>R</u> CSM assigned _____		<input type="checkbox"/> 1460 W. McNab Road Ft. Laud. FL 33309 <input type="checkbox"/> 630 Indian Street Savannah, GA 31401 <input type="checkbox"/> 528 Gooch Road Fort Meade, FL 33841 <input type="checkbox"/> 610 Parrot Ave. N, Okeechobee, FL 34972		Tel: (954) 978-6400 Tel: (912) 238-5050 Tel: (863) 285-8145 Tel: (863) 763-3336		Fax: (954) 978-2233 Fax: (912) 234-4815 Fax: (863) 285-7030 Fax: (863) 763-1544					
		Original-Return w/report		Yellow-Lab File Copy		Pink - Sampler Copy					
Report to: (company name) <u>LAYNE CHRISTENSEN COMPANY</u>				Report to: Address: <u>5061 LUCKETT RD, FT. MYERS, FL 33905</u>							
Invoice to: (company name) <u>LAYNE CHRISTENSEN</u>				Purchase Order # _____		Invoice to: Address: <u>5061 LUCKETT RD, FT. MYERS, FL 33905</u>					
Project Name and/or Number <u>PACKER TEST WQ SAMPLES PT-2 ANALYSIS</u>				Site Location: <u>TURKEY POINT, HOMESTEAD, FL 33035</u>							
Project Contact: <u>BROOK ALLEN / CRAIG BRUGGER</u>				Phone: <u>239.275.1029 / 239.275.1025</u>		Email: <u>CJBRUGGER@LAYNECHRISTENSEN.COM</u>					
Sampler Name: (printed) _____				Affiliation: _____		Sampler Signature <u>[Signature]</u>					

ORDER # Lab Control Number	Sample ID	Date Sampled	Time Sampled	Matrix	Bottle & Pres.	Number of Containers Received & NELAC Letter Suffixes	Analysis Required						Field Tests							
							CHLORIDE FOS SP-Cond.	TKN	NH3						TEMP °C	PH	COND	CHLOR		
1	72920	EW-1-PT-1 (1505-1535)	7/14/11	14:45	GW	SD	2		1	1							25.8	7.55	22420	CSM
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

RUSH

Special Comments: <u>Reported field conductivity as per "I waive NELAC protocol" (sign here) > client's request [Signature] 7/14/11</u>		Total _____		Signature _____ Affiliation _____ Date/Time _____			
Deliverables: _____		QA/QC Report Needed: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (additional charge)		1 Relinquished by: <u>Danny Keeler</u> <u>7/14/11</u>			
Sample Custody & Field Comments Temp as received <u>4</u> C Custody seals? <u>Y</u> <u>N</u> FIELD TIME: Sampling _____ hrs Pick-Up _____ hrs Misc. Charges _____		Bottle Type A-liter amber B-Bacteria bag/bottle F-500 ml O-125 ml L-liter bottle S4-4 oz soil jar / S8-8 oz soil jar T-250 ml V-40 ml vial W-wide mouth X-other _____ TED-Tedlar Air Bag Additional Bottle Types B-brown liter plastic		Preservatives A-ascorbic acid P-H3PO4 C-HCL S-H2SO4 Cu-CuSO4 T-Na2S2O3 H-HNO3 U-Unpreserved M-MCAB N-NaOH Z-zinc acetate NH4-NH4CL Additional Preservatives Hex-Hex Cr Buffer EDA-Ethylene Diamine		1 Received by: <u>Angelio Piffenger</u> <u>7-14-11</u> <u>15:25</u>	
						2 Relinquished by: <u>Angelio Piffenger</u> <u>7-14-11</u> <u>17:45</u>	
						2 Received by: <u>[Signature]</u> <u>7/14/11</u> <u>17:45</u>	
						3 Relinquished by: _____	
				3 Received by: _____			

www.flenviro.com COC Page _____ of _____



Report To:
 Craig Brugger
 Layne Christensen Co-FL
 5061 Luckett Road
 Fort Myers, FL 33905

Page 1 of 1
Report Printed: 07/19/11
Submission # 1107000378
Order # 73057

Project: Packer Test WQ Samples PT-2
Site Location: Turkey Point, Homestead, FL.
Matrix: Water

Sample I.D.: EW-1-PT-2 1400'-1430'
Collected: 07/15/11 22:10
Received: 07/16/11 09:00
Collected by: Client

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Specific Conductance (Field)(grab)	9850		uS/cm	0.2	0.6	120.1	07/15 22:10	07/15 22:10	Client
Chloride	3230		mg/L	5.50	16.50	300.0	07/16 15:08	07/16 15:08	DGK
Nitrogen (Ammonia) as N	0.11		mg/L	0.01	0.03	350.1	07/18 14:07	07/18 14:07	RPV
Nitrogen (Kjeldahl) as "N"	0.13	I	mg/L	0.070	0.210	351.2	07/19 09:00	07/19 11:47	MSG
Total Dissolved Solids (TDS)	5780		mg/L	1.00	3.00	SM 2540C	07/16 16:32	07/18 16:29	CEB

Unless indicated, soil results are reported based on actual (wet) weight basis.

Analytes not currently NELAC certified denoted by ~.
 Work performed by outside (subcontract) labs denoted by Cert.ID in Analyst Field.
 Results relate only to this sample.
 QC=Qualifier Codes as defined by DEP 62-160
 U=Analyzed for but not detected.
 Q=Sample held beyond accepted holding time.
 I=Value is between MDL and PQL.
 J=Estimated value.


 Authorized CSM Signature (954) 978-6400
 Florida-Spectrum Environmental Services, Inc.
 Certification # E86006

Florida-Spectrum Environmental Services, Inc.
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Pembroke Laboratory
 528 Gooch Rd.
 Fort Meade, FL 33841


Big Lake Laboratory
 610 North Parrot Ave.
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 630 Indian St.
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FPL-005B-381

SUBMISSION # 1107-378				CHAIN OF CUSTODY RECORD				DUE DATE Requested 7/18/11 RUSH RESERVATION # LCCOPT2 Rush Surcharges apply															
Logged in LIMS by CSM assigned		<input type="checkbox"/> 1460 W. McNab Road Ft. Laud. FL 33309 <input type="checkbox"/> 630 Indian Street Savannah, GA 31401 <input type="checkbox"/> 528 Gooch Road Fort Meade, FL 33841 <input type="checkbox"/> 610 Parrot Ave. N, Okeechobee, FL 34972				Tel: (954) 978-6400 Tel: (912) 238-5050 Tel: (863) 285-8145 Tel: (863) 763-3336		Fax: (954) 978-2233 Fax: (912) 234-4815 Fax: (863) 285-7030 Fax: (863) 763-1544															
Original-Return w/report				Yellow-Lab File Copy				Pink - Sampler Copy															
Report to: (company name) LAYNE CHRISTENSEN COMPANY				Report to: Address: 5061 LUCKETT RD., FT. MYERS, FL 33905				Report to: Address: 5061 LUCKETT RD., FT. MYERS, FL 33905															
Invoice to: (company name) LAYNE CHRISTENSEN CO.				Purchase Order #				Invoice to: Address: 5061 LUCKETT RD., FT. MYERS, FL 33905															
Project Name and/or Number PACKER TEST WQ SAMPLES PT-2 ANALYSIS				Site Location: TURKEY POINT, HOMESTEAD FL 33035				Email: C.J. BRUGGER@LAYNECHRISTENSEN.COM															
Project Contact: BROOK ALLEN/CRAIG BRUGGER				Phone: 239-275-1029/239-275-1025				Fax:															
Sampler Name: Kevin Green				Affiliation: LAYNE, C				Sampler Signature: [Signature]															
ORDER # Lab Control Number		Sample ID		Date Sampled		Time Sampled		Matrix		Bottle & Pres.		Number of Containers Received & NELAC Letter Suffixes		Analysis Required				Field Tests					
Shaded Areas For Laboratory Use Only								DW SW GW WW S SED HW BIO SEA OIL X AIR		Combo Codes		# A-?		Chloride TDS SP COND. TKN NH3				TEMP °C PH COND CHLOR					
1 73057		EW-1-PT-2 (1400-1430)		7/15/11		22:10		GW		BIO				1 1				24.4 7.55 2850					
2										1 FU		1											
3										1 TS		1											
4																							
5																							
6																							
7																							
8																							
9																							
10																							
Special Comments: Reported Field Conductivity as per client's request 7/19/11 Ex 2 "I waive NELAC protocol" (sign here) >												Total		Signature				Affiliation		Date/Time			
Deliverables:												QA/QC Report Needed? Yes No		1 Relinquished by: [Signature]				7-16-11 9:00					
Sample Custody & Field Comments												Bottle Type		Preservatives				1 Received by: [Signature]				7/16/11 0900	
Temp as received 4°C												A-liter amber		A-ascorbic acid P-H3PO4				2 Relinquished by:					
Custody seals? Y N												B-Bacteria bag/bottle		C-HCL S-H2SO4				2 Received by:					
FIELD TIME:												F-500 ml O-125 ml		Cu-CuSO4 T-Na2S2O3				3 Relinquished by:					
Sampling _____ hrs												L-liter bottle		H-HNO3 U-Unpreserved				3 Received by:					
Pick-Up _____ hrs												S4-4 oz soil jar / S8-8 oz soil jar		M-MCAB N-NaOH									
Misc. Charges												T-250 ml		Z-zinc acetate NH4-NH4CL									
												V-40 ml vial		Additional Preservatives									
												W-wide mouth		Hex-Hex Cr Buffer									
												X-other TED-Tedlar Air Bag		EDA-Ethylene Diamine									
												Additional Bottle Types											
												B-brown liter plastic											



Report To:
Brooke Allen
Layne Christensen Co-FL
5061 Luckett Road
Fort Myers, FL 33905

Page 1 of 1
Report Printed: 07/19/11
Submission # 1107000383
Order # 73097

Project: Packer Test WQ Samples PT-3
Site Location: Turkey Point, Homestead, FL
Matrix: Water


Sample I.D.: EW-1-PT-3 (1225-1285)
Collected: 07/17/11 17:30
Received: 07/18/11 10:15
Collected by: Eric Meyer

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Specific Conductance (Field)(grab)	5340		uS/cm	0.2	0.6	120.1	07/17 17:30	07/17 17:30	Client
Chloride	1500		mg/L	2.20	6.60	300.0	07/19 14:00	07/19 14:00	DGK
Nitrogen (Ammonia) as N	0.08		mg/L	0.01	0.03	350.1	07/18 14:08	07/18 14:08	RPV
Nitrogen (Kjeldahl) as "N"	0.16	I	mg/L	0.070	0.210	351.2	07/19 09:00	07/19 11:47	MSG
Total Dissolved Solids (TDS)	3120		mg/L	1.00	3.00	SM 2540C	07/18 16:32	07/18 16:31	CEB

Unless indicated, soil results are reported based on actual (wet) weight basis.

Analytes not currently NELAC certified denoted by ~.
Work performed by outside (subcontract) labs denoted by Cert.ID in Analyst Field.
Results relate only to this sample.
QC=Qualifier Codes as defined by DEP 62-160
U=Analyzed for but not detected.
Q=Sample held beyond accepted holding time.
I=Value is between MDL and PQL.
J=Estimated value.


Authorized CSM Signature (954) 978-6400
Florida Spectrum Environmental Services, Inc.
Certification # E86006

Florida-Spectrum Environmental Services, Inc.
1460 W. McNab Road, Fort Lauderdale, FL 33309

Pembroke Laboratory
528 Gooch Rd.
Fort Meade, FL 33841



Big Lake Laboratory
610 North Parrot Ave.
Okeechobee, FL 34972

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630 Indian St.
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FPL-005B-383

SUBMISSION # <u>1107-383</u> Logged in LIMS by <u>K</u> CSM assigned _____				CHAIN OF CUSTODY RECORD <input type="checkbox"/> 1460 W. McNab Road Ft Laud. FL 33309 Tel: (954) 978-6400 Fax: (954) 978-2233 <input type="checkbox"/> 630 Indian Street Savannah, GA 31401 Tel: (912) 238-5050 Fax: (912) 234-4815 <input type="checkbox"/> 528 Gooch Road Fort Meade, FL 33841 Tel: (863) 285-8145 Fax: (863) 285-7030 <input type="checkbox"/> 610 Parrot Ave. N, Okeechobee, FL 34972 Tel: (863) 763-3336 Fax: (863) 763-1544				DUE DATE Requested <u>7/19/11</u> RUSH RESERVATION # <u>MEC4228</u> Rush Surcharges apply	
		Original-Return w/report		Yellow-Lab File Copy		Pink - Sampler Copy			
Report to: (company name) <u>LAYNE CHRISTENSEN COMPANY</u>				Report to: Address: <u>5061 LUCKETT RD, FT. MYERS, FL 33905</u>					
Invoice to: (company name) <u>LAYNE CHRISTENSEN COMPANY</u>				Invoice to: Address: <u>5061 LUCKETT RD, FT. MYERS, FL 33905</u>					
Project Name and/or Number <u>PACKER TEST WQ SAMPLES PT-3 ANALYSIS</u>				Site Location: <u>TURKEY POINT, HOMESTEAD, FL 33035</u>					
Project Contact: <u>BOOK ALLEN / CRAIG BRUGGER</u>				Phone: <u>239-275-1029 / 239-275-1025</u>		Email: <u>CJ BRUGGER @ LAYNECHRISTENSEN.COM</u> <u>BSALLEN @ LAYNECHRISTENSEN.COM</u>			
Sampler Name: (printed) <u>ERIC MEYER</u>				Affiliation: <u>MHC</u>		Sampler Signature: 			
ORDER # Lab Control Number Shaded Areas For Laboratory Use Only	Sample ID	Date Sampled	Time Sampled	Matrix DW SW GW WW S SED HW BIO SEA OIL X AIR	Bottle & Pres. Combo Codes	Number of Containers Received & NELAC Letter Suffixes # A-?	Analysis Required CHLORIDE TDS SP. COND. TKN NH3	Field Tests TEMP °C PH COND CHLOR	
1	73097	EW-1-PT-3 (1225	7/17/11	17:30	GW	SU	2	1 1	26.8 7.80 5340
2	-1285)								
3									
4									
5									
6									
7									
8									
9									
10									

RUSH

RUSH

Special Comments: <u>(24 hours RUSH)</u>		Total	
"I waive NELAC protocol" (sign here) >			
Deliverables:		QA/QC Report Needed? Yes No (additional charge)	

Sample Custody & Field Comments Temp as received <u>4</u> C Custody seals? <u>Y</u> / <u>N</u> FIELD TIME: Sampling _____ hrs Pick-Up _____ hrs Misc. Charges _____	Bottle Type A-liter amber B-Bacteria bag/bottle F-500 ml O-125 ml L-liter bottle S4-4 oz soil jar / S8-8 oz soil jar T-250 ml V-40 ml vial W-wide mouth X-other TED-Tedlar Air Bag Additional Bottle Types B-brown liter plastic	Preservatives A-ascorbic acid P-H3PO4 C-HCL S-H2SO4 Cu-CuSO4 T-Na2S2O3 H-HNO3 U-Unpreserved M-MCAB N-NaOH Z-zinc acetate NH4-NH4CL Additional Preservatives Hex-Hex Cr Buffer EDA-Ethylene Diamine	Signature Affiliation Date/Time 1 Relinquished by: <u>Eric Meyer / MHC</u> <u>7/17/11 @ 1755</u> 1 Received by: <u>M. Reig</u> <u>7/18/2011 8:55am</u> 2 Relinquished by: <u>M. Reig</u> <u>7/18/11 10:15</u> 2 Received by: <u>K. Reig</u> <u>7/18/11 KRS</u> 3 Relinquished by: _____ 3 Received by: _____ www.flenviro.com COC Page <u>1</u> of <u>1</u> TPL-005B-384
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Report To:
 Brooke Allen
 Layne Christensen Co-FL
 5061 Luckett Road
 Fort Myers, FL 33905

Page 1 of 1
Report Printed: 07/21/11
Submission # 1107000417
Order # 73259

Project: Packer Test WQ Samples PT-4
Site Location: Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: EW-1-PT-4(1102-1162)
Collected: 07/19/11 01:00
Received: 07/19/11 08:30
Collected by: Eric Meyer

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Specific Conductance (Field)(grab)	4980		uS/cm	0.2	0.6	120.1	07/19 01:00	07/19 01:00	Client
Chloride	1130		mg/L	2.20	6.60	300.0	07/19 12:25	07/19 12:25	DGK
Nitrogen (Ammonia) as N	0.32		mg/L	0.01	0.03	350.1	07/21 15:09	07/21 15:09	MSG
Nitrogen (Kjeldahl) as "N"	0.34		mg/L	0.070	0.210	351.2	07/19 09:00	07/19 11:47	MSG
Total Dissolved Solids (TDS)	2984		mg/L	1.00	3.00	SM 2540C	07/20 14:40	07/20 14:40	LYR

Unless indicated, soil results are reported based on actual (wet) weight basis.

Analytes not currently NELAC certified denoted by ~.
 Work performed by outside (subcontract) labs denoted by Cert.ID in Analyst Field.
 Results relate only to this sample.
 QC=Qualifier Codes as defined by DEP 62-160
 U=Analyzed for but not detected.
 Q=Sample held beyond accepted holding time.
 I=Value is between MDL and PQL.
 J=Estimated value.


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 Certification # E86006

Florida-Spectrum Environmental Services, Inc.
 1460 W. McNab Road, Fort Lauderdale, FL 33309

Pembroke Laboratory
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 Fort Meade, FL 33841

• Big Lake Laboratory
 610 North Parrot Ave.
 Okeechobee, FL 34972

• Spectrum Laboratories
 630 Indian St.
 Savannah, GA 31401

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FPL-005B-385

SUBMISSION # <div style="font-size: 1.2em; font-family: cursive;">1107-417</div>				CHAIN OF CUSTODY RECORD						DUE DATE Requested <div style="font-size: 1.2em; font-family: cursive;">7/20/11</div> RUSH RESERVATION # <div style="font-size: 1.2em; font-family: cursive;">MEC4235</div> <div style="font-size: 0.8em;">Rush Surcharges apply</div>															
Logged in LIMS by <div style="font-family: cursive;">[Signature]</div> CSM assigned				<input type="checkbox"/> 1460 W. McNab Road Ft. Laud. FL 33309 <input type="checkbox"/> 630 Indian Street Savannah, GA 31401 <input type="checkbox"/> 528 Gooch Road Fort Meade, FL 33841 <input type="checkbox"/> 610 Parrot Ave. N, Okeechobee, FL 34972		Tel: (954) 978-6400 Tel: (912) 238-5050 Tel: (863) 285-8145 Tel: (863) 763-3336		Fax: (954) 978-2233 Fax: (912) 234-4815 Fax: (863) 285-7030 Fax: (863) 763-1544																	
		Original-Return w/report		Yellow-Lab File Copy				Pink - Sampler Copy																	
Report to: (company name) <u>LAYNE CHRISTENSEN COMPANY</u>										Report to: Address: <u>5061 LUCKETT RD., FT. MYERS, FL 33905</u>															
Invoice to: (company name) <u>LAYNE CHRISTENSEN COMPANY</u>										Invoice to: Address: <u>5061 LUCKETT RD., FT. MYERS, FL 33905</u>															
Project Name <u>PACKER TEST WQ SAMPLES PT-4 ANALYSIS</u>										Site <u>TURKEY POINT, HOMESTEAD, FL 33035</u>															
Project Contact: <u>BROOK ALLEN/CRAIG BRUGGER</u>										Project Contact: <u>BSALLEN@LAYNECHRISTENSEN.COM</u>															
Sampler Name: (printed) <u>ERIC MEYER</u>										Sampler Signature: <div style="font-family: cursive;">[Signature]</div>															
ORDER # Lab Control Number		Sample ID		Date Sampled		Time Sampled		Matrix DW SW GW WW S SED HW BIO SEA OIL X AIR		Bottle & Pres. Combo Codes		Number of Containers Received & NELAC Letter Suffixes # A-?		Analysis Required				Field Tests							
Shaded Areas For Laboratory Use Only																									
1		73259		EW-1-PT-4 (1102-1162)		7/19/11		01:00		GW		30		2		1		1		24.9		18.4		4980	
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									

24 Hour Rush

RUSH

Special Comments: <div style="font-size: 1.2em; font-family: cursive;">(24 Hour Rush)</div>				Total		Signature Affiliation Date/Time			
"I waive NELAC protocol" (sign here) >						1 Relinquished by: <div style="font-family: cursive;">[Signature]</div> MHC 7/19/11 0115			
Deliverables:				QA/QC Report Needed? Yes No (additional charge)		1 Received by: <div style="font-family: cursive;">[Signature]</div> 7/19/11 2:30 AM			
Sample Custody & Field Comments <div style="font-size: 1.2em; font-family: cursive;">4</div> Temp as received _____ C Custody seals? Y N FIELD TIME: Sampling _____ hrs Pick-Up _____ hrs Misc. Charges _____		Bottle Type A-liter amber B-Bacteria bag/bottle F-500 ml O-125 ml L-liter bottle S4-4 oz soil jar / S8-8 oz soil jar T-250 ml V-40 ml vial W-wide mouth X-other TED-Tedlar Air Bag Additional Bottle Types B-brown liter plastic		Preservatives A-ascorbic acid P-H3PO4 C-HCL S-H2SO4 Cu-CuSO4 T-Na2S2O3 H-HNO3 U-Unpreserved M-MCAB N-NaOH Z-zinc acetate NH4-NH4CL Additional Preservatives Hex-Hex Cr Buffer EDA-Ethylene Diamine		2 Relinquished by: <div style="font-family: cursive;">[Signature]</div> 7/19/11 8:30 2 Received by: <div style="font-family: cursive;">[Signature]</div> 7/19/11 8:30 3 Relinquished by: <div style="font-family: cursive;">[Signature]</div> PSE 3 Received by: _____			
						www.flenviro.com COC Page 1 of 1			



Report To:
 Craig Brugger
 Layne Christensen Co-FL
 5061 Lockett Road
 Fort Myers, FL 33905

Page 1 of 1
Report Printed: 12/12/11
Submission # 1112000092
Order # 92095

Project: Packer Test WQ Samples PT-5
Site Location: FPL Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: EW-1-PT-5 (1930-1952)
Collected: 12/03/11 19:28
Received: 12/04/11 13:30
Collected by: Eric W. Meyer

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Specific Conductance (Field)(grab)	44230		uS/cm	1.0	3.0	120.1	12/03 19:28	12/03 19:28	Client
pH (field)	7.48		units	0.1	0.3	150.1	12/03 19:28	12/03 19:28	Client
Temperature (Field)	24.2		Degree C	1	3	170.1	12/03 19:28	12/03 19:28	Client
Specific Conductance (grab)	45300		uS/cm	1.000	3.000	120.1	12/08 09:36	12/08 09:36	DGK
Chloride	16800		mg/L	22.000	66.000	300.0	12/06 11:45	12/06 11:45	DGK
Sulfate	585		mg/L	2.14	6.42	300.0	12/06 11:45	12/06 11:45	DGK
Nitrogen (Ammonia) as N	0.092		mg/L	0.01	0.03	350.1	12/06 11:53	12/06 11:53	RPV
Nitrogen (Kjeldahl) as "N"	0.26		mg/L	0.070	0.210	351.2	12/07 08:30	12/07 12:16	MSG
Total Dissolved Solids (TDS)	32167		mg/L	1.000	3.000	SM 2540C	12/07 11:15	12/08 14:26	LYR

Unless indicated, soil results are reported based on actual (wet) weight basis.

Analytes not currently NELAC certified denoted by ~.
 Work performed by outside (subcontract) labs denoted by Cert.ID in Analyst Field.
 Results relate only to this sample.
 QC=Qualifier Codes as defined by DEP 62-160
 U=Analyzed for but not detected.
 Q=Sample held beyond accepted holding time.
 I=Value is between MDL and PQL.
 J=Estimated value.


 Authorized CSM Signature (954) 978-6400
 Florida-Spectrum Environmental Services, Inc.
 Certification # E86006

Florida-Spectrum Environmental Services, Inc.
 1460 W. McNab Road, Fort Lauderdale, FL 33309

Pembroke Laboratory
 528 Gooch Rd.
 Fort Meade, FL 33841

Big Lake Laboratory
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FPL-005B-387

MUST CHANGE FOR January 7/11

CHAIN OF CUSTODY RECORD

SUBMISSION # 1112-092		<input type="checkbox"/> 1460 W. McNab Road Ft Laud. FL 33309 <input type="checkbox"/> 630 Indian Street Savannah, GA 31401 <input type="checkbox"/> 528 Gooch Road Fort Meade, FL 33841 <input type="checkbox"/> 610 Parrot Ave. N, Okeechobee, FL 34972	Tel: (954) 978-6400 Tel: (912) 238-5050 Tel: (863) 285-8145 Tel: (863) 763-3336	Fax: (954) 978-2233 Fax: (912) 234-4815 Fax: (863) 285-7030 Fax: (863) 763-1544	DUE DATE Requested RUSH RESERVATION # <i>Rush Surcharges apply</i>
---------------------------------	---	--	--	--	--

Report to: (company name) <u>LAYNE CHRISTENSEN COMPANY</u>	Report to: Address: <u>5061 LUCKETT RD., FT. MYERS, FL 33905</u>
Invoice to: (company name) <u>LAYNE CHRISTENSEN CO.</u>	Invoice to: Address: <u>5061 LUCKETT RD. FT. MYERS, FL 33905</u>
Project Name and/or Number <u>PACKER TEST WQ SAMPLES PT-5 ANALYSIS</u>	Site Location: <u>FPL TURKEY POINT, HONESTEAD, FL 33035</u>
Project Contact: <u>BROOK ALLEN / CRAIG BRUNGER</u>	Fax: <u>CSALLENO@LAYNECHRISTENSEN.COM</u>
Sampler Name: (printed) <u>ERIC W. MEYER</u>	Sampler Signature: <u>Eric W Meyer</u>
Phone: <u>239-275-1029</u>	Affiliation: <u>MHC</u>

ORDER # Lab Control Number	Sample ID	Date Sampled	Time Sampled	Matrix DW SW GW WW S SED HW BIO SEA OIL X AIR	Bottle & Pres. Combo Codes	Number of Containers Received & NELAC Letter Suffixes # A-?	Analysis Required						Field Tests			
							CHLORIDE	TDS	SPCOND	TKN	NH3	Sulfate	TEMP °C	PH	COND	CHLOR
1 92095	EW-1-PT-5 (1930-1952)	12/3/11	19:28	GW	SU	2	1	1	1				24.2	7.48	24230	X
2																
3																
4																
5																
6																
7																
8																
9																
10																

Special Comments: <u>Sulfate added as per client</u>	Total 2	Signature 1 <u>Eric W Meyer</u>	Affiliation 1 <u>MHC</u>	Date/Time 1 <u>12/3/11 19:35</u>
"I waive TNI protocol" (sign here) > <u>W.C. 12/9/11</u>		Received by: 1 <u>[Signature]</u>		<u>12/3/11 19:35</u>
Deliverables: QA/QC Report Needed? Yes No (additional charge)		Received by: 2 <u>Maatias Allen</u>		<u>12/4/11 11:54</u>
Sample Custody & Field Comments Temp as received <u>4</u> C Custody seals? Y N FIELD TIME: Sampling _____ hrs Pick-Up _____ hrs Misc. Charges _____	Bottle Type A-liter amber B-Bacteria bag/bottle F-500 ml O-125 ml H-Plastic Amber Liter L-liter bottle S2-2 oz soil jar S4-4 oz soil jar / S8-8 oz soil jar T-250 ml V-40 ml vial W-wide mouth X-other TED-Tedlar Air Bag Additional Bottle Types B-brown liter plastic	Preservatives A-ascorbic acid C-HCL Cu-CuSO4 DI-DI water H-HNO3 M-MCAB MeOH-Methanol Z-zinc acetate Additional Preservatives Hex-Hex Cr Buffer EDA-Ethylene Diamine	Received by: 3 <u>Archieo Piffenger</u>	<u>12-4-11 13:30</u>



Report To:
 Craig Brugger
 Layne Christensen Co-FL
 5061 Luckett Road
 Fort Myers, FL 33905

Page 1 of 1
Report Printed: 12/14/11
Submission # 1112000193
Order # 92720

Project: Turkey Point EN-1
Site Location: FPL Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: EW-1-PT-7 (3020-3232 ft)
Collected: 12/05/11 19:00
Received: 12/07/11 14:55
Collected by: Deborah Dalole

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Specific Conductance (Field)(grab)	50100		uS/cm	1.0	3.0	120.1	12/05 19:00	12/05 19:00	Client
pH (field)	8.04		units	0.1	0.3	150.1	12/05 19:00	12/05 19:00	Client
Temperature (Field)	24.1		Degree C	1	3	170.1	12/05 19:00	12/05 19:00	Client
Specific Conductance (grab)	51600		uS/cm	1.0	3.0	120.1	12/08 09:38	12/08 09:38	DGK
Chloride	19100		mg/L	55.00	165.00	300.0	12/07 17:55	12/07 17:55	DGK
Sulfate	2910		mg/L	53.50	160.50	300.0	12/07 17:55	12/07 17:55	DGK
Nitrogen (Ammonia) as N	U	U	mg/L	0.01	0.03	350.1	12/08 15:38	12/08 15:38	RPV
Nitrogen (Kjeldahl) as "N"	U	U	mg/L	0.070	0.210	351.2	12/13 10:30	12/13 14:44	MSG
Total Dissolved Solids (TDS)	39900		mg/L	1.00	3.00	SM 2540C	12/09 15:15	12/12 15:03	LYR

Unless indicated, soil results are reported based on actual (wet) weight basis.

Analytes not currently NELAC certified denoted by ~.
 Work performed by outside (subcontract) labs denoted by Cert.ID in Analyst Field.
 Results relate only to this sample.
 QC=Qualifier Codes as defined by DEP 62-160
 U=Analyzed for but not detected.
 Q=Sample held beyond accepted holding time.
 I=Value is between MDL and PQL.
 J=Estimated value.


 Authorized CSM Signature (954) 978-6400
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 Certification # E86006

Florida-Spectrum Environmental Services, Inc.
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FPL-005B-389

SUBMISSION # 1112-123		CHAIN OF CUSTODY RECORD						DUE DATE Requested										
		<input type="checkbox"/> 1460 W. McNab Road Ft Laud. FL 33309 <input type="checkbox"/> 630 Indian Street Savannah, GA 31401 <input type="checkbox"/> 528 Gooch Road Fort Meade, FL 33841 <input type="checkbox"/> 610 Parrot Ave. N, Okeechobee, FL 34972				Tel: (954) 978-6400 Tel: (912) 238-5050 Tel: (863) 285-8145 Tel: (863) 763-3336		Fax: (954) 978-2233 Fax: (912) 234-4815 Fax: (863) 285-7030 Fax: (863) 763-1544										
		Original-Return w/report		Yellow-Lab File Copy		Pink - Sampler Copy		Rush Surcharges apply										
Report to: (company name) LAYNE CHRISTENSEN COMPANY		Report to Address: 5061 LUCKETT RD, FT. MYERS, FL 33905																
Invoice to: (company name) LAYNE CHRISTENSEN Co.		Purchase Order #		Invoice to Address: 5061 LUCKETT RD, FT. MYERS, FL 33905														
Project Name and/or Number TURKEY POINT EN-1		Phone: 239-275-1029 239-275-1025				Site Location: FPL TURKEY POINT, HOMESTEAD, FL 33035												
Project Contact: BROOK ALLEN / CRAIG BRUGGER		Affiliation: MHC				Email: BRUGGER@LAYNECHRISTENSEN.COM BSALLEN@LAYNECHRISTENSEN.COM												
Sampler Name: (printed) DEBORAH DAIGLE		Sampler Signature																
ORDER # Lab Control Number	Sample ID	Date Sampled	Time Sampled	Matrix	Bottle & Pres.	Number of Containers Received & NELAC Letter Suffixes	Analysis Required					Field Tests						
Shaded Areas For Laboratory Use Only				DW SW GW WW S SED HW BIO SEA OIL X AIR	Combo Codes	# A-?	Chloride TDS	Sulfate	TKN	NH3					TEMP °C	PH	COND	CHLOR
92720	EW-1-PT-7(3205)	12/5/2011	1900	GW	SU	2	1	1	1					21.1	8.04	50.100	X	
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
Special Comments: ALL SAMPLES MUST BE RETURNED TO THE JOB SITE AFTER ANALYSIS IS COMPLETED.						Total		Signature		Affiliation		Date/Time						
"I waive NELAC protocol" (sign here) Sulfate added as per client 12/9/11								1 Relinquished by: Sam H. Duall				12/7/2011 11:20						
Deliverables: QA/QC Report Needed? Yes No (additional charge)								1 Received by: Aracelio Piffenor				12-7-11 11:20						
Sample Custody & Field Comments Temp as received 4 C Custody seals? Y N FIELD TIME: Sampling _____ hrs Pick-Up _____ hrs Misc. Charges _____						Bottle Type A-liter amber B-Bacteria bag/bottle F-500 ml O-125 ml L-liter bottle S4-4 oz soil jar / S8-8 oz soil jar T-250 ml V-40 ml vial W-wide mouth X-other TED-Tedlar Air Bag Additional Bottle Types B-brown liter plastic		Preservatives A-ascorbic acid P-H3PO4 C-HCL S-H2SO4 Cu-CuSO4 T-Na2S2O3 H-HNO3 U-Unpreserved M-MCAB N-NaOH Z-zinc acetate NH4-NH4CL Additional Preservatives Hex-Hex Cr Buffer EDA-Ethylene Diamine		2 Relinquished by: Aracelio Piffenor		12-7-11 14:55						
										2 Received by: Ben		12-7-11 14:55						
										3 Relinquished by:								
										3 Received by:								
						www.flenviro.com		COC Page _____ of _____										



Report To:
 Craig Brugger
 Layne Christensen Co-FL
 5061 Lockett Road
 Fort Myers, FL 33905

Page 1 of 1
Report Printed: 01/05/12
Submission # 1112000708
Order # 95032

Project: Packer Test WQ Samples PT-8
Site Location: FPL Turkey Point, Homestead, FL.
Matrix: Water

Sample I.D.: EW-1-PT-8 (1970-1992)
Collected: 12/27/11 14:00
Received: 12/28/11 15:00
Collected by: Client

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Specific Conductance (Field)(grab)	41480		uS/cm	1.0	3.0	120.1	12/27 14:00	12/27 14:00	Client
pH (field)	6.7		units	0.1	0.3	150.1	12/27 14:00	12/27 14:00	Client
Temperature (Field)	26.7		Degree C	1	3	170.1	12/27 14:00	12/27 14:00	Client
Specific Conductance (grab)	40900		uS/cm	1.0	3.0	120.1	12/29 10:07	12/29 10:07	DGK
Chloride	20400		mg/L	22.00	66.00	300.0	12/28 15:58	12/28 15:58	DGK
Sulfate	1980		mg/L	21.40	64.20	300.0	12/28 15:58	12/28 15:58	DGK
Nitrogen (Ammonia) as N	0.038		mg/L	0.01	0.03	350.1	12/29 15:47	12/29 15:47	RPV
Nitrogen (Kjeldahl) as "N"	0.15	I	mg/L	0.070	0.210	351.2	01/04 09:00	01/04 12:47	MSG
Total Dissolved Solids (TDS)	26400		mg/L	1.00	3.00	SM 2540C	01/03 09:35	01/04 10:45	CEB

Unless indicated, soil results are reported based on actual (wet) weight basis.

Analytes not currently NELAC certified denoted by ~.
 Work performed by outside (subcontract) labs denoted by Cert.ID in Analyst Field.
 Results relate only to this sample.
 QC=Qualifier Codes as defined by DEP 62-160
 U= Analyzed for but not detected.
 Q=Sample held beyond accepted holding time.
 I= Value is between MDL and PQL.
 J=Estimated value.


 Authorized CSM Signature (954) 978-6400
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 Certification # E86006

Florida-Spectrum Environmental Services, Inc.
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 Fort Meade, FL 33841

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FPL-005B-391

SUBMISSION # 1112-108				CHAIN OF CUSTODY RECORD						DUE DATE Requested													
Logged in LIMS by CSM assigned				<input type="checkbox"/> 1460 W. McNab Road Ft Laud. FL 33309 <input type="checkbox"/> 630 Indian Street Savannah, GA 31401 <input type="checkbox"/> 528 Gooch Road Fort Meade, FL 33841 <input type="checkbox"/> 610 Parrot Ave. N, Okeechobee, FL 34972		Tel: (954) 978-6400 Tel: (912) 238-5050 Tel: (863) 285-8145 Tel: (863) 763-3336		Fax: (954) 978-2233 Fax: (912) 234-4815 Fax: (863) 285-7030 Fax: (863) 763-1544		RUSH RESERVATION #													
				Original-Return w/report		Yellow-Lab File Copy		Pink - Sampler Copy		Rush Surcharges apply													
Report to: (company name) LAYNE CHRISTENSEN COMPANY						Report to: Address: 5061 LUCKETT RD., FT. MYERS, FL 33905																	
Invoice to: (company name) LAYNE CHRISTENSEN COMPANY						Invoice to: Address: " " " " "																	
Project Name and/or Number PACKER TEST WD SAMPLES PT-8 ANALYSIS						Site Location: FPL TURKEY POINT, HOMESTEAD, FL 33035																	
Project BROOK ALLEN / CRAIG BRUGGER						Phone: 239-275-1029 / 239-275-1025																	
Contact:						Email: CJBRUGGER@LAYNECHRISTENSEN.COM BSALLEN@LAYNECHRISTENSEN.COM																	
Sampler Name: (printed)						Affiliation:																	
ORDER # Lab Control Number		Sample ID		Date Sampled		Time Sampled		Matrix		Bottle & Pres.		Number of Containers Received & NELAC Letter Suffixes		Analysis Required				Field Tests					
Shaded Areas For Laboratory Use Only								DW SW GW WW S SED HW BIO SEA OIL X AIR		Combo Codes		# A-?		CHLORIDE SULFATE SPONGE TD TKN NH3				TEMP °C PH COND CHLOR					
1 75032		EW-1-PT-8 (1970-1992)		12/27/11		2:00PM		GW		SU		2		1				1					
2																							
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							
Special Comments:												Total		Signature Affiliation Date/Time									
"I waive TNI protocol" (sign here) >												2		1 Relinquished by: Macten J. Clasen 12/28/11 11:03									
Deliverables:												QA/QC Report Needed? Yes No (additional charge)		1 Received by: Angelo Piffenger 12-28-11 11:10									
Sample Custody & Field Comments												Bottle Type		2 Relinquished by: Angelo Piffenger 12-28-11 11:30									
Temp as received 21 C												A-liter amber		2 Received by: AK 12/28/11 1:50									
Custody seals? Y N C												B-Bacteria bag/bottle		3 Relinquished by:									
FIELD TIME:												F-500 ml O-125 ml		3 Received by:									
Sampling _____ hrs												H-Plastic Amber Liter											
Pick-Up _____ hrs												L-liter bottle											
Misc. Charges _____												S2-2 oz soil jar											
												S4-4 oz soil jar / S8-8 oz soil jar											
												T-250 ml											
												V-40 ml vial											
												W-wide mouth											
												X-other											
												TED-Tedlar Air Bag											
												Additional Bottle Types											
												B-brown liter plastic											
												Preservatives											
												A-ascorbic acid											
												C-HCL											
												Cu-CuSO4											
												DI-DI water											
												H-HNO3											
												M-MCAB											
												MeOH-Methanol											
												Z-zinc acetate											
												Additional Preservatives											
												Hex-Hex Cr Buffer											
												EDA-Ethylene Diamine											
												www.flenviro.com		COC Page 1 of 1									



Report To:
 Craig Brugger
 Layne Christensen Co-FL
 5061 Lockett Road
 Fort Myers, FL 33905

Page 1 of 1
Report Printed: 01/16/12
Submission # 1201000193
Order # 868

Project: Turkey Point Exploratory PT-9
Site Location: FPL Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: EW-1-PT-9 (2058-2080)
Collected: 01/08/12 22:00
Received: 01/09/12 14:50
Collected by: Client

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Specific Conductance (Field)(grab)	54800		uS/cm	1.0	3.0	120.1	01/08 22:00	01/08 22:00	Client
pH (field)	7.53		units	0.1	0.3	150.1	01/08 22:00	01/08 22:00	Client
Temperature (Field)	21.7		Degree C	1	3	170.1	01/08 22:00	01/08 22:00	Client
Specific Conductance (grab)	52800		uS/cm	1.0	3.0	120.1	01/11 10:55	01/11 10:55	DGK
Chloride	19500		mg/L	55.00	165.00	300.0	01/10 14:50	01/10 14:50	DGK
Sulfate	2820		mg/L	53.50	160.50	300.0	01/10 14:50	01/10 14:50	DGK
Nitrogen (Ammonia) as N	0.134*		mg/L	0.01	0.03	350.1	01/09 17:31	01/09 17:31	CEB
Nitrogen (Kjeldahl) as "N"	0.18	I	mg/L	0.070	0.210	351.2	01/10 10:00	01/10 13:43	MSG
Total Dissolved Solids (TDS)	35800		mg/L	1.00	3.00	SM 2540C	01/10 11:00	01/11 14:11	TBL

* * Matrix spikes outside recovery limits

Unless indicated, soil results are reported based on actual (wet) weight basis.

Analytes not currently NELAC certified denoted by ~.

Work performed by outside (subcontract) labs denoted by Cert.ID in Analyst Field.

Results relate only to this sample.

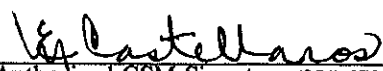
QC=Qualifier Codes as defined by DEP 62-160

U=Analyzed for but not detected.

Q=Sample held beyond accepted holding time.

I=Value is between MDL and PQL.

J=Estimated value.


 Authorized CSM Signature (954) 978-6400
 Florida-Spectrum Environmental Services, Inc.
 Certification # E86006

Florida-Spectrum Environmental Services, Inc.
 1460 W. McNab Road, Fort Lauderdale, FL 33309

Pembroke Laboratory
 528 Gooch Rd.
 Fort Meade, FL 33841


Big Lake Laboratory
 610 North Parrot Ave.
 Okeechobee, FL 34972

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Spectrum Laboratories
 630 Indian St.
 Savannah, GA 31401

All NELAP certified analyses are performed in accordance with Chapter 64E-1 Florida Administrative Code, which has been determined to be equivalent to NELAC standards. Analyses certified by programs other than NELAP are designated with a "~".

FPL-005B-393

SUBMISSION # 1201-193 Logged in LIMS by <u>NA</u> CSM assigned _____				CHAIN OF CUSTODY RECORD				DUE DATE Requested RUSH RESERVATION # Rush Surcharges apply			
				<input type="checkbox"/> 1460 W. McNab Road Ft Laud. FL 33309 <input type="checkbox"/> 630 Indian Street Savannah, GA 31401 <input type="checkbox"/> 528 Gooch Road Fort Meade, FL 33841 <input type="checkbox"/> 610 Parrot Ave. N, Okeechobee, FL 34972		Tel: (954) 978-6400 Tel: (912) 238-5050 Tel: (863) 285-8145 Tel: (863) 763-3336		Fax: (954) 978-2233 Fax: (912) 234-4815 Fax: (863) 285-7030 Fax: (863) 763-1544			
		Original-Return w/report		Yellow-Lab File Copy		Pink - Sampler Copy					
Report to: (company name) <u>LAYNE CHRISTENSEN CO.</u>				Report to Address: <u>5061 LUCKET RD, FT MYERS, FL 33905</u>							
Invoice to: (company name) <u>LAYNE CHRISTENSEN CO</u>				Purchase Order # _____		Invoice to Address: " " " " " "					
Project Name and/or Number <u>TURKEY POINT EXPLORATORY WEL- EW-1 - Pocket Test PT-9</u>				Site Location: <u>FPL TURKEY POINT, HOMESTEAD, FL</u>							
Project Contact: <u>CRAIG BRUEGER</u>				Phone: <u>239-275-1029 / 239-275-1025</u>		Fax: _____				Email: <u>CJBRUEGER@LAYNECHRISTENSEN.COM</u>	
Sampler Name: (printed) _____				Affiliation: _____		Sampler Signature _____					

ORDER # <small>Lab Control Number</small>	Sample ID	Date Sampled	Time Sampled	Matrix	Bottle & Pres.	Number of Containers Received & NELAC Letter Suffixes # A-?	Analysis Required								Field Tests				
							DW GW S SED HW BIO SEA OIL X AIR	Combo Codes	CHLORIDE	SULFATE	CO ₃	NO ₃	TKN	NH ₃	TEMP °C	PH	COND	CHLOR	
1	2108 EW-1-PT-9 (21058-21080)	1/8/12	2260	CW	SU		1	1								21.7	7.53	54800	
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Special Comments: "I waive NELAC protocol" (sign here) > _____				Total		Signature _____ Affiliation _____ Date/Time _____			
Deliverables: _____				QA/QC Report Needed? Yes No (additional charge)		1 Relinquished by: <u>Sam H Duell</u> <u>1/9/2012 11:00</u>			
Sample Custody & Field Comments Temp as received <u>4</u> C Custody seals? Y <u>4</u> N FIELD TIME: Sampling _____ hrs Pick-Up _____ hrs Misc. Charges _____				Bottle Type A-liter amber B-Bacteria bag/bottle F-500 ml O-125 ml L-liter bottle S4-4 oz soil jar / S8-8 oz soil jar T-250 ml V-40 ml vial W-wide mouth X-other TED-Tedlar Air Bag Additional Bottle Types B-brown liter plastic		Preservatives A-ascorbic acid P-H3PO4 C-HCL S-H2SO4 Cu-CuSO4 T-Na2S2O3 H-HNO3 U-Unpreserved M-MCAB N-NaOH Z-zinc acetate NH4-NH4CL Additional Preservatives Hex-Hex Cr Buffer EDA-Ethylene Diamine		1 Received by: <u>Aracelio Piffener</u> <u>1-9-2012 11:05</u>	
								2 Relinquished by: <u>Aracelio Piffener</u> <u>1-9-12 14:50</u>	
								2 Received by: <u>Aracelio Piffener</u> <u>1-9-12 14:50</u>	
								3 Relinquished by: <u>Duell</u> <u>1-9-12 14:50</u>	
								3 Received by: _____	
www.flenviro.com						COC Page _____ of _____			



Report To:
Craig Brugger
Layne Christensen Co-FL
5061 Luckett Road
Fort Myers, FL 33905

Page 1 of 2
Report Printed: 02/09/12
Submission # 1202000207
Order # 4974

Project: Turkey Point EW-1
Site Location: Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: EW-1-PT-16 (2220-2242 ft)
Collected: 01/28/12 14:20
Received: 01/30/12 15:00
Collected by: Client

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Chloride	19800		mg/L	55.00	165.00	300.0	02/08 18:16	02/08 18:16	DGK
Total Dissolved Solids (TDS)	39300	Q	mg/L	1.00	3.00	SM 2540C	02/08 16:20	02/09 12:27	TBL

Unless indicated, soil results are reported based on actual (wet) weight basis.

Analytes not currently NELAC certified denoted by -.
Work performed by outside (subcontract) labs denoted by Cert.ID in Analyst Field.
Results relate only to this sample.
QC=Qualifier Codes as defined by DEP 62-160
U=Analyzed for but not detected.
Q=Sample held beyond accepted holding time.
I=Value is between MDL and PQL.
J=Estimated value.


Authorized CSM Signature (954) 978-6400
Florida-Spectrum Environmental Services, Inc.
Certification # E86006

Florida-Spectrum Environmental Services, Inc.
1460 W. McNab Road, Fort Lauderdale, FL 33309

Pembroke Laboratory
528 Gooch Rd.
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Big Lake Laboratory
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Okeechobee, FL 34972
www.flenviro.com

Spectrum Laboratories
630 Indian St.
Savannah, GA 31401

All NELAP certified analyses are performed in accordance with Chapter 64E-1 Florida Administrative Code, which has been determined to be equivalent to NELAC standards. Analyses certified by programs other than NELAP are designated with a "-".

Report To:
Craig Brugger
Layne Christensen Co-FL
5061 Luckett Road
Fort Myers, FL 33905

Page 2 of 2
Report Printed: 02/09/12
Submission # 1202000207
Order # 4975

Project: Turkey Point BW-1
Site Location: Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: EW-1-PT-18 (2478-2500 ft) ^{19 DM}
Collected: 01/30/12 05:30
Received: 01/30/12 15:00
Collected by: Client

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Chloride	19000		mg/L	55.00	165.00	300.0	02/08 18:16	02/08 18:16	DGK
Total Dissolved Solids (TDS)	36800	Q	mg/L	1.00	3.00	SM 2540C	02/08 16:20	02/09 12:28	TBL

Unless indicated, soil results are reported based on actual (wet) weight basis.

Analytes not currently NELAC certified denoted by ~.
Work performed by outside (subcontract) labs denoted by Cert.ID in Analyst Field.
Results relate only to this sample.
QC=Qualifier Codes as defined by DEP 62-160
U=Analyzed for but not detected.
Q=Sample held beyond accepted holding time.
I=Value is between MDL and PQL.
J=Estimated value.


Authorized CSM Signature (954) 978-6400
Florida-Spectrum Environmental Services, Inc.
Certification # E86006

1202-207

Re-log!

Rush: MEC4633

Due: 2/9/12

SUBMISSION #		CHAIN OF CUSTODY RECORD						DUE DATE Requested								
1201-791		<input type="checkbox"/> 1460 W. McNab Road Ft. Land. FL 33309 <input type="checkbox"/> 630 Indian Street Savannah, GA 31401 <input type="checkbox"/> 528 Gooch Road Fort Meade, FL 33841 <input type="checkbox"/> 610 Parrot Ave. N, Okaloosa, FL 34972						Tel: (954) 978-6400 Tel: (912) 238-5050 Tel: (863) 285-8145 Tel: (863) 763-3336								
Logged in LIMS by CSM assigned		Florida Spectrum LABORATORY SERVICES, INC.						Fax: (954) 978-2233 Fax: (912) 234-4815 Fax: (863) 285-7030 Fax: (863) 763-1544								
Report to:		Original-Return w/report						Yellow-Lab File Copy								
(company name) LAMME CHRISTENSEN COMPANY 4 Invoice to: (company name) LAMME CHRISTENSEN COMPANY 4 Project Name and/or Number TURKEY POINT EW-1 Project BROCK ALLEN Contact CLAY BRUGGER Sampler Name: (printed)		Address: 5061 LUCKETT ROAD, FORT MYERS, FL 33905 Invoice to: Address: 5061 LUCKETT ROAD, FORT MYERS, FL 33905 Site Location: TURKEY POINT, HOMESTEAD, FL 33035 Phone: 239.275.1024 Email: CJBROCK@LAMMECHRISTENSEN.COM 239.275.1025 Fax:						Rush Reservations apply								
Purchase Order #		Sampler Signature														
Affiliation:																
ORDER #	Sample ID	Date Sampled	Time Sampled	Matrix	Bottle & Pres.	Number of Containers Received & NELAC Letter Suffixes	Analysis Required				Field Tests					
Lab Control Number				DW SW GW WW S SED HW BIO SEA OIL X AIR	Combo Codes	#	Chloride	DOC	TEH	NH3	TDS	Chloride	TEMP	PH	COND	CHLOR
3918	EW-1-PT-18 (2.320-2.342 ft)	1-30-12	14:20	GW	SU	2	1	1			✓	4974	24.9	7.62	54.50	X
3919	EW-1-PT-18 (2.478-2.500 ft)	1-30-12	05:30	GW	SU		1	1			✓	4975	24.8	7.62	54.50	X
RUSH																
Special Comments: Re-test for TDS, Cl as per Client Request 2/9/12						Total										
"I waive NELAC protocol" (sign here)																
Delivery to:						QA/QC Report Needed?										
Sample Custody & Field Comments						Bottle Type		Preservatives								
Temp as received						A-1 liter amber		A-scorbic acid								
Custody seals?						B-Bazette bag/bottle		C-HCL								
FIELD TIME:						F-500 ml		Cu-CuSO4								
Sampling						L-liter bottle		E-HNO3								
						S-4 oz soil jar / 50-8 oz soil jar		M-MCAB								
						T-250 ml		N-NaOH								
						V-40 ml vial		Z-zinc acetate								
						W-wide mouth		NH4-NH4CL								
						X-other		Additional Preservatives								
Pick-Up						TED-Tedlar Air Bag		Hex-Flex Cr Buffer								
Misc. Charges						Additional Bottle Types		EDA-Bisphenol Diamine								
						B-brown filter plastic										
								www.flenviro.com								
								COC Page of								

Appendix R
34-Inch and 24-Inch Casing
Seat Recommendations
(text only)



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110
Jupiter, Florida 33458
Phone: 561-891-0763
Fax: 561-623-5469

July 20, 2011

MHCDEP-11-0302

Mr. Joseph May, P.G.
Florida Department of Environmental Protection
400 N. Congress Ave, Suite 200
West Palm Beach, FL 33401

**RE: Florida Power & Light Company Turkey Point Units 6 & 7 Exploratory Well
Project; Permit #0293962-001-UC
Intermediate Casing Setting Depth Recommendation**

Dear Mr. May:

The purpose of this letter is to provide you with a recommendation for the 34-inch diameter intermediate casing setting depth for exploratory well EW-1 at the Florida Power & Light Company (FPL) Turkey Point Units 6 & 7 exploratory well project. The interpreted data presented below is provided to justify our recommendation for the intermediate casing setting depth of 1,535 feet below pad level (bpl). This recommendation, hereby submitted on behalf of FPL, is provided for your review and Technical Advisory Committee (TAC) approval.

Background

Construction of exploratory well EW-1 began on May 11, 2011. A 54-inch diameter casing was installed to a depth of 255 feet bpl to isolate the Biscayne Aquifer and unconsolidated sediments from subsequent drilling activities. A 44-inch casing was installed to a depth of 1,090 feet bpl and cemented to surface to isolate the swelling clays of the Hawthorn Group from subsequent drilling activities. A 12-1/4 inch pilot hole was then drilled below the base of the 44-inch diameter casing to a depth of 1,655 feet bpl.

EW-1 Testing and Data Summary

Drill cutting samples were collected at 10-foot intervals during pilot hole drilling. Each cutting sample was described in detail to develop a lithologic log of EW-1. Pilot hole water samples were collected at approximately 90-foot intervals during reverse-air drilling pilot hole. Pilot hole water samples were analyzed for specific conductance, chlorides, total dissolved solids (TDS), ammonia, and total kjeldahl nitrogen (TKN). Deviation surveys were performed at approximately 90-foot intervals while pilot hole drilling. Geophysical logs conducted on the pilot hole below the base of the 44-inch diameter casing include caliper, gamma ray, spontaneous potential, dual-induction, borehole compensated sonic, flowmeter, fluid specific conductance, and temperature. Flowmeter, fluid conductivity and temperature logs were performed under static and dynamic conditions. The remaining logs

were performed under static conditions. Geophysical log data was used to develop an estimate of the depth of the base of the Underground Source of Drinking Water (USDW). Packer testing was performed on the intervals from 1,505 to 1,535 feet bpl, 1,400 to 1,430 feet bpl, 1,225 to 1,285 feet bpl and 1,102 to 1,162 feet bpl to confirm the location of the base of the USDW. A water sample was collected at the end of each packer test and analyzed for specific conductance, chlorides, TDS, ammonia, and TKN.

Drill Cutting Samples

The drill cuttings from the pilot hole below the 44-inch casing consist primarily of limestone, dolomitic limestone and dolomite. Table 1 provides a summary of the drill cuttings description. In general, the interval from 1,090 feet (base of the 44-inch diameter casing) to the base of the pilot hole (1,655 feet bpl) can be divided into two intervals. A detailed lithologic log of the drill cuttings below the 44-inch diameter casing is provided in Attachment A. The drill cutting samples are typical of the Floridan Aquifer.

Table 1. Generalized Lithologic Description of Drill Cuttings

Interval (feet bpl)	Generalized Description
1,090 – 1,270	Well indurated, interbedded, fine grained limestone, dolomitic limestone and dolomite
1,270 – 1,650	Poorly to well indurated, fine grained limestone

Deviation Survey Data

Deviation surveys were performed at approximately 90-foot intervals on the pilot hole below the base of the 44-inch diameter casing to measure the plumbness of the hole. The deviation survey data is summarized in Table 2, below.

Table 2. Deviation Survey Summary Table

Depth (feet bpl)	Inclination (degrees from vertical)
974	0.5
1,064	0.5
1,154	0.6
1,244	0.3
1,334	0.4
1,424	0.4
1,514	0.5
1,604	0.5

Review of the deviation survey data indicates that the drilled borehole is very near vertical in each measurement with the range of measurements from 0.3 to 0.6 degrees out of vertical.

Pilot Hole Water Quality Data

Pilot hole water samples were collected at approximately 90-foot intervals during reverse-air drilling. Each sample underwent specific conductance, chlorides, TDS, ammonia, and TKN analyses. The pilot hole specific conductance, chlorides, and TDS data was evaluated to identify increases in salinity and to assist in the identification of the base of the USDW. Even though the pilot hole water quality samples represent water which is a combination of native water and water from the drilling process as described below, the sample results can be used to assist in the identification of the base of the USDW. The drilling process for EW-1 uses a closed circulation system in which drilling water is present in the pilot hole at all times. In addition a large volume of fresh water was introduced to the closed circulation system at the beginning of pilot hole reverse-air drilling. Adding fresh water at the beginning of reverse-air drilling is a typical process in the drilling of deep underground injection control wells.

Table 3 provides a summary of the pilot hole water quality data. A copy of the water quality sample analytical report is provided in Attachment B. Figure 1 provides a graph of pilot hole water sample chloride, TDS, and specific conductance relative to sample depth. The pilot hole water quality was relatively fresh between the depths of 1,100 and 1,255 feet bpl due to the high percentage of fresh water added to the closed circulation system. A gradual trend of increasing chloride and TDS concentration and specific conductance is apparent from a depth of 1,255 feet bpl to 1,435 feet bpl. This trend is an indication of groundwater with relatively higher chloride, TDS, and specific conductance mixing with closed circulation drilling fluids. A significant increase in chloride concentration, TDS concentration and specific conductance was observed between 1,435 and 1,525 feet bpl. This suggests that a productive interval containing relatively saline water is present between 1,435 and 1,525 feet bpl and that at least some of the sample collected at a depth of 1,525 feet bpl consists of this relatively saline water. The trend of elevated TDS, chloride and specific conductance remains consistent from the shallowest to the deepest sample collected, however, there is some variation in the actual results as expected due to the addition of fresh water at the initiation of reverse-air drilling.

Table 3. Pilot Hole Water Quality Summary

Sample Date	Sample Depth (feet bpl)	Specific conductance (umhos/cm)	TDS (mg/L)	Chloride (mg/L)	Ammonia (mg/L)	TKN (mg/L)
6/30/2011	1,100	1,228	610	61.3	0.04	0.55
7/1/2011	1,190	1,177	768	85.5	0.06	0.59
7/1/2011	1,255	1,167	776	97.3	0.03	0.56
7/1/2011	1,345	2,420	1,428	551	0.06	0.42
7/1/2011	1,435	2,900	1,736	640	0.08	0.44
7/2/2011	1,525	6,760	4,168	2,045	0.09	0.35
7/3/2011	1,615	5,660	3,548	1,670	0.08	0.45

Figure 2 provides a graph of ammonia and TKN data relative to depth. Review of the data indicates the pilot hole water samples have low concentrations typical of the Floridan Aquifer mixed with added fresh water at the beginning reverse-air drilling.

In summary, the pilot hole water quality data suggests the presence of intervals producing brackish water between the depths of 1,100 and 1,255 feet bpl. The data also suggests that there is a significant increase in salinity between the depths of 1,435 and 1,525 feet bpl and that the base of the USDW may be located within this interval.

Geophysical Logging Data

Geophysical logging of the interval from 1,090 to 1,655 feet bpl was conducted to provide geologic and hydrogeologic data for the EW-1 site. Logs conducted include caliper, gamma ray, spontaneous potential, dual induction, borehole compensated sonic, flowmeter, fluid conductivity, and temperature. All logs were performed under static conditions. The flowmeter, fluid conductivity and temperature logs were also performed under dynamic conditions. The dynamic flowmeter, fluid conductivity and temperature logs were performed in two phases due to the presence of kill material (a mix of barite and bentonite) over the interval from 1,560 to 1,655 feet bpl. The barite/bentonite mixture impacted the geophysical log data over the interval from 1,560 to 1,655 feet bpl. Therefore, the drilling contractor installed an open-ended drill pipe to the base of the borehole and pumped the barite/bentonite mixture from the well. The drill pipe was then pulled up to a depth of 1,525 feet bpl and the interval from 1,525 to 1,655 feet bpl underwent flowmeter, fluid conductivity and temperature logging. Copies of the logs are provided in Attachment C.

The interval from 1,090 to 1,655 feet bpl can generally be divided into two intervals. The interval from 1,090 to 1,300 feet bpl is characterized by a generally small diameter borehole that ranges between 12.25 and 14 inches, moderately high gamma ray activity ranging from approximately 15 to 65 American Petroleum Institute (API) units, moderately high and variable resistivity, and a highly variable and moderately long acoustic travel time. Fluid conductivity and temperature are fairly stable through this interval. The flowmeter log, in combination with the fluid conductivity and temperature logs suggests that most of the water production is occurring at the very base of this interval and below this interval. These data are interpreted to indicate the interval from 1,090 to 1,300 feet bpl has a varying lithology and porosity. The small diameter borehole suggests the rocks making up this interval are well indurated. The moderately high resistivity as indicated by the dual induction log indicates this interval contains water with less than 10,000 mg/L TDS. A log-derived TDS curve was generated from the data and is included in Attachment C. The log-derived TDS curve also suggests this interval contains water with less than 10,000 mg/L TDS.

The interval from 1,300 to 1,655 feet bpl is characterized by a larger diameter borehole that ranges from approximately 14 to 18 inches, low to occasionally moderate gamma ray activity, a moderate resistivity that decreases to a low resistivity with depth, and a less variable and shorter sonic travel time when compared to the interval above. The log-derived TDS curve indicates the base of the USDW is located within this interval at a depth of approximately 1,450 feet bpl. Review of the flowmeter, fluid conductivity and temperature logs suggests there are productive intervals at depths of approximately 1,380, 1,470, and 1,525 feet bpl. These data are interpreted to represent an interval that contains relatively soft material that is susceptible to washing out compared to the interval above. The relatively stable sonic travel time suggests the lithology of this interval is less variable than that of the interval above. The decreasing resistivity shown on the dual-induction log suggests increasing salinity with depth.

Packer Testing Data

Packer testing was conducted on the intervals from 1,505 to 1,535 feet bpl, 1,400 to 1,430 feet bpl, 1,225 to 1,285 feet bpl and 1,102 to 1,162 feet bpl to determine water quality and hydraulic characteristics of the tested intervals. Water samples were collected at the end of each packer test and analyzed for specific conductance, chlorides, TDS, ammonia, and TKN.

Water level of the test interval was measured and recorded during packer testing. Table 4 provides a summary of packer test pumping rate and water level drawdown data. Figures 3 through 6 provide an interpreted graph of water level drawdown data for each packer test.

Please note, the information listed in Tables 4 and 5 is listed in the order in which the packer tests were performed (deepest to shallowest).

Table 4. Straddle Packer Test Performance Data Summary

Test #	Test Interval (ft. bpl)	Pumping Rate (gpm)	Drawdown (feet)	Specific Capacity (gpm/foot)
1	1,505 – 1,535	76	31.3	2.43
2	1,400 – 1,430	77	40.6	1.90
3	1,225 – 1,285	78	33.2	2.35
4	1,102 – 1,162	16	161	0.10

The packer test water level data indicates that the packer test #1 through #3 test intervals are productive and are not confining in nature. The test interval for packer test #4 is much less productive than the previous three test intervals.

Water quality data for water samples collected at the end of each packer test are summarized in Table 5. Analytical results for the water sample collected at the end of packer test #4 are not yet available and will be provided to the Department when they become available. A copy of the water quality analytical reports for packer tests #1 through #3 is provided in Attachment D.

Table 5. Straddle Packer Test Water Quality Data Summary

Test #	Test Interval (ft. bpl)	Specific Conductance (umhos/cm)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)	Ammonia (mg/L)	Temperature (Celsius)	pH (standard units)
1	1,505 – 1,535	22,420	7,990	13,890	0.22	0.18	25.8	7.55
2	1,400 – 1,430	9,850	3,230	5,780	0.13	0.11	24.4	7.55
3	1,225 – 1,285	5,340	1,500	3,120	0.16	0.08	26.8	7.80

Based on the packer tests water sample analytical data, the base of the USDW is located between the depths of 1,430 and 1,505 feet bpl. This is consistent with the log-derived TDS curve, which showed the base of the USDW at a depth of 1,450 feet bpl.

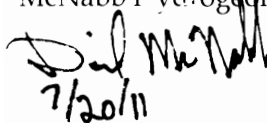
Summary

Based on interpretation of the data collected and presented herein, it is recommended to set the 34-inch intermediate casing of EW-1 to a depth of 1,535 feet bpl. The proposed casing seat will result in the intermediate casing being set to a depth below the base of the USDW in accordance with the requirements of Rule 62-528, F.A.C. Interpreted packer test data presented above indicates the base of the USDW is located between 1,430 and 1,505 feet bpl. Interpretation of geophysical log data provides a more precise estimate of the location of the base of the USDW at 1,450 feet bpl. Analysis of the sonic log indicates the formation at 1,535 feet bpl is mechanically sound and will serve to allow a good seal at the base of the casing string.

Should you have any questions regarding the application, please contact me at (561) 891-0763 or Matthew Raffenberg (FPL) at (561) 691-2808.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



7/20/11

David McNabb, P.G.

Attachments: Figures

- A - EW-1 Lithologic Log
- B - Pilot Hole Water Quality Analytical Report
- C - EW-1 Geophysical Logs
- D - Packer Tests #1 Through #3 Water Quality Analytical Reports

Cc: George Heuler/FDEP-Tallahassee
Steve Anderson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberland/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110
Jupiter, Florida 33458
Phone: 561-891-0763
Fax: 561-623-5469

February 21, 2012

MHCDEP-12-0065

Mr. Joseph May, P.G.
Florida Department of Environmental Protection
400 N. Congress Ave, Suite 200
West Palm Beach, FL 33401

**RE: Florida Power & Light Company Turkey Point Units 6 & 7 Exploratory Well
Project; Permit #0293962-001-UC
Final Casing Setting Depth Recommendation**

Dear Mr. May:

The purpose of this letter is to provide the Florida Department of Environmental Protection (FDEP) with a recommendation for the 24-inch diameter final casing setting depth for exploratory well EW-1 at the Florida Power & Light Company (FPL) Turkey Point Units 6 & 7 exploratory well project. The data and analysis presented below are provided to justify our recommendation for the final casing setting depth of 2,980 feet below pad level (bpl). This recommendation, hereby submitted on behalf of FPL, is provided for your review and Technical Advisory Committee (TAC) approval.

Background

Construction of exploratory well EW-1 began on May 11, 2011. A 54-inch diameter casing was installed to a depth of 255 feet bpl to isolate the Biscayne Aquifer and unconsolidated sediments from subsequent drilling activities. A 44-inch casing was installed to a depth of 1,090 feet bpl and cemented to surface to isolate the swelling clays of the Hawthorn Group from subsequent drilling activities. A 34-inch intermediate casing was then installed to a depth of 1,535 feet bpl to isolate the Underground Source of Drinking Water (USDW) from subsequent drilling activities. Testing performed prior to installation of the 34-inch diameter intermediate casing demonstrated that the base of the USDW is located at a depth of approximately 1,450 feet bpl at the EW-1 location.

EW-1 Testing and Data Below the Intermediate Casing Summary

The following is a summary of the drilling and testing activities below the 34-inch diameter intermediate casing. It should be noted that the pilot hole was originally planned to be extended to a depth of 3,500 feet bpl, however, this depth was re-evaluated as a result of field conditions.

Drill cutting samples were collected at 10-foot intervals during pilot hole drilling. Each drill cutting sample was described in detail to develop a lithologic log of EW-1.

Pilot hole water samples were collected at approximately 90-foot intervals during reverse-air drilling the pilot hole. Pilot hole water samples were analyzed for ammonia, chlorides, specific conductance, total dissolved solids (TDS), and total kjeldahl nitrogen (TKN).

Deviation surveys were performed at approximately 60-foot intervals while pilot hole drilling below the intermediate casing. Deviation surveys were performed to measure the plumbness of the borehole.

Geophysical logs performed on the pilot hole include borehole compensated sonic, caliper, dual-induction, gamma ray, flowmeter, fluid specific conductance, spontaneous potential, temperature and video logs. Flowmeter, fluid specific conductivity and temperature logs were performed under static and dynamic conditions. The remaining logs were performed under static conditions. The pilot hole had filled into a depth of 3,232 feet bpl when geophysical logs were performed on the pilot hole.

Ten core samples were collected during the pilot hole drilling process and described to provide information on the confining characteristics of the cored intervals. Each core was described to obtain information regarding the confining characteristics of the cored interval.

Two straddle packer tests and a single, open-ended packer test were performed on the pilot hole before reaming the pilot hole in phases. A 28-inch diameter and 32-inch diameter reaming bit were used to ream the pilot hole to allow straddle packer testing in the large diameter portions of the borehole. Geophysical log data indicated that most of the pilot hole was too large in diameter to perform straddle packer testing with 11-inch diameter packers. A total of three additional straddle packer tests with sleeved packers were successfully performed after a portion of the borehole was reamed. The base of the deepest interval successfully straddle packer tested was 2,500 feet bpl. Test intervals below a depth of 2,500 feet bpl were not successfully isolated with the straddle packers or too much productivity from the test interval occurred.

Following completion of a total of five packer tests and the open-ended packer test, reaming of the borehole with a 32-inch diameter reaming bit was completed to a depth of 2,978 feet bpl. A 12¼-inch diameter bit was then used to clean out the borehole from 2,978 to 3,230 feet bpl in preparation for performing a formation test to verify the presence of the Boulder Zone within this interval. Caliper, gamma ray, and video logging of the borehole were performed just prior to performing the formation test to determine borehole conditions.

A formation test was performed to confirm the presence of the Boulder Zone below a depth of 3,010 feet bpl. Formation testing consisted of installation of a single, open-ended packer at a depth of 3,010 feet bpl and pumping formation water through the packer to gain information on the hydraulic characteristics of the interval from 3,010 to 3,230 feet bpl.

Drill Cutting Samples

The drill cuttings from the pilot hole below the 34-inch casing consist primarily of limestone, dolomitic limestone and dolomite. Table 1 provides a summary of the drill cuttings description. In general, the interval from 1,535 feet (base of the 34-inch diameter casing) to the base of the pilot hole (3,232 feet bpl) can be divided into three intervals. A detailed lithologic log of the drill cuttings below the 34-inch diameter casing is provided in Attachment A. The drill cutting samples are typical of the Floridan Aquifer.

Table 1. Generalized Lithologic Description of Drill Cuttings

Interval (feet bpl)	Generalized Description
1,530 – 2,020	Interbedded limestone, dolomitic limestone and dolomite
2,020 – 2,800	Primarily soft, fine grained dolomitic limestone with only minor amounts of limestone and dolomite
2,800 – 3,265	Dolomitic limestone interbedded with limestone and dolomite

Pilot Hole Water Quality Data

Pilot hole water samples were collected at approximately 90-foot intervals during reverse-air drilling. Each sample underwent analysis for ammonia, chlorides, specific conductance, TDS, and TKN. The pilot hole specific conductance, chlorides, and TDS data was evaluated to verify that the sample depths are located below the base of the USDW. It should be noted that the drilling process for EW-1 uses a closed circulation system in which drilling water is present in the pilot hole at all times. In addition a large volume of fresh water was introduced to the closed circulation system at the beginning of pilot hole reverse-air drilling. Adding fresh water at the beginning of reverse-air drilling is a standard process in the drilling of deep underground injection control wells. This may result in lower chloride, specific conductance and TDS results than expected for native Floridan Aquifer groundwater.

Table 2 provides a summary of the pilot hole water quality data below the base of the 34-inch diameter intermediate casing. A copy of the water quality sample analytical reports is provided in Attachment B. Figure 1 provides a graph of pilot hole water sample chloride, specific conductance and TDS results relative to sample depth. With the exception of three peaks, a general trend of increasing chloride, specific conductance and TDS results with depth is apparent. This trend is due to the relatively high percentage of fresh water added to the closed circulation system at the beginning of reverse-air drilling. As the pilot hole drilling progressed, the pilot hole water consisted of a greater percentage of native groundwater than it did at shallower depths. Occasional peaks in chloride, specific conductance and TDS results can be attributed to the closed circulation reverse-air drilling method.

Table 2. Pilot Hole Water Quality Summary

Sample Date	Sample Depth (feet bpl)	Specific conductance (umhos/cm)	TDS (mg/L)	Chloride (mg/L)	Ammonia (mg/L)	TKN (mg/L)
8/13/2011	1,704	9,500	5,688	3,120	U	0.56
8/15/2011	1,794	14,670	9,260	5,010	U	0.57
8/16/2011	1,884	20,400	13,520	7,180	U	0.38
8/17/2011	1,974	25,190	16,910	9,160	U	0.22
8/19/2011	2,064	37,000	24,280	14,400	U	0.71
8/21/2011	2,154	30,000	18,525	11,000	U	0.32
8/21/2011	2,244	32,100	16,967	11,500	U	0.17

Sample Date	Sample Depth (feet bpl)	Specific conductance (umhos/cm)	TDS (mg/L)	Chloride (mg/L)	Ammonia (mg/L)	TKN (mg/L)
8/23/2011	2,334	60,100	40,400	26,000	U	0.44
8/25/2011	2,424	38,200	23,200	14,200	U	0.17
8/26/2011	2,514	39,130	26,867	14,200	U	0.18
8/29/2011	2,604	48,400	32,767	17,400	U	0.13
9/4/2011	2,694	63,800	41,500	27,200	U	0.12
9/4/2011	2,784	59,600	40,400	25,800	U	0.12
9/5/2011	2,874	52,200	34,000	25,600	U	0.25
9/5/2011	2,964	47,240	31,200	17,900	U	0.28
9/6/2011	3,054	50,000	32,000	19,500	U	0.25
9/6/2011	3,144	49,900	33,100	19,500	U	0.47
10/23/2011	3,234	52,700	40,250	21,100	U	0.54

U = undetected

Figure 2 provides a graph of ammonia and TKN results data relative to depth. Review of the data indicates the pilot hole water samples have low concentrations of ammonia and TKN and that is typical of the Floridan Aquifer water quality.

In summary, the pilot hole water quality data indicates that the native groundwater below the base of the 34-inch diameter intermediate casing is brackish to saline and is located below the base of the USDW.

Deviation Survey Data

Deviation surveys were performed at approximately 60-foot intervals on the pilot hole and reamed hole below the base of the 34-inch diameter casing to measure the plumbness of the hole. A table summarizing the deviation survey data from below the 34-inch diameter casing is provided in Attachment C.

Review of the deviation survey data indicates that the drilled borehole is straight and very near vertical in each measurement with the range of measurements from 0.0 to 0.5 degrees out of vertical.

Geophysical Logging Data

Geophysical logging of the pilot hole interval from 1,535 to 3,232 feet bpl was conducted to provide geologic and hydrogeologic data for the EW-1 site. Logs conducted include caliper, gamma ray, spontaneous potential, dual induction, borehole compensated sonic, video, flowmeter, fluid conductivity, and temperature. All logs were performed under static conditions. The flowmeter, fluid conductivity and temperature logs were also performed under dynamic conditions. Copies of the pilot hole geophysical logs were provided in weekly construction summary #31. An electronic copy of the pilot hole geophysical logs (with the exception of the video log) is provided in Attachment D. A copy of the caliper log and hard copies both the caliper log and the video log performed just prior to formation test is also provided in Attachment D.

The interval from 1,535 to 3,232 feet bpl can be divided into three intervals. The interval from 1,535 to 1,980 feet bpl is characterized by a variable diameter borehole that ranges between approximately 34 and 47 inches, low to moderate, but variable gamma ray activity

ranging from approximately 3 to 30 American Petroleum Institute (API) units, moderately low and variable resistivity, and a highly variable acoustic travel time. Fluid conductivity and temperature are fairly consistent through this interval. The flowmeter log, in combination with the fluid conductivity and temperature logs suggests that most of the water production is occurring at the base of this interval and below this interval. Review of the geophysical logs indicates the interval from 1,535 to 1,980 feet bpl has a varying lithology and porosity. The variable diameter borehole suggests the rocks making up this interval vary from soft to well indurated. The moderately low resistivity as indicated by the dual induction log indicates this interval contains water with greater than 10,000 mg/L TDS. This interval has both confining and productive characteristics and does not make up the primary confinement at the site.

The interval from 1,980 to 3,020 feet bpl is characterized by borehole diameter that ranges from 12¼ to 46 inches, low gamma ray activity, a moderately low resistivity, and a less variable and short acoustic travel time (when compared to the interval above). A number of zones with high acoustic travel time between 2,915 and 3,010 feet bpl indicates there are likely porous zones within the interval from 2,915 to 3,010 feet bpl. Review of the flowmeter, fluid conductivity and temperature logs suggests there are no significant water producing zones between 1,980 and 2,980 feet bpl. These data represent that almost all the interval between 1,980 and 2,980 feet bpl consists of relatively soft material that is susceptible to washing out compared to the interval above. The relatively stable and short acoustic travel time suggests the lithology of this interval is less variable than that of the interval above and has a low porosity. The interval from 1,980 to 2,915 feet bpl is confining in nature and makes up the primary confinement at the site. The interval from 2,915 to 3,020 feet bpl contains zones that are porous and the 2,915 feet bpl defines the top of the injection zone.

The interval from 3,020 to 3,232 feet bpl is characterized by a very large hole diameter, low gamma ray activity, a moderately low resistivity that decreases to a very low resistivity with depth, and highly variable and short acoustic travel time. The sonic travel time data below a depth of 3,120 feet bpl is artificially high due to the large hole diameter and does not reflect the true acoustic travel time for the formation. Review of the flowmeter, fluid conductivity and temperature logs suggests there is fluid production from the top of this interval. This interval represents the Boulder Zone at the site and is not confining in nature.

Core Data

Ten core samples were collected during the pilot hole drilling process to assist in the evaluation of the confining nature of the strata between the base of the USDW and the top of the injection zone. Table 3 provides a summary of the cored intervals and core recovery.

Table 3. Core Summary

Core Number	Cored Interval (feet bpl)	Length Cored (feet)	Length of Core Recovered (feet)	Percentage of Recovery	Date Collected
1	1,721.5 – 1,734.5	13.0	3.3	25.4%	8/14/2011
2	2,026.0 – 2,040.0	14.0	12.0	85.7%	8/18/2011
3	2,110.0 – 2,124.0	14.0	2.0	14.3%	8/20/2011
4	2,288.3 – 2,302.3	14.0	13.0	92.9%	8/21/2011

Core Number	Cored Interval (feet bpl)	Length Cored (feet)	Length of Core Recovered (feet)	Percentage of Recovery	Date Collected
5	2,396.0 – 2,410.0	14.0	6.1	43.6%	8/25/2011
6	2,576.0 – 2,578.0	2.0	0.9	45.8%	8/27/2011
7	2,580.0 – 2,590.0	10.0	0.8	8.0%	8/28/2011
8	2,638.0 – 2,652.0	14.0	8.5	60.7%	8/31/2011
9	2,652.0 – 2,666.0	14.0	5.2	37.1%	9/1/2011
10	2,666.0 – 2,679.0	13.0	12.4	95.4%	9/3/2011

Core recovery ranged from 8% to 95.4%. All cores consisted of dolomitic limestone and/or limestone. Each of the cores collected below a depth of 2,026 have low porosity and permeability and show good confining characteristics. The core collected at a depth of 1,721.5 to 1,734.5 feet bpl have moderate permeability and less confining characteristics than the cores collected at greater depths. A detailed description of the core samples is provided in Attachment E.

Packer Testing Data

Straddle packer testing was successfully conducted on five intervals between 1,930 and 2,500 feet bpl to determine water quality and hydraulic characteristics of the tested intervals. Water level of the test interval was measured and recorded during packer testing. Water samples were collected at the end of each packer test and analyzed for ammonia, chlorides, pH, specific conductance, sulfate, TDS, temperature, and TKN. A single, open-ended packer test was performed on the interval from 3,020 to 3,230 feet bpl to gain information on the hydraulic characteristics of the interval below 3,020 feet bpl.

Additional straddle packer tests were attempted, however, were terminated due to the straddle packers not isolating the test interval or too much productivity from the test interval. It should be noted that after several terminated straddle packer tests, the straddle packers were inflated inside the 34-inch diameter casing and water was pumped from between the packers. This resulted in a water level decrease inside the 34-inch diameter casing above the packers. The only way for the water level above the upper packer to have decreased when pumping from between the straddle packers is if the upper packer did not seal against the casing wall, allowing water to flow past the upper packer, proving that the straddle packers were indeed not isolating the test interval in at least some of the straddle packer tests that were terminated.

Table 4 provides a summary of packer test data. Figures 3 through 8 provide an interpreted graph of water level drawdown data for each successfully performed packer tests.

The packer test water level data indicates that the packer test #5, #8, #9, #17 and #19 test intervals are confining in nature. The specific capacity of these confining straddle packer tests ranged from 0.003 gpm/foot to 0.24 gpm/foot. The test interval for packer test #7 is very productive and was performed to assist in determining if the test interval is located within the Boulder Zone. The results of packer test #7 suggest the test interval is located within the Boulder Zone.

Water quality data for water samples collected at the end of each packer test are summarized in Table 4. As shown in Table 4, the TDS of the water sample collected at the end of each of the packer tests is greater than 10,000 mg/L, demonstrating that each test interval is not located within the USDW. A copy of the water quality analytical reports for each of the performed packer tests is provided in Attachment F.

Formation Test Data

A formation test was performed to confirm the presence of the Boulder Zone below a depth of 3,010 feet bpl. The formation test consisted of the installation of a single, open-ended packer installed to a depth of 3,010 feet bpl, collection of background and recovery pressure data, and collection of pumping rate and pumping pressure data. A volume of approximately 160,000 gallons of formation water pumped from EW-1 was stored in frac tanks at the site and provided the water source for the test. Pumping rates averaged 1,625 gpm and ranged from approximately 1,200 gpm to 1,625 gpm during the pumping portion of the formation test. A transducer was used to collect pressure data at surface and a memory gauge installed to a depth of 3,000 feet bpl was used to collect pressure near the top of the test interval. An electronic copy of the formation test pressure and pumping rate data is provided in Attachment G.

Figure 9 presents downhole pressure and pumping rate data for the entire formation test period. Figure 10 presents the surface pressure and pumping data for the entire formation test period. Figures 11 and 12 present downhole and surface pressure data and pumping rate data for the pumping portion of the formation test. An increase of approximately 205 to 220 psi was observed at the surface while pumping at a rate of approximately 1,625 gpm. The large increase in pressure when pumping into the test interval was due to friction related to pumping at this high rate through 3,010 feet of six-inch diameter drill pipe. Review of the formation test data indicates the downhole pressure increased by approximately three to five psi above the static pressure when pumping into the test interval at a rate of approximately 1,625 gpm. The very low downhole pressure increase while pumping at this rate confirms the test interval is located within the Boulder Zone.

Summary

Based on analysis of the data collected and presented herein, it is recommended that the 24-inch final casing of EW-1 be set to a depth of 2,980 feet bpl. The proposed casing seat will result in the final casing being set to a depth that is just above the top of the Boulder Zone. Analysis of geophysical log and straddle packer data suggests the confining interval for EW-1 is present between 1,980 and the top of the injection zone at 2,915 feet bpl. The injection zone present between the depth of 2,915 feet bpl and the base of the borehole at a depth of 3,232 feet bpl. Analysis of the sonic log indicates the formation at a depth of 2,980 feet bpl is mechanically sound and will serve to provide a good seal at the base of the casing string. Analysis of geophysical data collected prior to installation of the intermediate casing indicated the base of the USDW is located at a depth of 1,450 feet bpl.

Should you have any questions regarding the application, please contact me at (561) 891-0763 or Matthew Raffenberg (FPL) at (561) 691-2808.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.


David McNabb, P.G.

Attachments: Figures

- A - EW-1 Lithologic Log
- B - Pilot Hole Water Quality Analytical Reports
- C - Deviation Survey Summary Table
- D - EW-1 Geophysical Logs
- E - Core Descriptions
- F - Packer Tests Water Quality Analytical Reports
- G - Formation Test Data

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

Appendix S

Injection Zone Background Water Quality Laboratory Report



Report To:
 Craig Brugger
 Layne Christensen Co-FL
 5061 Lockett Road
 Fort Myers, FL 33905

Page 1 of 19
Report Printed: 05/17/12
Submission # 1204000308
Order # 13235

Project: Injection Well Pri/Sec DW
Site Location: Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: E-W-1
Collected: 04/11/12 09:20
Received: 04/11/12 13:00
Collected by: Argelio Pifferrer

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
SM5210B BOD	6.78		mg/L	2.0	6.0	SM5210B	04/11 16:00	04/16 16:00	AMM
Coliform, Total	U	U	CFU/100ml	1.0	3.0	9222B	04/11 15:00	04/12 13:45	AMM
Specific Conductance (Field)(grab)	55270		uS/cm	1.0	3.0	120.1	04/11 09:20	04/11 09:20	AP
pH (field)	7.28		units	0.1	0.3	150.1	04/11 09:20	04/11 09:20	AP
Glyphosate	U	U	ug/L	3.55	10.65	547	04/11 14:09	04/11 14:09	RPV
Endothall	U*	U	ug/L	2.72	8.16	548.1	04/18 09:00	04/18 16:33	CEB
549.2 Diquat: 62-550.310(4)(b)				Dilution Factor = 1					
Diquat	U*	U	ug/L	0.4	1.2	549.2	04/16 15:00	04/16 17:22	RPV
Chloride	24000		mg/L	22.00	66.00	300.0	04/11 17:36	04/11 17:36	DGK
Fluoride	U	U	mg/L	8.400	25.200	300.0	04/11 17:36	04/11 17:36	DGK
Nitrate (as N)	U	U	mg/L	7.600	22.800	300.0	04/11 17:36	04/11 17:36	DGK
Nitrate + Nitrite (as N)	U	U	mg/L	7.600	22.800	300.0	04/11 17:36	04/11 17:36	DGK
Nitrite (as N)	U	U	mg/L	4.200	12.600	300.0	04/11 17:36	04/11 17:36	DGK
Ortho-Phosphate (as P)	U	U	mg/L	5.000	15.000	300.0	04/11 17:36	04/11 17:36	DGK
Sulfate	2540		mg/L	21.40	64.20	300.0	04/11 17:36	04/11 17:36	DGK
Nitrogen (Ammonia) as N	U	U	mg/L	0.01	0.03	350.1	04/12 14:54	04/12 14:54	MSG
Nitrogen (Kjeldahl) as "N"	0.11	I	mg/L	0.070	0.210	351.2	04/17 10:00	04/17 13:33	MSG
Nitrogen (Total Organic)	0.11	I	mg/L	0.045	0.135	351/350	04/17 15:30	04/17 15:30	MSG

Florida-Spectrum Environmental Services, Inc.
 1460 W. McNab Road, Fort Lauderdale, FL 33309

Pembroke Laboratory
 528 Gooch Rd.
 Fort Meade, FL 33841

Big Lake Laboratory
 610 North Parrot Ave.
 Okeechobee, FL 34972

Spectrum Laboratories
 630 Indian St.
 Savannah, GA 31401

www.flenviro.com

All NELAP certified analyses are performed in accordance with Chapter 64E-1 Florida Administrative Code, which has been determined to be equivalent to NELAC standards. Analyses certified by programs other than NELAP are designated with a "~".

FPL-005B-414

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Phosphorus, Total as "P"	U	U	mg/L	0.064	0.192	365.4	04/17 10:00	04/17 13:33	MSG
Chemical Oxygen Demand	779		mg/L	70.29	210.87	410.4	04/18 16:46	04/18 16:46	CEB
Total Dissolved Solids (TDS)	36200		mg/L	1.00	3.00	SM 2540C	04/12 08:30	04/13 12:08	RPV
Cyanide, Total	0.004*	I	mg/L	0.002	0.006	SM4500CN-E	04/19 11:00	04/19 15:51	RPV
MBAS Surfactants	U	U	mg/L	0.060	0.180	SM5540C	04/12 14:00	04/12 14:00	DGK
Aluminum	U	U	mg/L	0.00070	0.00210	200.7	04/11	04/11 15:55	IMN
Antimony	U	U	mg/L	0.0028	0.0084	200.7	04/11	04/11 15:55	IMN
Arsenic	U	U	mg/L	0.0012	0.0036	200.7	04/11	04/11 15:55	IMN
Barium	0.025		mg/L	0.00003	0.00009	200.7	04/11	04/11 15:55	IMN
Beryllium	U	U	mg/L	0.00003	0.00009	200.7	04/11	04/11 15:55	IMN
Cadmium	U	U	mg/L	0.00004	0.00012	200.7	04/11	04/11 15:55	IMN
Chromium	0.002	I	mg/L	0.0008	0.0024	200.7	04/11	04/11 15:55	IMN
Copper	U	U	mg/L	0.0002	0.0006	200.7	04/11	04/11 15:55	IMN
Iron	2.813		mg/L	0.0008	0.0024	200.7	04/11	04/11 15:55	IMN
Lead	U	U	mg/L	0.0011	0.0033	200.7	04/11	04/11 15:55	IMN
Manganese	0.104		mg/L	0.00009	0.00027	200.7	04/11	04/11 15:55	IMN
Nickel	0.005		mg/L	0.0002	0.0006	200.7	04/11	04/11 15:55	IMN
Selenium	U	U	mg/L	0.0022	0.0066	200.7	04/11	04/11 15:55	IMN

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Silver	U	U	mg/L	0.0001	0.0003	200.7	04/11	04/11 15:55	IMN
Sodium	11558		mg/L	0.280	0.840	200.7	04/11	04/11 19:49	IMN
Thallium, Total	U	U	mg/L	0.0009	0.0027	200.7	04/11	04/11 15:55	IMN
Zinc	0.010		mg/L	0.00050	0.00150	200.7	04/11	04/11 15:55	IMN
Mercury	U	U	mg/L	0.00007	0.00021	245.1	04/12	04/12 16:48	EN
8011 EDB, DBCP in Surface Waters/GroundWaters			Dilution Factor = 1						
1,2-Dibromo-3-Chloropropane (DBCP)	U	U	ug/L	0.006	0.018	8011	04/13 16:00	04/14 13:46	MD
Ethylene Dibromide (EDB)	U	U	ug/L	0.006	0.018	8011	04/13 16:00	04/14 13:46	MD
8081A Chlorinated Pesticides in Water			Dilution Factor = 1						
4,4-DDD	U	U	ug/L	0.002	0.006	EPA 8081A	04/13 15:55	04/14 15:55	AC
4,4-DDE	U	U	ug/L	0.005	0.015	EPA 8081A	04/13 15:55	04/14 15:55	AC
4,4-DDT	U	U	ug/L	0.004	0.012	EPA 8081A	04/13 15:55	04/14 15:55	AC
a-BHC	U	U	ug/L	0.004	0.012	EPA 8081A	04/13 15:55	04/14 15:55	AC
Aldrin	U	U	ug/L	0.004	0.012	EPA 8081A	04/13 15:55	04/14 15:55	AC
b-BHC	U	U	ug/L	0.004	0.012	EPA 8081A	04/13 15:55	04/14 15:55	AC
Chlordane	U	U	ug/L	0.020	0.060	EPA 8081A	04/13 15:55	04/14 15:55	AC
d-BHC	U	U	ug/L	0.004	0.012	EPA 8081A	04/13 15:55	04/14 15:55	AC
Dieldrin	U	U	ug/L	0.005	0.015	EPA 8081A	04/13 15:55	04/14 15:55	AC

Report To:
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Order # 13235

Project: Injection Well Pri/Sec DW
Site Location: Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: E-W-1
Collected: 04/11/12 09:20
Received: 04/11/12 13:00
Collected by: Argelio Pifferrer

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Endosulfan I	U	U	ug/L	0.005	0.015	EPA 8081A	04/13 15:55	04/14 15:55	AC
Endosulfan II	U	U	ug/L	0.006	0.018	EPA 8081A	04/13 15:55	04/14 15:55	AC
Endosulfan Sulfate	U	U	ug/L	0.003	0.009	EPA 8081A	04/13 15:55	04/14 15:55	AC
Endrin	U	U	ug/L	0.004	0.012	EPA 8081A	04/13 15:55	04/14 15:55	AC
Endrin Aldehyde	U	U	ug/L	0.003	0.009	EPA 8081A	04/13 15:55	04/14 15:55	AC
g-BHC (lindane)	U	U	ug/L	0.004	0.012	EPA 8081A	04/13 15:55	04/14 15:55	AC
Heptachlor	U	U	ug/L	0.006	0.018	EPA 8081A	04/13 15:55	04/14 15:55	AC
Heptachlor Epoxide	U	U	ug/L	0.004	0.012	EPA 8081A	04/13 15:55	04/14 15:55	AC
Methoxychlor	U	U	ug/L	0.005	0.015	EPA 8081A	04/13 15:55	04/14 15:55	AC
Toxaphene	U	U	ug/L	0.08	0.24	EPA 8081A	04/13 15:55	04/14 15:55	AC
8082 PCBs Only (Aroclors) in Waters			Dilution Factor = 1						
Aroclor 1016	U	U	ug/L	0.05	0.15	8082	04/13 15:56	04/14 15:56	AC
Aroclor 1221	U	U	ug/L	0.11	0.33	8082	04/13 15:56	04/14 15:56	AC
Aroclor 1232	U	U	ug/L	0.04	0.12	8082	04/13 15:56	04/14 15:56	AC
Aroclor 1242	U	U	ug/L	0.05	0.15	8082	04/13 15:56	04/14 15:56	AC
Aroclor 1248	U	U	ug/L	0.03	0.09	8082	04/13 15:56	04/14 15:56	AC
Aroclor 1254	U	U	ug/L	0.04	0.12	8082	04/13 15:56	04/14 15:56	AC
Aroclor 1260	U	U	ug/L	0.14	0.42	8082	04/13 15:56	04/14 15:56	AC

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Project: Injection Well Pri/Sec DW
Site Location: Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: E-W-1
Collected: 04/11/12 09:20
Received: 04/11/12 13:00
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LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Total PCB's	U		ug/L			8082	04/13 15:56	04/14 15:56	AC
8151 Chlorinated Herbicides in water			Dilution Factor = 1						
2,4,5-T	U	U	ug/L	0.005	0.015	8151	04/13 10:10	04/14 16:10	AC
2,4,5-TP (silvex)	U	U	ug/L	0.005	0.015	8151	04/13 10:10	04/14 16:10	AC
2,4-D	U	U	ug/L	0.011	0.033	8151	04/13 10:10	04/14 16:10	AC
2,4-DB	U	U	ug/L	0.138	0.414	8151	04/13 10:10	04/14 16:10	AC
3,5 DCBA	U	U	ug/L	0.014	0.042	8151	04/13 10:10	04/14 16:10	AC
4-Nitrophenol	U	U	ug/L	0.058	0.174	8151	04/13 10:10	04/14 16:10	AC
Acifluorfen	U	U	ug/L	0.009	0.027	8151	04/13 10:10	04/14 16:10	AC
Bentazon	U	U	ug/L	0.189	0.567	8151	04/13 10:10	04/14 16:10	AC
Chloramben	U	U	ug/L	0.009	0.027	8151	04/13 10:10	04/14 16:10	AC
Dalapon	U	U	ug/L	0.016	0.048	8151	04/13 10:10	04/14 16:10	AC
DCPA	U	U	ug/L	0.007	0.021	8151	04/13 10:10	04/14 16:10	AC
Dicamba	U	U	ug/L	0.016	0.048	8151	04/13 10:10	04/14 16:10	AC
Dichloroprop	U	U	ug/L	0.026	0.078	8151	04/13 10:10	04/14 16:10	AC
Dinoseb	U	U	ug/L	0.011	0.033	8151	04/13 10:10	04/14 16:10	AC
MCPA	U	U	ug/L	2.73	8.19	8151	04/13 10:10	04/14 16:10	AC
MCPP	U	U	ug/L	2.26	6.78	8151	04/13 10:10	04/14 16:10	AC

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LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Pentachlorophenol	U	U	ug/L	0.006	0.018	8151	04/13 10:10	04/14 16:10	AC
Picloram	U	U	ug/L	0.017	0.051	8151	04/13 10:10	04/14 16:10	AC
8270D (8141 Group) in Water			Dilution Factor = 1						
Aspon	U	U	ug/L	0.058	0.174	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Atrazine	U	U	ug/L	0.063	0.189	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Azinphos-ethyl	U	U	ug/L	0.068	0.204	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Azinphos-methyl (Guthion)	U	U	ug/L	0.06	0.18	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Bolstar (Sulprofos)	U	U	ug/L	0.105	0.315	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Carbophenothion	U	U	ug/L	0.04	0.12	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Chlorfenvinphos	U	U	ug/L	0.063	0.189	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Chlorpyrifos	U	U	ug/L	0.081	0.243	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Chlorpyrifos methyl	U	U	ug/L	0.057	0.171	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Coumaphos	U	U	ug/L	0.080	0.240	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Crotoxyphos	U	U	ug/L	0.158	0.474	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Demeton-O	U	U	ug/L	0.122	0.366	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Demeton-S	U	U	ug/L	0.058	0.174	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Diazinon	U	U	ug/L	0.059	0.177	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Dichlorofenthion	U	U	ug/L	0.07	0.21	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC

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Project: Injection Well Pri/Sec DW
Site Location: Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: E-W-1
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LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Dichlorvos (DDVP)	U	U	ug/L	0.048	0.144	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Dicrotophos	U	U	ug/L	0.072	0.216	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Dimethoate	U	U	ug/L	0.043	0.129	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Dioxathion	U	U	ug/L	0.081	0.243	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Disulfoton	U	U	ug/L	0.059	0.177	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
EPN	U	U	ug/L	0.025	0.075	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
EPTC	U	U	ug/L	0.074	0.222	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Ethion	U	U	ug/L	0.144	0.432	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Ethoprop	U	U	ug/L	0.099	0.297	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Famphur	U	U	ug/L	0.060	0.180	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Fenithrothion	U	U	ug/L	0.072	0.216	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Fensulfothion	U	U	ug/L	0.144	0.432	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Fenthion	U	U	ug/L	0.034	0.102	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Fonophos	U	U	ug/L	0.08	0.24	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Hexamethylphosphoramide (HMPA)	U	U	ug/L	0.069	0.207	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Leptophos	U	U	ug/L	0.063	0.189	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Malathion	U	U	ug/L	0.053	0.159	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Merphos	U	U	ug/L	0.136	0.408	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC

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Order # 13235

Project: Injection Well Pri/Sec DW
Site Location: Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: E-W-1
Collected: 04/11/12 09:20
Received: 04/11/12 13:00
Collected by: Argelio Pifferrer

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Mevinphos	U	U	ug/L	0.052	0.156	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Molinate	U	U	ug/L	0.059	0.177	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Monocrotophos	U	U	ug/L	0.143	0.429	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Naled	U	U	ug/L	0.079	0.237	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Parathion,ethyl	U	U	ug/L	0.113	0.339	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Parathion,methyl	U	U	ug/L	0.05	0.15	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Pebulate	U	U	ug/L	0.059	0.177	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Phorate	U	U	ug/L	0.070	0.210	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Phosmet	U	U	ug/L	0.038	0.114	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Phosphamidon	U	U	ug/L	0.079	0.237	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Ronnel	U	U	ug/L	0.075	0.225	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Simazine	U	U	ug/L	0.086	0.258	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Stirophos (Tetrachlorovinphos)	U	U	ug/L	0.080	0.240	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Sulfotepp	U	U	ug/L	0.062	0.186	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Terbufos	U	U	ug/L	0.066	0.198	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Thionazin	U	U	ug/L	0.112	0.336	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Tokuthion (Zinophos)	U	U	ug/L	0.092	0.276	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
Tri-o-cresylphosphate (TOCP)	U	U	ug/L	0.091	0.273	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC

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Project: Injection Well Pri/Sec DW
Site Location: Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: E-W-1
Collected: 04/11/12 09:20
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LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Trichloronate	U	U	ug/L	0.054	0.162	FSE-OPP/MS	04/13 14:35	04/14 14:35	AC
8270D Semivolatile Organics in Water by GC/MS						Dilution Factor = 1			
1,2,3-Trichlorobenzene	U	U	ug/L	2.00	6.00	3510/8270D	04/13 10:12	04/13 22:17	AC
1,2,4-Trichlorobenzene	U	U	ug/L	1.27	3.81	3510/8270D	04/13 10:12	04/13 22:17	AC
1,2-Dichlorobenzene	U	U	ug/L	1.02	3.06	3510/8270D	04/13 10:12	04/13 22:17	AC
1,3-Dichlorobenzene	U	U	ug/L	1.24	3.72	3510/8270D	04/13 10:12	04/13 22:17	AC
1,4-Dichlorobenzene	U	U	ug/L	1.18	3.54	3510/8270D	04/13 10:12	04/13 22:17	AC
1-Methylnaphthalene	U	U	ug/L	0.36	1.08	3510/8270D	04/13 10:12	04/13 22:17	AC
2,3,4,6-Tetrachlorophenol	U	U	ug/L	0.53	1.59	3510/8270D	04/13 10:12	04/13 22:17	AC
2,3,5,6-Tetrachlorophenol	U	U	ug/L	0.53	1.59	3510/8270D	04/13 10:12	04/13 22:17	AC
2,3,6-Trichlorophenol	U	U	ug/L	1.2	3.6	3510/8270D	04/13 10:12	04/13 22:17	AC
2,4,5-Trichlorophenol	U	U	ug/L	0.68	2.04	3510/8270D	04/13 10:12	04/13 22:17	AC
2,4,6-Trichlorophenol	U	U	ug/L	0.56	1.68	3510/8270D	04/13 10:12	04/13 22:17	AC
2,4-Dichlorophenol	U	U	ug/L	0.63	1.89	3510/8270D	04/13 10:12	04/13 22:17	AC
2,4-Dimethylphenol	U	U	ug/L	0.49	1.47	3510/8270D	04/13 10:12	04/13 22:17	AC
2,4-Dinitrophenol	U	U	ug/L	0.2	0.6	3510/8270D	04/13 10:12	04/13 22:17	AC
2,4-Dinitrotoluene	U	U	ug/L	0.30	0.90	3510/8270D	04/13 10:12	04/13 22:17	AC
2,6-Dichlorophenol	U	U	ug/L	0.52	1.56	3510/8270D	04/13 10:12	04/13 22:17	AC

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Project: Injection Well Pri/Sec DW
Site Location: Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: E-W-1
Collected: 04/11/12 09:20
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LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
2,6-Dinitrotoluene	U	U	ug/L	0.52	1.56	3510/8270D	04/13 10:12	04/13 22:17	AC
2-Chloronaphthalene	U	U	ug/L	0.55	1.65	3510/8270D	04/13 10:12	04/13 22:17	AC
2-Chlorophenol	U	U	ug/L	0.89	2.67	3510/8270D	04/13 10:12	04/13 22:17	AC
2-Methylnaphthalene	U	U	ug/L	0.024	0.072	3510/8270D	04/13 10:12	04/13 22:17	AC
2-Methylphenol (o-cresol)	U	U	ug/L	0.8	2.4	3510/8270D	04/13 10:12	04/13 22:17	AC
2-Nitroaniline	U	U	ug/L	0.41	1.23	3510/8270D	04/13 10:12	04/13 22:17	AC
2-Nitrophenol	U	U	ug/L	0.88	2.64	3510/8270D	04/13 10:12	04/13 22:17	AC
3,3-Dichlorobenzidine	U	U	ug/L	0.3	0.9	3510/8270D	04/13 10:12	04/13 22:17	AC
3-Methylphenol (m-cresol)	U	U	ug/L	0.84	2.52	3510/8270D	04/13 10:12	04/13 22:17	AC
3-Nitroaniline	U	U	ug/L	0.89	2.67	3510/8270D	04/13 10:12	04/13 22:17	AC
4,4'-DDD ~	U	U	ug/L	0.23	0.69	3510/8270D	04/13 10:12	04/13 22:17	AC
4,4'-DDE ~	U	U	ug/L	0.42	1.26	3510/8270D	04/13 10:12	04/13 22:17	AC
4,4'-DDT ~	U	U	ug/L	0.23	0.69	3510/8270D	04/13 10:12	04/13 22:17	AC
4,6-Dinitro-2-Methylphenol	U	U	ug/L	0.3	0.9	3510/8270D	04/13 10:12	04/13 22:17	AC
4-Bromophenyl Phenyl Ether	U	U	ug/L	0.53	1.59	3510/8270D	04/13 10:12	04/13 22:17	AC
4-Chloro-3-Methylphenol	U	U	ug/L	0.93	2.79	3510/8270D	04/13 10:12	04/13 22:17	AC
4-Chloroaniline	U	U	ug/L	1.16	3.48	3510/8270D	04/13 10:12	04/13 22:17	AC
4-Chlorophenyl Phenyl Ether	U	U	ug/L	0.58	1.74	3510/8270D	04/13 10:12	04/13 22:17	AC

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Site Location: Turkey Point, Homestead, FL
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LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
4-Methylphenol (p-cresol)	U	U	ug/L	0.78	2.34	3510/8270D	04/13 10:12	04/13 22:17	AC
4-Nitroaniline	U	U	ug/L	0.80	2.40	3510/8270D	04/13 10:12	04/13 22:17	AC
4-Nitrophenol	U	U	ug/L	0.5	1.5	3510/8270D	04/13 10:12	04/13 22:17	AC
Acenaphthene	U	U	ug/L	0.017	0.051	3510/8270D	04/13 10:12	04/13 22:17	AC
Acenaphthylene	U	U	ug/L	0.015	0.045	3510/8270D	04/13 10:12	04/13 22:17	AC
Aldrin ~	U	U	ug/L	0.440	1.320	3510/8270D	04/13 10:12	04/13 22:17	AC
alpha-BHC ~	U	U	ug/L	0.640	1.920	3510/8270D	04/13 10:12	04/13 22:17	AC
Aniline	U	U	ug/L	0.89	2.67	3510/8270D	04/13 10:12	04/13 22:17	AC
Anthracene	U	U	ug/L	0.049	0.147	3510/8270D	04/13 10:12	04/13 22:17	AC
Azobenzene (1,2-Diphenylhydrazine)	U	U	ug/L	0.66	1.98	3510/8270D	04/13 10:12	04/13 22:17	AC
Benzidine	U	U	ug/L	0.3	0.9	3510/8270D	04/13 10:12	04/13 22:17	AC
Benzo(A)Anthracene	U	U	ug/L	0.017	0.051	3510/8270D	04/13 10:12	04/13 22:17	AC
Benzo(A)Pyrene	U	U	ug/L	0.017	0.051	3510/8270D	04/13 10:12	04/13 22:17	AC
Benzo(B)Fluoranthene	U	U	ug/L	0.029	0.087	3510/8270D	04/13 10:12	04/13 22:17	AC
Benzo(G,H,I)Perylene	U	U	ug/L	0.017	0.051	3510/8270D	04/13 10:12	04/13 22:17	AC
Benzo(K)Fluoranthene	U	U	ug/L	0.025	0.075	3510/8270D	04/13 10:12	04/13 22:17	AC
Benzoic Acid	41.3		ug/L	1.16	3.48	3510/8270D	04/13 10:12	04/13 22:17	AC
Benzyl Alcohol	U	U	ug/L	1.15	3.45	3510/8270D	04/13 10:12	04/13 22:17	AC

Report To:
 Craig Brugger
 Layne Christensen Co-FL
 5061 Luckett Road
 Fort Myers, FL 33905

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Report Printed: 05/17/12
Submission # 1204000308
Order # 13235

Project: Injection Well Pri/Sec DW
Site Location: Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: E-W-1
Collected: 04/11/12 09:20
Received: 04/11/12 13:00
Collected by: Argelio Pifferrer

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
beta-BHC ~	U	U	ug/L	0.520	1.560	3510/8270D	04/13 10:12	04/13 22:17	AC
Bis (2 Ethylhexyl) Phthalate	U	U	ug/L	1.32	3.96	3510/8270D	04/13 10:12	04/13 22:17	AC
Bis (2-Chloroethoxy)methane	U	U	ug/L	0.58	1.74	3510/8270D	04/13 10:12	04/13 22:17	AC
Bis (2-Chloroethyl) Ether	U	U	ug/L	0.82	2.46	3510/8270D	04/13 10:12	04/13 22:17	AC
Bis (2-Chloroisopropyl) Ether	U	U	ug/L	1.34	4.02	3510/8270D	04/13 10:12	04/13 22:17	AC
Bis-2-ethylhexyl Adipate	U	U	ug/L	0.36	1.08	3510/8270D	04/13 10:12	04/13 22:17	AC
Butyl Benzyl Phthalate	U	U	ug/L	0.19	0.57	3510/8270D	04/13 10:12	04/13 22:17	AC
Carbazole	U	U	ug/L	0.45	1.35	3510/8270D	04/13 10:12	04/13 22:17	AC
Chlordane (Screen) ~	U	U	ug/L	0.10	0.30	3510/8270D	04/13 10:12	04/13 22:17	AC
Chrysene	U	U	ug/L	0.30	0.90	3510/8270D	04/13 10:12	04/13 22:17	AC
delta-BHC ~	U	U	ug/L	0.790	2.370	3510/8270D	04/13 10:12	04/13 22:17	AC
Di-N-Butyl Phthalate	U	U	ug/L	0.3	0.9	3510/8270D	04/13 10:12	04/13 22:17	AC
Di-N-Octyl Phthalate	U	U	ug/L	0.2	0.6	3510/8270D	04/13 10:12	04/13 22:17	AC
Dibenzo(A,H,)Anthracene	U	U	ug/L	0.029	0.087	3510/8270D	04/13 10:12	04/13 22:17	AC
Dibenzofuran	U	U	ug/L	0.48	1.44	3510/8270D	04/13 10:12	04/13 22:17	AC
Dieldrin ~	U	U	ug/L	0.190	0.570	3510/8270D	04/13 10:12	04/13 22:17	AC
Diethyl Phthalate	U	U	ug/L	0.2	0.6	3510/8270D	04/13 10:12	04/13 22:17	AC
Dimethyl Phthalate	U	U	ug/L	0.3	0.9	3510/8270D	04/13 10:12	04/13 22:17	AC

Report To:
 Craig Brugger
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Report Printed: 05/17/12
Submission # 1204000308
Order # 13235

Project: Injection Well Pri/Sec DW
Site Location: Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: E-W-1
Collected: 04/11/12 09:20
Received: 04/11/12 13:00
Collected by: Argelio Pifferrer

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Dioxin (screen)	U	U	ug/L	0.03	0.09	3510/8270D	04/13 10:12	04/13 22:17	AC
Endosulfan I ~	U	U	ug/L	1.330	3.990	3510/8270D	04/13 10:12	04/13 22:17	AC
Endosulfan II ~	U	U	ug/L	0.300	0.900	3510/8270D	04/13 10:12	04/13 22:17	AC
Endosulfan Sulfate ~	U	U	ug/L	1.130	3.390	3510/8270D	04/13 10:12	04/13 22:17	AC
Endrin Aldehyde ~	U	U	ug/L	0.450	1.350	3510/8270D	04/13 10:12	04/13 22:17	AC
Endrin ~	U	U	ug/L	0.500	1.500	3510/8270D	04/13 10:12	04/13 22:17	AC
Fluoranthene	U	U	ug/L	0.025	0.075	3510/8270D	04/13 10:12	04/13 22:17	AC
Fluorene	U	U	ug/L	0.012	0.036	3510/8270D	04/13 10:12	04/13 22:17	AC
gamma-BHC (Lindane) ~	U	U	ug/L	0.790	2.370	3510/8270D	04/13 10:12	04/13 22:17	AC
Heptachlor Epoxide ~	U	U	ug/L	0.920	2.760	3510/8270D	04/13 10:12	04/13 22:17	AC
Heptachlor ~	U	U	ug/L	0.530	1.590	3510/8270D	04/13 10:12	04/13 22:17	AC
Hexachlorobenzene	U	U	ug/L	0.52	1.56	3510/8270D	04/13 10:12	04/13 22:17	AC
Hexachlorobutadiene	U	U	ug/L	0.53	1.59	3510/8270D	04/13 10:12	04/13 22:17	AC
Hexachlorocyclopentadiene	U	U	ug/L	0.54	1.62	3510/8270D	04/13 10:12	04/13 22:17	AC
Hexachloroethane	U	U	ug/L	0.81	2.43	3510/8270D	04/13 10:12	04/13 22:17	AC
Indeno(1,2,3-CD)Pyrene	U	U	ug/L	0.15	0.45	3510/8270D	04/13 10:12	04/13 22:17	AC
Isophorone	U	U	ug/L	0.68	2.04	3510/8270D	04/13 10:12	04/13 22:17	AC
Methoxychlor ~	U	U	ug/L	0.370	1.110	3510/8270D	04/13 10:12	04/13 22:17	AC

Report To:
 Craig Brugger
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Report Printed: 05/17/12
Submission # 1204000308
Order # 13235

Project: Injection Well Pri/Sec DW
Site Location: Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: E-W-1
Collected: 04/11/12 09:20
Received: 04/11/12 13:00
Collected by: Argelio Pifferrer

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
N-Nitrosodi-N-Propylamine	U	U	ug/L	1.10	3.30	3510/8270D	04/13 10:12	04/13 22:17	AC
N-Nitrosodimethylamine	U	U	ug/L	1.11	3.33	3510/8270D	04/13 10:12	04/13 22:17	AC
N-Nitrosodiphenylamine	U	U	ug/L	0.38	1.14	3510/8270D	04/13 10:12	04/13 22:17	AC
Naphthalene	U	U	ug/L	0.015	0.045	3510/8270D	04/13 10:12	04/13 22:17	AC
Nitrobenzene	U	U	ug/L	0.77	2.31	3510/8270D	04/13 10:12	04/13 22:17	AC
PCB-1016 ~	U	U	ug/L	0.10	0.30	3510/8270D	04/13 10:12	04/13 22:17	AC
PCB-1221 ~	U	U	ug/L	0.10	0.30	3510/8270D	04/13 10:12	04/13 22:17	AC
PCB-1232 ~	U	U	ug/L	0.10	0.30	3510/8270D	04/13 10:12	04/13 22:17	AC
PCB-1242 ~	U	U	ug/L	0.10	0.30	3510/8270D	04/13 10:12	04/13 22:17	AC
PCB-1248 ~	U	U	ug/L	0.10	0.30	3510/8270D	04/13 10:12	04/13 22:17	AC
PCB-1254 ~	U	U	ug/L	0.10	0.30	3510/8270D	04/13 10:12	04/13 22:17	AC
PCB-1260 ~	U	U	ug/L	0.10	0.30	3510/8270D	04/13 10:12	04/13 22:17	AC
Pentachlorophenol	U	U	ug/L	0.32	0.96	3510/8270D	04/13 10:12	04/13 22:17	AC
Phenanthrene	U	U	ug/L	0.028	0.084	3510/8270D	04/13 10:12	04/13 22:17	AC
Phenol	U	U	ug/L	0.58	1.74	3510/8270D	04/13 10:12	04/13 22:17	AC
Pyrene	U	U	ug/L	0.017	0.051	3510/8270D	04/13 10:12	04/13 22:17	AC
Pyridine	U	U	ug/L	0.96	2.88	3510/8270D	04/13 10:12	04/13 22:17	AC
Toxaphene ~	U	U	ug/L	0.40	1.20	3510/8270D	04/13 10:12	04/13 22:17	AC

Report To:
 Craig Brugger
 Layne Christensen Co-FL
 5061 Lockett Road
 Fort Myers, FL 33905

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Report Printed: 05/17/12
Submission # 1204000308
Order # 13235

Project: Injection Well Pri/Sec DW
Site Location: Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: E-W-1
Collected: 04/11/12 09:20
Received: 04/11/12 13:00
Collected by: Argelio Pifferrer

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
8260B Volatile Organics in Water by GC/MS			Dilution Factor = 1						
1,1,1,2-Tetrachloroethane	U	U	ug/L	0.15	0.45	5030/8260B	04/14 20:37	04/14 20:37	MAZ
1,1,1-Trichloroethane	U	U	ug/L	0.67	2.01	5030/8260B	04/14 20:37	04/14 20:37	MAZ
1,1,2,2-Tetrachloroethane	U	U	ug/L	0.14	0.42	5030/8260B	04/14 20:37	04/14 20:37	MAZ
1,1,2-Trichloroethane	U	U	ug/L	0.46	1.38	5030/8260B	04/14 20:37	04/14 20:37	MAZ
1,1-Dichloroethane	U	U	ug/L	0.19	0.57	5030/8260B	04/14 20:37	04/14 20:37	MAZ
1,1-Dichloroethene	U	U	ug/L	0.42	1.26	5030/8260B	04/14 20:37	04/14 20:37	MAZ
1,1-Dichloropropene	U	U	ug/L	0.65	1.95	5030/8260B	04/14 20:37	04/14 20:37	MAZ
1,2,3-Trichlorobenzene	U	U	ug/L	0.28	0.84	5030/8260B	04/14 20:37	04/14 20:37	MAZ
1,2,3-Trichloropropane	U	U	ug/L	0.22	0.66	5030/8260B	04/14 20:37	04/14 20:37	MAZ
1,2,4-Trichlorobenzene	U	U	ug/L	0.23	0.69	5030/8260B	04/14 20:37	04/14 20:37	MAZ
1,2,4-Trimethylbenzene	U	U	ug/L	0.38	1.14	5030/8260B	04/14 20:37	04/14 20:37	MAZ
1,2-Dibromo-3-Chloropropane (DBCP)	U	U	ug/L	0.17	0.51	5030/8260B	04/14 20:37	04/14 20:37	MAZ
1,2-Dibromoethane (EDB)	U	U	ug/L	0.25	0.75	5030/8260B	04/14 20:37	04/14 20:37	MAZ
1,2-Dichlorobenzene	U	U	ug/L	0.30	0.90	5030/8260B	04/14 20:37	04/14 20:37	MAZ
1,2-Dichloroethane	U	U	ug/L	0.31	0.93	5030/8260B	04/14 20:37	04/14 20:37	MAZ
1,2-Dichloropropane	U	U	ug/L	0.46	1.38	5030/8260B	04/14 20:37	04/14 20:37	MAZ
1,3,5-Trimethylbenzene	U	U	ug/L	0.38	1.14	5030/8260B	04/14 20:37	04/14 20:37	MAZ

Report To:
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Report Printed: 05/17/12
Submission # 1204000308
Order # 13235

Project: Injection Well Pri/Sec DW
Site Location: Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: E-W-1
Collected: 04/11/12 09:20
Received: 04/11/12 13:00
Collected by: Argelio Pifferrer

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
1,3-Dichlorobenzene	U	U	ug/L	0.40	1.20	5030/8260B	04/14 20:37	04/14 20:37	MAZ
1,3-Dichloropropane	U	U	ug/L	0.46	1.38	5030/8260B	04/14 20:37	04/14 20:37	MAZ
1,4-Dichlorobenzene	U	U	ug/L	0.39	1.17	5030/8260B	04/14 20:37	04/14 20:37	MAZ
2,2-Dichloropropane	U	U	ug/L	0.76	2.28	5030/8260B	04/14 20:37	04/14 20:37	MAZ
2-Chloroethylvinyl Ether	U	U	ug/L	0.76	2.28	5030/8260B	04/14 20:37	04/14 20:37	MAZ
2-Chlorotoluene	U	U	ug/L	0.38	1.14	5030/8260B	04/14 20:37	04/14 20:37	MAZ
4-Chlorotoluene	U	U	ug/L	0.33	0.99	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Acetone	6.99		ug/L	1.42	4.26	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Acrolein	U	U	ug/L	6.99	20.97	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Acrylonitrile	U	U	ug/L	0.52	1.56	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Benzene	U	U	ug/L	0.14	0.42	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Bromobenzene	U	U	ug/L	0.40	1.20	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Bromochloromethane	U	U	ug/L	0.21	0.63	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Bromodichloromethane	U	U	ug/L	0.52	1.56	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Bromoform	U	U	ug/L	0.16	0.48	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Bromomethane	U	U	ug/L	0.60	1.80	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Carbon Tetrachloride	U	U	ug/L	0.81	2.43	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Chlorobenzene	U	U	ug/L	0.34	1.02	5030/8260B	04/14 20:37	04/14 20:37	MAZ

Report To:
 Craig Brugger
 Layne Christensen Co-FL
 5061 Lockett Road
 Fort Myers, FL 33905

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Report Printed: 05/17/12
Submission # 1204000308
Order # 13235

Project: Injection Well Pri/Sec DW
Site Location: Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: E-W-1
Collected: 04/11/12 09:20
Received: 04/11/12 13:00
Collected by: Argelio Pifferrer

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Chloroethane	U	U	ug/L	0.47	1.41	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Chloroform	U	U	ug/L	0.27	0.81	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Chloromethane	U	U	ug/L	0.88	2.64	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Cis-1,2-Dichloroethene	U	U	ug/L	0.17	0.51	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Cis-1,3-Dichloropropene	U	U	ug/L	0.41	1.23	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Dibromochloromethane	U	U	ug/L	0.30	0.90	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Dibromomethane	U	U	ug/L	0.37	1.11	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Dichlorodifluoromethane	U	U	ug/L	1.06	3.18	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Ethylbenzene	4.49		ug/L	0.42	1.26	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Hexachlorobutadiene	U	U	ug/L	0.47	1.41	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Isopropylbenzene	U	U	ug/L	0.38	1.14	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Methyl Ethyl Ketone	U	U	ug/L	0.56	1.68	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Methyl-Tert-Butyl Ether	U	U	ug/L	0.55	1.65	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Methylene Chloride	U	U	ug/L	0.99	2.97	5030/8260B	04/14 20:37	04/14 20:37	MAZ
n-Butylbenzene	U	U	ug/L	0.34	1.02	5030/8260B	04/14 20:37	04/14 20:37	MAZ
n-PropylBenzene	U	U	ug/L	0.39	1.17	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Naphthalene	U	U	ug/L	0.24	0.72	5030/8260B	04/14 20:37	04/14 20:37	MAZ
P-Isopropyltoluene	U	U	ug/L	0.41	1.23	5030/8260B	04/14 20:37	04/14 20:37	MAZ

Report To:
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 Layne Christensen Co-FL
 5061 Luckett Road
 Fort Myers, FL 33905

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Submission # 1204000308
Order # 13235

Project: Injection Well Pri/Sec DW
Site Location: Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: E-W-1
Collected: 04/11/12 09:20
Received: 04/11/12 13:00
Collected by: Argelio Pifferrer

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Sec-Butylbenzene	U	U	ug/L	0.45	1.35	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Styrene	U	U	ug/L	0.31	0.93	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Tert-Butylbenzene	U	U	ug/L	0.40	1.20	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Tetrachloroethene	U	U	ug/L	0.42	1.26	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Toluene	U	U	ug/L	0.31	0.93	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Trans-1,2-Dichloroethene	U	U	ug/L	0.21	0.63	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Trans-1,3-Dichloropropene	U	U	ug/L	0.28	0.84	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Trichloroethene	U	U	ug/L	0.34	1.02	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Trichlorofluoromethane	U	U	ug/L	0.48	1.44	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Vinyl Chloride	U	U	ug/L	0.79	2.37	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Xylene, m & p	21.9		ug/L	0.80	2.40	5030/8260B	04/14 20:37	04/14 20:37	MAZ
Xylene, o	6.29		ug/L	0.32	0.96	5030/8260B	04/14 20:37	04/14 20:37	MAZ
See Attach Report	See atch		-				04/12 10:08	04/12 10:08	E86546
See Attach Report	See atch		-				04/18 14:15	04/18 14:15	E84809

Report To:
Craig Brugger
Layne Christensen Co-FL
5061 Lockett Road
Fort Myers, FL 33905

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Report Printed: 05/17/12
Submission # 1204000308
Order # 13235

Project: Injection Well Pri/Sec DW
Site Location: Turkey Point, Homestead, FL
Matrix: Water

Sample I.D.: E-W-1
Collected: 04/11/12 09:20
Received: 04/11/12 13:00
Collected by: Argelio Pifferrer


LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
See Attach Report	See attach		-				05/08	05/08 18:21	E87156

* (*) Matrix spikes outside recovery limits

Unless indicated, soil results are reported based on actual (wet) weight basis.

Analytes not currently NELAC certified denoted by ~.
Work performed by outside (subcontract) labs denoted by Cert.ID in Analyst Field.
Results relate only to this sample.
QC=Qualifier Codes as defined by DEP 62-160
U=Analyzed for but not detected.
Q=Sample held beyond accepted holding time.
I=Value is between MDL and PQL.
J=Estimated value.


Authorized CSM Signature (954) 978-6400
Florida-Spectrum Environmental Services, Inc.
Certification # E86006



May 09, 2012

Ms. Katharine A. Kutil
Florida-Spectrum Environmental Services, Inc
1460 W. McNab Road
Fort Lauderdale, Florida 33309

Re: Radon
Work Order: 302678

Dear Ms. Kutil:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on April 13, 2012. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4300.

Sincerely,



LaToya Hughes for
Client Services Team
Project Manager

Enclosures

Florida-Spectrum Environmental Services, Inc
Radon
SDG: 302678

Certificates of Analysis and QC Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis Report for

FSES001 Florida-Spectrum Environmental Services, Inc

Client SDG: 302678 GEL Work Order: 302678

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Client Services Team.

Lajaya D. Hughes

Reviewed by _____

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: May 9, 2012

Company : Florida-Spectrum Environmental Services, Inc
Address : 1460 W. McNab Road

Contact: Fort Lauderdale, Florida 33309
Project: Ms. Katharine A. Kutil
Radon

Client Sample ID: 13235 Project: FSES00112
Sample ID: 302678001 Client ID: FSES001
Matrix: Waste Water
Collect Date: 11-APR-12 09:20
Receive Date: 13-APR-12
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting											
GFPC, Gross Alpha Liquid "As Received"											
Alpha	U	ND	106	5.00	pCi/L		BXF1	05/08/12	1821	1207733	1
Radium-228 in Drinking Water EPA 904.0 "As Received"											
Radium-228		0.851	0.430	1.00	pCi/L		KDF1	04/21/12	1156	1204533	2
Rad Radium-226											
Lucas Cell, Ra226, liquid "As Received"											
Radium-226		10.2	0.416	1.00	pCi/L		KSD1	05/01/12	1355	1206539	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 900.0/SW846 9310	
2	EPA 904.0/ EPA 9320	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium Carrier	Radium-228 in Drinking Water EPA 904.0 "As Received"			105	(25%-125%)
Yttrium Carrier	Radium-228 in Drinking Water EPA 904.0 "As Received"			82.4	(25%-125%)

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QC Summary

Report Date: May 9, 2012

Page 1 of 2

Florida-Spectrum Environmental Services, Inc

1460 W. McNab Road
Fort Lauderdale, Florida

Contact: Ms. Katharine A. Kutil

Workorder: 302678

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gas Flow											
Batch	1204533										
QC1202637499	302546001	DUP									
Radium-228		U	0.352	U	0.266	pCi/L	0.00		N/A KDF1	04/21/12	12:13
QC1202637501	LCS										
Radium-228	7.55				6.61	pCi/L		87.6	(80%-120%)	04/21/12	12:13
QC1202637498	MB										
Radium-228		U			0.342	pCi/L				04/21/12	12:12
QC1202637500	302546001	MS									
Radium-228	30.3	U	0.352		26.2	pCi/L		86.6	(70%-130%)	04/21/12	12:13
Batch	1207733										
QC1202645684	302678001	DUP									
Alpha		U	73.6	U	-21.7	pCi/L	0.00		N/A BXF1	05/08/12	18:22
QC1202645687	LCS										
Alpha	120				105	pCi/L		87.5	(75%-125%)	05/08/12	18:21
QC1202645683	MB										
Alpha		U			-0.283	pCi/L				05/08/12	18:01
QC1202645685	302678001	MS									
Alpha	12000	U	73.6		14800	pCi/L		123	(75%-125%)	05/08/12	18:01
QC1202645686	302678001	MSD									
Alpha	12000	U	73.6		10600	pCi/L	33.8*	87.7	(0%-20%)	05/08/12	18:21
Rad Ra-226											
Batch	1206539										
QC1202642789	303062001	DUP									
Radium-226			1.34		2.46	pCi/L	59.0*		(0% - 20%) KSD1	05/01/12	13:55
QC1202642791	LCS										
Radium-226	24.7				24.1	pCi/L		97.4	(75%-125%)	05/01/12	14:30
QC1202642788	MB										
Radium-226		U			0.186	pCi/L				05/01/12	13:55
QC1202642790	303062001	MS									
Radium-226	124		1.34		110	pCi/L		88.2	(75%-125%)	05/01/12	14:30

Notes:

The Qualifiers in this report are defined as follows:

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample

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QC Summary

Workorder: 302678

Page 2 of 2

Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
F	Estimated Value									
H	Analytical holding time was exceeded									
J	Value is estimated									
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.									
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.									
M	M if above MDC and less than LLD									
M	Matrix Related Failure									
N/A	RPD or %Recovery limits do not apply.									
NI	See case narrative									
ND	Analyte concentration is not detected above the detection limit									
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier									
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.									
R	Sample results are rejected									
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.									
UI	Gamma Spectroscopy--Uncertain identification									
UJ	Gamma Spectroscopy--Uncertain identification									
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.									
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier									
Y	QC Samples were not spiked with this compound									
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.									
h	Preparation or preservation holding time was exceeded									

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Chain of Custody and Supporting Documentation

20120790206
302678%

SUBMISSION # To: Gel

Logged in LIMS by _____
CSM assigned _____

CHAIN OF CUSTODY RECORD

460 W. McNab Road Ft. Laud. FL 33309
☐ 630 Indian Street Savannah, GA 31401
☐ 528 Gooch Road Fort Meade, FL 33841
☐ 610 Parrot Ave. N, Okeechobee, FL 34972

Tel: (954) 978-6400 Fax: (954) 978-2233
 Tel: (912) 238-5050 Fax: (912) 234-4815
 Tel: (863) 285-8145 Fax: (863) 285-7030
 Tel: (863) 763-3336 Fax: (863) 763-1544

DUE DATE Requested

RUSH RESERVATION #

Original-Return w/report

Yellow-Lab File Copy

Pink - Sampler Copy

Rush Surcharges apply

Report to: FSC

Invoice to: _____

Project Name: 1204-308

Project Contact: Marc Castellanos

Sampler Name: _____

Purchase Order # _____

Phone: 954-978-6500

Affiliation: _____

Report to Address: 1460 W McNab Rd Ft. Laud, FL

Invoice to Address: _____

Site: Turkey Point, Horseshoe

Location: _____

Fax: _____

Email: m.castellanos@flenviro.com

Sampler Signature: _____

ORDER # Lab Control Number	Sample ID	Date Sampled	Time Sampled	Matrix	Bottle & Pres.	Number of Containers Received & NELAC Letter Suffixes # A?	Analysis Required				Field Tests			
							TEMP °C	pH	COND	CHLOR				
	13235	4/11/12	0920	Dist. Potable Water										
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														

Special Comments:

"I waive TNI protocol" (emergency) (sign here) >

Deliverables: _____

QA/QC Report Needed? Yes No (additional charge)

Signature: _____ Affiliation: FSC Date/Time: 4/13/12/1045

1 Relinquished by: _____

1 Received by: Sarah Edwards

2 Relinquished by: _____

2 Received by: _____

3 Relinquished by: _____

3 Received by: _____

Sample Custody & Field Comments

Temp as received _____ C

Custody seals? Y N

FIELD TIME:

Sampling _____ hrs

Pick-Up _____ hrs

Misc. Charges _____

Bottle Type

A-liter amber
B-Bacteria bag/bottle
F-500 ml O-125 ml
H-Plastic Amber Litter
L-liter bottle
S2-2 oz soil jar
S4-4 oz soil jar / S8-8 oz soil jar
T-250 ml
V-40 ml vial
W-wide mouth
X-other TED-Tedlar Air Bag

Additional Bottle Types

B-brown liter plastic

Preservatives

A-ascorbic acid P-H3PO4
C-HCL S-H2SO4
Cu-CuSO4 T-Na2S2O3
DI-DI water U-Unpreserved
H-HNO3 N-NaOH
M-MCAB NH4-NH4CL
MeOH-Methanol
Z-zinc acetate

Additional Preservatives

Hex-Hex C-Buffer
EDA-Ethylene Diamine

www.flenviro.com

COC Page _____ of _____



Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: <u>Florida Spectrum</u>		SDG/AR/COC/Work Order: <u>302078</u>
Received By: <u>BE</u>		Date Received: <u>4.13.12 @ 1045</u>
Suspected Hazard Information	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?	<input checked="" type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>0 gm</u>
Classified Radioactive II or III by RSO?	<input checked="" type="checkbox"/>	If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?	<input checked="" type="checkbox"/>	
Shipped as a DOT Hazardous?	<input checked="" type="checkbox"/>	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?	<input checked="" type="checkbox"/>	

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Preservation Method: ice bags Blue ice Dry ice <u>None</u> Other (describe) *all temperatures are recorded in Celsius <u>18°</u>
2a Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Temperature Device Serial #: <u>41507209</u> Secondary Temperature Device Serial # (if Applicable):
3 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4 Sample containers intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5 Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's, containers affected and observed pH: If Preservation added, Note:
6 VOA vials free of headspace (defined as < 6mm bubble)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
7 Are Encore containers present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
8 Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ID's and tests affected:
9 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
10 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected: <u>no date/time on bottle</u>
11 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected: <u>1 container rec'd</u>
12 Are sample containers identifiable as GEL provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14 Carrier and tracking number.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other <u>(961.2019) 612 4177 15006491</u>

Comments (Use Continuation Form if needed):

List of current GEL Certifications as of 09 May 2012

State	Certification
Arizona	AZ0766
Arkansas	88-0651
CLIA	42D0904046
California NELAP	01151CA
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC00012
DoD ELAP A2LA ISO 17025	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-09-00191
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA120008
Maryland	270
Massachusetts	M-SC012
Mississippi	SC00012
Nevada	SC000122011-1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68-00485
South Carolina Chemistry	10120001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235-12-7
Utah NELAP	SC00012
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
Wisconsin	999887790

Data Review Qualifier Definitions

Qualifier	Explanation
-----------	-------------

*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.



Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118
www.jupiterlabs.com
clientservices@jupiterlabs.com

April 20, 2012

Maria Castellanos
Florida Spectrum Environmental
1460 W. McNab Rd
Fort Lauderdale, FL 33309

RE: LOG# 1229787
Project ID: 1204-308
COC# 229787

Dear Maria Castellanos:

Enclosed are the analytical results for sample(s) received by the laboratory on Wednesday, April 11, 2012. Results reported herein conform to the most current NELAC standards, where applicable, unless indicated by * in the body of the report. The enclosed Chain of Custody is a component of this package and should be retained with the package and incorporated therein.

Results for all solid matrices are reported in dry weight unless otherwise noted. Results for all liquid matrices are reported as received in the laboratory unless otherwise noted. Results relate only to the samples received. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

Samples are disposed of after 30 days of their receipt by the laboratory unless extended storage is requested in writing. The laboratory maintains the right to charge storage fees for archived samples. This report will be archived for 5 years after which time it will be destroyed without further notice, unless prior arrangements have been made.

Certain analyses are subcontracted to outside NELAC certified laboratories, please see the Project Summary section of this report for NELAC certification numbers of laboratories used. A Statement of Qualifiers is available upon request.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ann McKewin for
Kacia Baldwin VP of Operations

Report ID: 1229787 - 961194
4/20/2012

Page 1 of 6

FDOH# E86546
CERTIFICATE OF ANALYSIS

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FPL-005B-445



Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

SAMPLE ANALYTE COUNT

Workorder 1229787
Project ID: 1204-308

Lab ID	Sample ID	Method	Analytes Reported
1229787001	13235	EPA 140.1	1

Report ID: 1229787 - 961194
4/20/2012

Page 2 of 6

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Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

SAMPLE SUMMARY

Workorder 1229787

Project ID: 1204-308

Lab ID	Sample ID	Matrix	Date Collected	Date Received
1229787001	13235	Aqueous Liquid	4/11/2012 09:20	4/11/2012 17:00

Report ID: 1229787 - 961194
4/20/2012

Page 3 of 6

FDOH# E86546 CERTIFICATE OF ANALYSIS

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FPL-005B-447



Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

ANALYTICAL RESULTS

Workorder 1229787
Project ID: 1204-308

Lab ID: 1229787001 Date Received: 4/11/2012 17:00 Matrix: Aqueous Liquid
Sample ID: 13235 Date Collected: 4/11/2012 09:20

Parameters	Results	Units	PQL	MDL	DF Prepared	By	Analyzed	By	Qual
Analysis Desc: Odor by EPA 140.1 [REF] (W)			Analytical Method: EPA 140.1						
Odor	1.0	T.O.N			1		4/12/2012 10:08	BFM	

Report ID: 1229787 - 961194
4/20/2012

Page 4 of 6

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FPL-005B-448



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Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

ANALYTICAL RESULTS QUALIFIERS

Workorder 1229787

Project ID: 1204-308

PARAMETER QUALIFIERS

PROJECT COMMENTS

1229787 A reported value of U indicates that the compound was analyzed for but not detected above the MDL. A value flagged with an "I" flag indicates that the reported value is between the laboratory method detection limit and the practical quantitation limit.

Report ID: 1229787 - 961194
4/20/2012

Page 5 of 6

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FPL-005B-449



Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder 1229787

Project ID: 1204-308

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
1229787001	13235	EPA 140.1	REF/	EPA 140.1	REF/

Report ID: 1229787 - 961194
4/20/2012

Page 6 of 6

FDOH# E86546 CERTIFICATE OF ANALYSIS

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FPL-005B-450

Cooler Unpacked/Checked by: DL Date: 4/11/12

Project ID: 1229787

Cooler Check

Cooler ID	Cooler Temp (C)	# of Samples in Cooler	Tracking #	Evidence Tape			
				Present?		Intact?	
				Yes	No	Yes	No
	5	1			✓		

Note: if the temperature of a cooler is above 6C or an evidence seal is damaged then identify the bottles in the affected cooler(s) on the sample discrepancy form.

*Write tracking number only if waybill copy cannot be placed in the folder

Condition of Containers:

Loose Caps: Yes _____ No ✓

If yes, fill out sample discrepancy form.

Broken Containers: Yes _____ No ✓

If yes, fill out sample discrepancy form.

Acid Preserved Samples: Are their pHs ≤ 2 ? Yes _____ No _____ N/A ✓

If no, fill out sample discrepancy form and check unpreserved containers with same Field ID.

Base Preserved Samples: Are their pHs ≥ 12 or 9? Yes _____ No _____ N/A ✓

(Cyanide ≥ 12 ; Sulfide ≥ 9)

If no, fill out sample discrepancy form and check unpreserved containers with same Field ID.

Are all samples in cooler on COC?: Yes ✓ No _____

If no, fill out sample discrepancy form.

Are all samples on COC in cooler?: Yes ✓ No _____

If no, fill out sample discrepancy form.

N/A = not Applicable

SUBMISSION # To Jupiter		CHAIN OF CUSTODY RECORD				1229787	
Logged in LIMS by CSM assigned		<input checked="" type="checkbox"/> 1460 W. McNab Road Ft. Laud. FL 33309 <input type="checkbox"/> 630 Indian Street Savannah, GA 31401 <input type="checkbox"/> 528 Gooch Road Fort Meade, FL 33841 <input type="checkbox"/> 610 Parrot Ave. N, Okeechobee, FL 34972		Tel: (954) 978-6400 Tel: (912) 238-5050 Tel: (863) 285-8145 Tel: (863) 763-3336		Fax: (954) 978-2233 Fax: (912) 234-4815 Fax: (863) 285-7030 Fax: (863) 763-1544	
		DUE DATE Requested 1206 RUSH RESERVATION # Rush Surcharges apply					
Report to: KSO		Original-Return w/report		Yellow-Lab File Copy		Pink-Sampler Copy	
Invoice to: KSO		Purchase Order #		Report to Address:		Invoice to Address:	
Project Name and/or Number 1204-308		Phone:		Site Location: Turkey Point Homestead		Fax: Email:	
Project Contact: Marie Castellano		Affiliation:		Sampler Signature			
Sampler Name: (printed)							
ORDER # Lab Control Number	Sample ID	Date Sampled	Time Sampled	Matrix	Bottle & Pres.	Number of Containers Received & NELAC Letter Suffixes	Analysis Required
Shaded Areas For Laboratory Use Only				DW SW GW WW S SED HW BIO SEA OIL AIR	Combo Codes Pres.	# A-?	T E M P °C P H C O N D C H L O R
1	13235	4/11/12	0900	Non-potable Water			✓ Odor
2							
3							
4							
5							
6							
7							
8							
9							
10							
Special Comments:						Total	
"I waive TNI protocol" (emergency) (sign here) >							
Deliverables:						QA/QC Report Needed? Yes No (additional charge)	
Sample Custody & Field Comments Temp as received _____ C Custody seals? Y N FIELD TIME Sampling _____ hrs Pick-Up _____ hrs Misc. Charges _____		Bottle Type A-liter amber B-Barteria bag/bottle E-500 ml H-Plastic Amber Litter L-liter bottle S2-2 oz soil jar S4-4 oz soil jar / S8-8 oz soil jar T-250 ml Y-40 ml vial W-wide mouth X-other TED-Tedlar Air Bag Additional Bottle Types B-brown liner plastic		Preservatives A-ascorbic acid C-HCL Cu-CuSO4 DI-DI water E-HNO3 M-MCAB MeOH-Methanol Z-zinc acetate Additional Preservatives Hex-Hex Cr Buffer EDA-Ethylene Diamine		Signature _____ Affiliation _____ Date/Time _____ 1 Relinquished by: _____ 4/11/12 16:15 1 Received by: _____ 4/11/12 16:15 2 Relinquished by: _____ 4/11/12 16:20 2 Received by: _____ 4/11/12 16:20 3 Relinquished by: _____ 4/11/12 17:00 3 Received by: Phone 4/11/12 17:00 www.flenviro.com COC Page _____ of _____	

229787



April 30, 2012

Maria Castellanos
Florida-Spectrum Environmental Services
1460 W. McNab Road
Ft. Lauderdale, FL 33309

Re: SunLabs Project Number: **120412.04**
Client Project Description: **1204-308**

Dear Ms. Castellanos:

Enclosed is the report of laboratory analysis for the following samples:

Sample Number	Sample Description	Date Collected	Date Received
141756	13235	04/11/12 9:20	04/12/12

Narrative:

Unless otherwise noted below or in the report and where applicable:

- Samples were received at the proper temperature and analyzed as received.
- Sample condition upon receipt is recorded on the chain-of-custody attached to this report.
- Results for all solid matrices are reported on a dry weight basis.
- Appropriate calibration and QC criteria were satisfactorily met.
- All applicable holding times for analytes have been met.
- Copies of the chains-of-custody, if received, are attached to this report.

If you have any questions or comments concerning this report, please do not hesitate to contact us.

Sincerely,

Michael W. Palmer
Vice President, Laboratory Operations

Enclosures

Unless Otherwise Noted and Where Applicable:

The results herein relate only to the items tested or to the samples as received by the laboratory • This report shall not be reproduced except in full, without the written approval of SunLabs • All samples will be disposed of within 60 days of the date of receipt of the samples • All results meet the requirements of the NELAC standards • Uncertainty values are available upon request



Report of Laboratory Analysis

SunLabs Project Number
120412.04

Florida-Spectrum Environmental Services
Project Description
1204-308

April 30, 2012

SunLabs Sample Number **141756**
Sample Designation **13235**

Matrix Water
Date Collected 04/11/12 09:20
Date Received 04/12/12 10:15

Parameters	Method	Units	Results	DII Factor	MDL	PQL	CAS Number	Date/Time Analyzed	Date/Time Prep
Organochlorine Pesticides by EPA Method 8081									
Date Analyzed			04/23/12	1				04/23/12 19:48	04/16/12 18:48
2,4,5,6-Tetrachloro-m-xylene (10-139)	8081	%	56	1		1.0	DEP-SURR-	04/23/12 19:48	04/16/12 18:48
Alachlor	8081	ug/L	0.0029 U	1	0.0029	0.0096	53-19-0	04/23/12 19:48	04/16/12 18:48
N-Methylcarbamates by EPA 8318									
Date Analyzed	8318		04/18/12	1				04/18/12 16:16	04/18/12 14:15
Aldicarb	8318	ug/L	1.5 U	1	1.5	6.1	116-06-3	04/18/12 16:16	04/18/12 14:15
Aldicarb Sulfone	8318	ug/L	0.58 U	1	0.58	2.3	1646-88-4	04/18/12 16:16	04/18/12 14:15
Aldicarb Sulfoxide	8318SLI	ug/L	0.74 U	1	0.74	2.9	1646-87-3	04/18/12 16:16	04/18/12 14:15
Carbaryl	8318	ug/L	0.93 U	1	0.93	3.7	63-25-2	04/18/12 16:16	04/18/12 14:15
Carbofuran	8318	ug/L	1.0 U	1	1.0	4.1	1563-66-2	04/18/12 16:16	04/18/12 14:15
Dioxacarb	8318	ug/L	1.6 U	1	1.6	6.3	6988-21-2	04/18/12 16:16	04/18/12 14:15
3-Hydroxycarbofuran	8318	ug/L	2.6 U	1	2.6	10	16655-82-6	04/18/12 16:16	04/18/12 14:15
Methiocarb	8318	ug/L	2.9 U	1	2.9	11	2032-65-7	04/18/12 16:16	04/18/12 14:15
Methomyl	8318	ug/L	0.62 U	1	0.62	2.5	16752-77-5	04/18/12 16:16	04/18/12 14:15
Oxamyl	8318SLI	ug/L	0.57 U	1	0.57	2.3	23135-22-0	04/18/12 16:16	04/18/12 14:15
Promecarb	8318	ug/L	0.59 U	1	0.59	2.3	2631-37-0	04/18/12 16:16	04/18/12 14:15
Propoxur	8318	ug/L	1.1 U	1	1.1	4.3	114-26-1	04/18/12 16:16	04/18/12 14:15
True Color by SM2120 B									
Date Analyzed			04/12/12	1				04/12/12 13:56	04/12/12 12:32
Color	SM2120 B	PtCo	370	25	125	125		04/12/12 13:56	04/12/12 12:32
pH	9040	SU	7.2	1				04/12/12 13:56	04/12/12 12:32



Report of Laboratory Analysis

SunLabs
Project Number

120412.04

Florida-Spectrum Environmental
Services

Project Description

1204-308

April 30, 2012

Footnotes

**	<i>Not NELAC certified for this analyte</i>
I	<i>The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.</i>
J	<i>The reported value failed to meet the established quality control criteria for either precision or accuracy(see cover letter for explanation)</i>
LCS	<i>Laboratory Control Sample</i>
LCSD	<i>Laboratory Control Sample Duplicate</i>
MB	<i>Method Blank</i>
MS	<i>Matrix Spike</i>
MSD	<i>Matrix Spike Duplicate</i>
NA	<i>Sample not analyzed at client's request.</i>
p	<i>SunLabs is not currently NELAC certified for this analyte.</i>
Q	<i>Sample held beyond the accepted holding time.</i>
RPD	<i>Relative Percent Difference</i>
U	<i>Compound was analyzed for but not detected.</i>
V	<i>Indicates that the analyte was detected in both the sample and the associated method blank.</i>
Z	<i>Too many colonies were present (TNTC); the numeric value represents the filtration volume.</i>



Quality Control Data

Project Number

Florida-Spectrum Environmental

120412.04

Project Description

1204-308

April 30, 2012

Batch No: E4980

Test: True Color by SM2120 B

TestCode: Color

Associated Samples

141756

Compound	Blank	LCS Spike	LCS %Rec	LCSD %Rec	RPD %	--QC Limits-- RPD	LCS	MS Spike	MS %Rec	MSD %Rec	RPD %	--QC Limits-- RPD	MS	Dup RPD	Qualifiers
Parent Sample Number														141756	
Date Analyzed	04/12/12													141756	
Color	5.0 U PtCo													5	
pH														7.2	

Batch No: E5044

Test: Organochlorine Pesticides by EPA Method 8081

TestCode: 8081-w-qgm42

Associated Samples

141756

Compound	Blank	LCS Spike	LCS %Rec	LCSD %Rec	RPD %	--QC Limits-- RPD	LCS	MS Spike	MS %Rec	MSD %Rec	RPD %	--QC Limits-- RPD	MS	Dup RPD	Qualifiers
Parent Sample Number															
Alachlor	0.0030 U ug/L	0.200	66	48	32	34	25-105								

Batch No: E5077

Test: N-Methylcarbamates by EPA 8318

TestCode: 8318-w

Associated Samples

141756

Compound	Blank	LCS Spike	LCS %Rec	LCSD %Rec	RPD %	--QC Limits-- RPD	LCS	MS Spike	MS %Rec	MSD %Rec	RPD %	--QC Limits-- RPD	MS	Dup RPD	Qualifiers
Parent Sample Number															
Date Extracted	04/18/12														
Date Analyzed	04/18/12														
Aldicarb	1.5 U ug/L	200	98	99	1	5	78-126	200	93	91	2	3	83-122		
Aldicarb Sulfone	0.58 U ug/L	200	95	94	1	9	74-127	200	94	94	0	6	62-133		
Aldicarb Sulfoxide	0.74 U ug/L	200	93	92	1	8	63-142	200	91	91	0	3	58-144		
Carbaryl	0.93 U ug/L	200	100	100	0	9	72-127	200	100	99	1	33	7-167		
Carbofuran	1.0 U ug/L	200	99	98	1	9	79-119	200	97	98	1	9	62-128		
Dioxacarb	1.6 U ug/L	400	89	91	2	10	66-127	400	117	115	2	26	26-149		
3-Hydroxycarbofuran	2.6 U ug/L	200	93	93	0	12	81-117	200	94	93	1	23	23-152		
Methiocarb	2.9 U ug/L	200	96	94	2	14	72-123	200	96	94	2	38	3-166		
Methomyl	0.62 U ug/L	200	99	100	1	9	77-124	200	99	100	1	4	78-122		
Oxamyl	0.57 U ug/L	200	94	93	1	18	67-131	200	93	93	0	51	0-172		
Promecarb	0.59 U ug/L	200	118	119	1	10	62-145	200	122	118	3	9	65-134		
Propoxur	1.1 U ug/L	200	94	94	0	8	86-111	200	95	94	1	8	73-117		

* Indicates value is outside control limits for %Recovery or greater than acceptance criteria for RPD

Footnotes

U

Compound was analyzed for but not detected.

SunLabs, Inc.
5460 Beaumont Center Blvd., Suite 520
Tampa, FL 33634

Laboratory ID Number - E84809

Page QC-1 of 1

Phone: (813) 881-9401
Email: Info@SunLabsInc.com
Website: www.SunLabsInc.com

FPL-005B-456

SUBMISSION #

To: Sun Lab

CHAIN OF CUSTODY RECORD

DUE DATE Requested

Logged in LIMS by
CSM assigned

- ☒ 460 W. McNab Road Ft Laud. FL 33309
☐ 630 Indian Street Savannah, GA 31401
☐ 528 Gooch Road Fort Meade, FL 33841
☐ 610 Parrot Ave. N, Okeechobee, FL 34972

Tel: (954) 978-6400
 Tel: (912) 238-5050
 Tel: (863) 285-8145
 Tel: (863) 763-3336

Fax: (954) 978-2233
 Fax: (912) 234-4815
 Fax: (863) 285-7030
 Fax: (863) 763-1544

RUSH RESERVATION #

120412.04

Rush Surcharges apply

Report to: (company name)	Original-Return w/report		Yellow-Lab File Copy	Pink - Sampler Copy
Invoice to: (company name)	Purchase Order #	Report to Address:	Invoice to Address:	
Project Name and/or Number		Site Location:	Turkey Point, Homestead	
Project Contact:	Phone:	Fax:	Email:	
Sampler Name: (printed)	Affiliation:	Sampler Signature		

ORDER # Lab Control Number	Sample ID	Date Sampled	Time Sampled	Matrix	Bottle & Pres.	Number of Containers Received & NELAC Letter Suffixes	Analysis Required				Field Tests			
							Color	Alcohol	Temp	PH	COND	CHLOR		
1	141756	13235	4/11/12 0920	Non-Potable Water			1	1	1					
2														
3														
4														
5														
6														
7														
8														
9														
10														

Special Comments:

"I waive TNI protocol" (emergency) (sign here) >

1.0°C ice

Deliverables: QA/QC Report Needed? Yes No (additional charge)


Sample Custody & Field Comments	Bottle Type	Preservatives
Temp as received _____ C	A-liter amber	A-ascorbic acid
Custody seals? Y N	B-Bacteria bag/bottle	C-HCL
FIELD TIME:	F-500 ml	Ca-CaSO4
Sampling _____ hrs	H-Plastic Amber Liter	DI-DI water
Pick-Up _____ hrs	L-liter bottle	E-HNO3
Misc. Charges _____	S2-2 oz soil jar	M-MCAB
	S4-4 oz soil jar / S8-8 oz soil jar	MeOH-Methanol
	T-250 ml	Z-zinc acetate
	V-40 ml vial	
	W-wide mouth	Additional Preservatives
	X-other	Hex-Hex Cr Buffer
	TED-Tedlar Air Bag	EDA-Ethylene Diamine
	Additional Bottle Types	
	B-brown liter plastic	

Signature Affiliation Date/Time

1	Relinquished by:	Signature	Affiliation	Date/Time
1	Received by:	Signature		
2	Relinquished by:	Signature		
2	Received by:	Signature		
3	Relinquished by:	Signature		
3	Received by:	Signature		

www.flenviro.com

COC Page _____ of _____

SUBMISSION # 1204-368				CHAIN OF CUSTODY RECORD				DUE DATE Requested RUSH RESERVATION # Rush Surcharges apply																
Logged into LIMS by: <i>[Signature]</i>		1460 W McNab Road Ft Lauderdale FL 33309 940 Alt. 27 South Babson Park, FL 33827 630 Indian Street Savannah, GA 31401 528 Gooch Road Fort Meade FL 33841		Tel: (954) 978-6400 Tel: (863) 638-3255 Tel: (912) 238-5050 Tel: (863) 285-8145		Fax: (954) 978-2233 Fax: (863) 638-3637 Fax (912) 234-4815 Fax (863) 285-7030																		
		Original-Return w/report		Yellow- Lab File Copy		Pink- Sampler Copy																		
Report to: Layne Christensen Company						Report to Address: 5061 Lockett Road, Fort Myers, FL 33905																		
Invoice to: Layne Christensen Company				Purchase Order #		Invoice to Address: 5061 Lockett Road, Fort Myers, FL 33905																		
Project Name and/or Number : Injection Well Primary's Secondary Drinking Water Testing						Site Location: Turkey Point , Homestead, Florida 33035																		
Project Mgr: Brooke Allen/Craig Brugger				Phone: 239.275.1029/239.275.1025		Fax:		Email: cbrugger@laynechristensen.com bsallen@laynechristensen.com																
Sampler Name: (printed) <i>Angelo Piffener</i>						Sampler Signature <i>[Signature]</i>																		
ORDER # <small>Lab Control Number</small>	Sample ID	Date Sampled	Time Sampled	Matrix	Bottle & Pres.	Number of Containers Received & NELAC Letter Suffixes # A-?	Analysis Required										Field Tests							
				DW GW S EFF HW BIO SA OIL X	Combo Codes		* Primary Secondary DW Standards											P H	T E M P C	C O N D	D O	T U R B		
1	13235	04-11-12	9:20	DW NPW		33	X											7.28	8.03	55270	1.4	1.9		
2																								
3																								
4																								
Special Comments: * PLEASE SEE ATTACHED LIST FOR ANALYSIS!!! "I waive NELAC protocol" (sign here) > <i>control PH in the bottles</i> <i>As=1.50 Ts=1.50 TN=12.50</i> <i>TH=1.50</i>						Total		SAMPLE CUSTODY AND TRANSFER SIGNATURES										DATE / TIME						
								1 Relinquished by: <i>Angelo Piffener</i> 04-11-12 11:25																
Deliverables:						QA/QC Report Needed? Yes No (additional charge)		1 Received by: <i>FG</i> 4/11/12 11:25																
Sample Custody & Field Comments Temp as received <i>4</i> C Custody Seals? Y N Billable Field Time <i>1</i> hrs Misc. Charges						Bottle Type A-liter amber O-125ml B-Bacteria bag/bottle H- Amber F-500 ml Plastic L-liter bottle Liter S-soil jar G-Gallon T-250 ml V-40 ml vial W-wide mouth X-other		Preservatives A-ascorbic acid P-H ₃ PO ₄ C-HCL S-H ₂ SO ₄ Cu-CuSO ₄ T-Na ₂ S ₂ O ₃ -H ₂ O H-HNO ₃ U-Unpreserved M-MCAB P-H ₃ PO ₄ N-NaOH Z-zinc acetate NH ₄ -NH ₄ CL		2 Relinquished by: <i>FG</i> 4/11/12 13:00														
										2 Received by: <i>[Signature]</i> 4/11/12 13:00														
										3 Relinquished by: <i>[Signature]</i> 4/11/12 13:00														
										3 Received by:														
								www.flenviro.com										COC Page of						

Layne Christensen

TABLE 2
LIST OF WATER QUALITY PARAMETERS
NEEDED FOR BACKGROUND ANALYSIS

PRIMARY DRINKING WATER STANDARDS

PARAMETER

Alachlor (Polychlorinated Biphenyl or PCB)
Aldicarb
Aldicarb sulfoxide
Aldicarb sulfone
Aroclors (Polychlorinated Biphenyls or PCBs)
Alpha, Gross
Antimony
Arsenic
Atrazine
Barium
Benzene
Benzo(a)pyrene
Beryllium
Bis(2-ethylhexyl) adipate (Di(2-ethylhexyl) adipate)
Bis(2-ethylhexyl) phthalate (Di(2-ethylhexyl) phthalate)
Cadmium
Carbofuran
Carbon Tetrachloride (Tetrachloromethane)
Chlordane
Chlorobenzene (Monochlorobenzene)
Chloroethylene (Vinyl Chloride)
Chromium
Coliforms, Total
Cyanide
2,4-D (2,4-Dichlorophenoxyacetic acid)
Dalapon (2,2-Dichloropropionic acid)
Dibromochloropropane (DBCP)
1,2-Dibromoethane (EDB, Ethylene Dibromide)
1,2-Dichlorobenzene (o-Dichlorobenzene)
1,4-Dichlorobenzene (p-Dichlorobenzene or Para Dichlorobenzene)
1,2-Dichloroethane (Ethylene dichloride)
1,1-Dichloroethylene (Vinylidene chloride)
1,2-Dichloroethylene (cis-1,2-Dichloroethylene or trans-1,2-Dichloroethylene)
cis-1,2-Dichloroethylene (1,2-Dichloroethylene)
trans-1,2-Dichloroethylene (1,2-Dichloroethylene)
Dichloromethane (Methylene chloride)
1,2-Dichloropropane
Di(2-ethylhexyl) adipate (Bis(2-ethylhexyl) adipate)
Di(2-ethylhexyl) phthalate (Bis(2-ethylhexyl) phthalate)
Dinoseb
Diquat
EDB (Ethylene dibromide, 1,2-Dibromoethane)
Endothall
Endrin
Ethylbenzene
Ethylene dichloride (1,2-Dichloroethane)
Fluoride
Glyphosate (Roundup)
Gross Alpha
Heptachlor
Heptachlor Epoxide
Hexachlorobenzene (HCB)
gamma-Hexachlorocyclohexane (Lindane)
Hexachlorocyclopentadiene
Lead

TH
TS
TN
LU
GEL - (GH)
Sun - (2AU)
Jup. ker - (FBRU)
Sun (FU)
Sun - (2VH)
3VAK2
AT
2AU
HT
FAT
OAA
2VT
TU-BOD
BT
3VC
3AY

PRIMARY DRINKING WATER STANDARDS, CONT'D

PARAMETER

Lindane (gamma-Hexachlorocyclohexane)
Mercury
Methoxychlor
Methylene chloride (Dichloromethane)
Monochlorobenzene (Chlorobenzene)
Nickel
Nitrate (as N)
Nitrite (as N)
Total Nitrate + Nitrite (as N)
Oxamyl
p-Dichlorobenzene or Para Dichlorobenzene (1,4-Dichlorobenzene)
Pentachlorophenol
Perchloroethylene (Tetrachloroethylene)
Picloram
Polychlorinated biphenyl (PCB or Aroclors)
Radium
Roundup (Glyphosate)
Selenium
Silver
Silvex (2,4,5-TP)
Simazine
Sodium
Styrene (Vinyl benzene)
Tetrachloroethylene (Perchloroethylene)
Tetrachloromethane (Carbon Tetrachloride)
Thallium
Toluene
Toxaphene
2,4,5-TP (Silvex)
1,2,4-Trichlorobenzene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethylene (Trichloroethene, TCE)
Trihalomethanes, Total
Vinyl Chloride (Chloroethylene)
Xylenes (total)

SECONDARY DRINKING WATER STANDARDS

PARAMETER

Aluminum
Chloride
Color
Copper
Ethylbenzene
Fluoride
Foaming Agents (MBAS)
Iron
Manganese
Odor
pH
Silver
Sulfate
Toluene
Total Dissolved Solids (TDS)
Xylenes
Zinc

**MUNICIPAL WASTEWATER MINIMUM CRITERIA
GROUND WATER MONITORING PARAMETERS**

INORGANICS

Ammonia
Nitrogen (organic)
Total Kjeldahl Nitrogen
Total Phosphorus (phosphate)

VOLATILE ORGANICS

Chloroethane
Chloroform
para-Dichlorobenzene (1,4 Dichlorobenzene)
1,2-Dichloroethylene (cis-1,2-Dichloroethylene or trans-1,2-Dichloroethylene)

BASE/NEUTRAL ORGANICS

Anthracene
Butylbenzylphthalate
Dimethylphthalate
Naphalene
Phenanthrene

PESTICIDES AND PCBs

Aldrin
Dieldrin

ACID EXTRACTABLES

2-chlorophenol
Phenol
2,4,6-trichlorophenol

OTHER

Conductivity
Biological Oxygen Demand
Chemical Oxygen Demand
Temperature

END OF SECTION

Appendix T

**Pressure Tests Summary
Sheets and Pressure Gauge
Calibration Sheet**

Florida Power & Light Company

Turkey Point Units 6 & 7

Exploratory Well EW-1

24-inch Diameter Final Casing Pressure Test



Client: Florida Power & Light

Well Name: EW-1

Date: 12-Mar-12

Observer: Deborah Daigle (MHC)

Base of Casing: 2,985

Packer Depth: 2,963.00

<u>Time</u>	<u>Lapse Time (minutes)</u>	<u>Casing Pressure (psi)</u>	<u>Comments</u>
0920	0	155.0	Start Test
0925	5	155.0	
0930	10	155.0	
0935	15	155.0	
0940	20	155.0	
0945	25	155.0	
0950	30	155.0	
0955	35	155.0	
1000	40	155.0	
1005	45	156.0	
1010	50	156.0	
1015	55	156.0	
1020	60	156.0	End Test

Note: 50 gallons of water were released during pressure bleed-off.
feet bpl = feet below pad level

Certificate of Calibration



Certificate Number: 97679-1
Calibration Date: 2/2/2012

Customer: LAYNE CHRISTENSEN COMPANY

Instrument

Part Number: 9746922
Description: Pressure Gauge
Manufacturer: Wika
Range: 0-300 PSIG
Accuracy: +/- 0.25%

Performed by: M. WATTS

Calibration Results

Step Number	Target Pressure PSIG	Actual Pressure PSIG	Deviation PSIG	% F.S. Error Actual	% F.S. Error Allowed (+/-)
1	0	0	0	0%	0.25%
2	80	80.390	-0.390	-0.13%	0.25%
3	160	160.110	-0.110	-0.04%	0.25%
4	240	239.380	0.620	0.21%	0.25%
5	300	300.010	-0.010	0.00%	0.25%

Calibration Reference

Base Unit: ST-2H
Manufacturer: Heise
Serial Number: 50868
Last Cert Date: 8/12/2011

Module: HQS-2
Manufacturer: Heise
Serial Number: HQS-21718
Range: 0-300 PSIG
Accuracy: 0.025%
Last Cert Date: 8/12/2011

Ambient Temperature: 72 +/-3 °F
Pressure Source: 160-5000 PSIG WATER

Valworx Inc certifies that the above named instrument has been calibrated by comparison to laboratory standards traceable to the National Institute of Standards & Technology (NIST) in accordance with IAC A.2301, ANSI/NCSL Z540-1-1994, and ISO 10012-1.

Authorized Signature: 

Valworx Inc • 18636 Northline Drive • Cornelius, NC 28031
Call 800 511-0100 • 704 987-9803 • Fax 704 987-9685
Order Online: www.gaugestore.com

FPL-005B-464

Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Annular Pressure Test



Client: Florida Power & Light

Well Name: EW-1

Date: 21-Jun-12

Observer: Sally Durall (MHC)
 Len Fishkin (FDEP)

Base of FRP Tubing: 2,975 feet bpl

<u>Time</u>	<u>Lapse Time (minutes)</u>	<u>Annular Pressure (psi)</u>	<u>Comments</u>
1025	0	160.5	Start Test
1030	5	160.5	
1035	10	160.5	
1040	15	160.5	
1045	20	160.5	
1050	25	160.0	
1055	30	160.0	
1100	35	159.5	
1105	40	159.0	
1110	45	159.0	
1115	50	158.5	
1120	55	158.5	
1125	60	158.5	End Test

Note: Approximately 63 gallons of fluid were released from the annulus during pressure bleed-off.
 feet bpl = feet below pad level



McDaniel Controls, Inc.

PHONE (985) 758-2782 Boutte
(504) 467-1333 New Orleans
FAX (985) 758-1688
WEB www.mcdanielcontrols.com

P. O. BOX 187 • LULING, LOUISIANA 70070 U.S.A.

Certificate of Calibration

Report number FASTCAL-C01416

Manufacturer	Model	Customer Code	Serial Number	Calibration Date	Expiration Date
McDaniel Controls	FG	BDS	111	6/13/2012	

Model Uncertainty
+/- ASME 3A of span (0.25%)

All instrument calibrations are verified for accuracy before they are shipped. The recommended calibration interval for this instrument is 12 months from the date of verification. Your particular quality assurance requirements may supersede this recommendation.

As Received Condition: In tolerance

As Left Condition: In tolerance

Laboratory ambient conditions throughout this calibration were:

Temperature 77°F / 25° C
Humidity 50 to 70% RH
Pressure 29.8 in.

Reference Standards used in this calibration are traceable to the National Institute of Standards and Technology of the United States, through the following report numbers:

Manufacturer	Model	Serial Number	Report Number	Due Date	Reference Uncertainty
Crystal Engineering	1KPSIXP2I	72633	118872	29-Sep-12	0-20% of FS: $\pm(0.02\%$ of FS); 20%-100% of FS: $\pm(0.1\%$ of Rdg)

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Lito Agusto

Quality Representative

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FPL-005B-466

Test Results

Report number FASTCAL-C01416

As Received Test Results

300 PSI

Reference Reading	Gauge Reading	Allowable Tolerance	Difference	Difference (% of FS)	Condition
0.0	0	0.7	0.0	0.00%	Pass
49.7	50	0.7	0.3	0.10%	Pass
99.7	100	0.7	0.3	0.10%	Pass
149.5	150	0.7	0.5	0.17%	Pass
200.1	200	0.7	-0.1	-0.03%	Pass
250.2	250	0.7	-0.2	-0.07%	Pass
300.0	300	0.7	0.0	0.00%	Pass
249.9	250	0.7	0.1	0.03%	Pass
199.4	200	0.7	0.6	0.20%	Pass
149.3	150	0.7	0.7	0.23%	Pass
99.5	100	0.7	0.5	0.17%	Pass
49.4	50	0.7	0.6	0.20%	Pass
0.0	0	0.7	0.0	0.00%	Pass

As Left Test Results

300 PSI

Reference Reading	Gauge Reading	Allowable Tolerance	Difference	Difference (% of FS)	Condition
0.0	0	0.7	0.0	0.00%	Pass
49.7	50	0.7	0.3	0.10%	Pass
99.7	100	0.7	0.3	0.10%	Pass
149.5	150	0.7	0.5	0.17%	Pass
200.1	200	0.7	-0.1	-0.03%	Pass
250.2	250	0.7	-0.2	-0.07%	Pass
300.0	300	0.7	0.0	0.00%	Pass
249.9	250	0.7	0.1	0.03%	Pass
199.4	200	0.7	0.6	0.20%	Pass
149.3	150	0.7	0.7	0.23%	Pass
99.5	100	0.7	0.5	0.17%	Pass
49.4	50	0.7	0.6	0.20%	Pass
0.0	0	0.7	0.0	0.00%	Pass

Appendix U

Video Survey Summary Sheets

**Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Completed Well Video Survey Summary**

Date: 10-Mar-12
Observer: Eric Meyer

Depth in feet below pad level		Observations
From	To	
0	100	Casing joints at 20, 54, and 89 feet bpl.
100	200	Casing joints at 123, 158, and 193 feet bpl.
200	300	Casing joints at 227, 262, and 296 feet bpl.
300	400	Casing joints at 331, 360, and 400 feet bpl.
400	500	Casing joints at 435 and 469 feet bpl.
500	600	Casing joints at 504, 538, and 573 feet bpl.
600	700	Casing joints at 607, 642, and 677 feet bpl.
700	800	Casing joints at 710, 746, and 780 feet bpl.
800	900	Casing joints at 815, 849, and 885 feet bpl.
900	1,000	Casing joints at 919, 954, and 988 feet bpl.
1,000	1,100	Casing joints at 1,023, 1,057, and 1,092 feet bpl.
1,100	1,200	Casing joints at 1,126, 1,161, and 1,195 feet bpl.
1,200	1,300	Casing joints at 1,230, 1,264, and 1,299 feet bpl.
1,300	1,400	Casing joints at 1,333 and 1,369 feet bpl.
1,400	1,500	Casing joints at 1,403, 1,438, and 1,472 feet bpl.
1,500	1,600	Casing joints at 1,507, 1,541, and 1,576 feet bpl.
1,600	1,700	Casing joints at 1,611, 1,645, and 1,680 feet bpl.
1,700	1,800	Casing joints at 1,715, 1,749 and 1,784 feet bpl.
1,800	1,900	Casing joints at 1,818, 1852, and 1,887 feet bpl.
1,900	2,000	Casing joints at 1,908, 1,930, 1,950, and 1,971 feet bpl.
2,000	2,100	Casing joints at 2,006, 2,041, and 2,075 feet bpl.
2,100	2,200	Casing joints at 2,110, 2,144, and 2,179 feet bpl.
2,200	2,300	Casing joints at 2,214, 2,248, and 2,283 feet bpl.
2,300	2,400	Casing joints at 2,318, 2,352, and 2,387 feet bpl.
2,400	2,500	Casing joints at 2,421, 2,456, and 2,490 feet bpl.
2,500	2,600	Casing joints at 2,525, 2,553, and 2,589 feet bpl.
2,600	2,700	Casing joints at 2,618, 2,654, and 2,689 feet bpl.
2,700	2,800	Casing joints at 2,830, 2,865, and 2,900 feet bpl.
2,800	2,900	Casing joints at 2,934 and 2,955 feet bpl. Top of the positive seal packer at 2,975 feet bpl.

bpl = below pad level

Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Completed Well Video Survey Summary

Date: 11-Apr-12
Observer: Maty Clasen

Depth in feet below pad level		Observations
From	To	
0	100	feet bpl.
100	200	FRP joints at 129, 158, and 185 feet bpl
200	300	FRP joints at 214, 243, 272, and 300 feet bpl
300	400	FRP joints at 329, 358, and 387 feet bpl.
400	500	FRP joints at 416, 445, 474 feet bpl.
500	600	FRP joints at 503, 532, 561, and 589 feet bpl.
600	700	FRP joints at 618, 647, 676 feet bpl.
700	800	FRP joints at 706, 734, 763, and 792 feet bpl.
800	900	FRP joints at 821, 850, and 879 feet bpl.
900	1,000	FRP joints at 908, 937, 966, and 995 feet bpl.
1,000	1,100	FRP joints at 1,024, 1,053, and 1,083 feet bpl.
1,100	1,200	FRP joints at 1,112, 1,141, 1,171, and 1,200 feet bpl.
1,200	1,300	FRP joints at 1,230, 1,259, and 1,288 feet bpl.
1,300	1,400	FRP joints at 1,318, 1,346, and 1,376 feet bpl.
1,400	1,500	FRP joints at 1,405, 1,439, 1,463, and 1,492 feet bpl.
1,500	1,600	FRP joints at 1,522, 1,550, and 1,579 feet bpl.
1,600	1,700	FRP joints at 1,609, 1,638, 1,668, and 1,697 feet bpl.
1,700	1,800	FRP joints at 1,725, 1,754, 1,783 feet bpl.
1,800	1,900	FRP joints at 1,811, 1,841, 1,869, and 1,898 feet bpl.
1,900	2,000	FRP joints at 1,928, 1,957, and 1,986 feet bpl.
2,000	2,100	FRP joints at 2,015, 2,044, and 2,073 feet bpl.
2,100	2,200	FRP joints at 2,102, 2,131, 2,160, and 2,189 feet bpl.
2,200	2,300	FRP joints at 2,218, 2,247, and 2,276 feet bpl.
2,300	2,400	FRP joints at 2,305, 2,335, 2,364, and 2,392 feet bpl.
2,400	2,500	FRP joints at 2,421, 2,450, and 2,479 feet bpl.
2,500	2,600	FRP joints at 2,508, 2,537, 2,566, and 2,594 feet bpl.
2,600	2,700	FRP joints at 2,624, 2,652, and 2,681 feet bpl.
2,700	2,800	FRP joints at 2,709, 2,738, 2,768, and 2,797 feet bpl.
2,800	2,900	FRP joints at 2,826, 2,856, and 2,885 feet bpl.
2,900	3,000	FRP joints at 2,915 and 2,944 feet bpl. The FRP-packer connetion at 2,974 feet bpl. The base of the final casing at 2,984 feet bpl.
3,000	3,100	Near guage borehole to 3,050 feet bpl. Below 3,050 the borehole is oblong and diameter increases with depth.
3,100	3,200	Large diameter borehole
3,200	3,232	Large diameter borehole. The base of the borehole at 3,232 feet bpl.

bpl = below pad level

