



Report on the Construction and Testing of Class V Exploratory Well EW-1 at the Florida Power & Light Company Turkey Point Units 6 & 7



Prepared for the Florida Power & Light Company



McNabb
Hydrogeologic
Consulting, Inc.

Volume 1
September 2012





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September 24, 2012

MHCDEP-12-0331

Mr. Joe 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
Report on the Construction and Testing of Class V Exploratory Well EW-1 at
Florida Power & Light Company Turkey Point Units 6 & 7; FDEP Permit No.
0293962-001-UC**

Dear Mr. May:

As required by specific condition 4.J.1) of the above referenced permit, the Report on the Construction and Testing of Class V Exploratory Well EW-1 at the Florida Power & Light Company Turkey Point Units 6 & 7 is hereby submitted on behalf of Florida Power & Light Company. This submittal includes the signed and sealed original and one copy of the report. An electronic copy of the report is provided inside the front cover of each report.


The following Certification is provided for the Report on the Construction and Testing of Class V Exploratory Well EW-1 at the Florida Power & Light Company Turkey Point Units 6 & 7.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Should you have any questions regarding the report, please contact me at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.


9/24/12

David McNabb, P.G.

Holtz Consulting Engineers, Inc.


9-21-12 PE #42595

David F. Holtz, P.E.

Cc: George Heuler/FDEP-Tallahassee
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Matthew Raffenberg/FPL

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS



FPL

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FPL-005A-004

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Report on the Construction and Testing of Class V Exploratory Well EW-1 at the Florida Power & Light Company Turkey Point Units 6 & 7

INTRODUCTION

This report summarizes the construction and testing of a Class V Exploratory Well (EW-1) at the Florida Power & Light Company (FPL) Turkey Point power plant located on the shore of Biscayne Bay in Miami-Dade County, Florida. EW-1 was constructed in association with construction of the Dual-Zone Monitor Well (DZMW-1) authorized by Florida Department of Environmental Protection (FDEP) permit number 0293962-001-UC. Construction and testing was performed in accordance with Rule 62-528, Florida Administrative Code (F.A.C.), the recommendations of FDEP Technical Advisory Committee (TAC) and provisions of the FDEP Class V exploratory well construction permit. The FDEP TAC includes representatives of local, state, and federal agencies, including FDEP's state and local representatives, the South Florida Water Management District (SFWMD), the U.S. Environmental Protection Agency (EPA), and the United States Geological Survey (USGS). The Class V exploratory well construction permit allows construction and testing of an exploratory well and associated dual-zone monitor well without injection of fluids. FDEP issued the permit and FPL constructed the exploratory well to allow evaluation of the site hydrogeology for appropriate confining intervals and confirm the presence of a zone below the confining interval that is suitable to accept injected fluids.

Background

FPL is proposing to construct two new nuclear units (Units 6 & 7) at its Turkey Point Plant. The Turkey Point facility is located on the shore of Biscayne Bay in Miami-Dade County, Florida, approximately 25 miles south of Miami. The nearest city limits are Florida City, 8 miles west, and Homestead, 9 miles northwest. A Project Location Map is provided in Figure 1. A Site Plan showing the location of the exploratory well and associated dual-zone monitor well is provided in Figure 2.

Five electric generating units (two natural gas/oil conventional units, two nuclear and one combined cycle natural gas) currently exist at the site. The two additional nuclear units will be constructed to generate a nominal 1,100 megawatts each. Reclaimed water from the Miami-Dade Water and Sewer Department will be the primary cooling water source for the main cooling towers for the proposed nuclear units, with saline water serving as the back-up source. A Class I Industrial deep injection well system is proposed for disposal of non-hazardous operational industrial wastewater from Units 6 & 7. The wastewater disposal requirements for the two units are anticipated to be a combined total of approximately 18.6 million gallons per day (mgd) when using only reclaimed water for a cooling water source and approximately 84.8 mgd when using only back-up saline water as a cooling water source. Disposal volumes are estimated to be between approximately 18.6 mgd and 84.8 mgd when using a combination of reclaimed and saline water for cooling. Based on the upper bounds set for this Project, the deep injection well system is anticipated to consist of up to 13 deep injection wells, associated dual-zone monitor wells, piping and instrumentation.

FPL constructed EW-1 to confirm the geology and hydrogeology of the site and the feasibility of disposal of non-hazardous fluids via deep well injection. EW-1 was constructed to Class I Industrial deep injection well standards, in full compliance with the requirements of Chapter 403, Florida Statutes, and all applicable rules of the FDEP. FPL may convert EW-1 to a Class I Industrial deep injection well following submittal of a permit application and issuance of a Class I deep injection well construction permit. Construction of a dual-zone monitor well (DZMW-1) was completed on July 25, 2012. DZMW-1 is located approximately 75 feet south of EW-1. The dual-zone monitor well is a required component of the injection system monitoring program of a Class I Industrial deep injection well system. A separate report detailing the construction and testing of DZMW-1 will be submitted to FDEP.

Prior to beginning construction of EW-1, McNabb Hydrogeologic Consulting, Inc. assisted FPL with the design and permitting of EW-1 and DZMW-1. FDEP issued Class V exploratory well construction permit no. 0293962-001-UC to construct EW-1 and DZMW-1 on May 5, 2010. A copy of the FDEP permit to construct a Class V exploratory well is

provided in Appendix A. Construction of EW-1 began on May 11, 2011, and was completed on July 31, 2012, with the completion of the EW-1 wellhead.

Project Description

This project included the construction of one Class V exploratory well that was constructed to Class I Industrial deep injection well standards and one associated dual-zone monitor well. A report summarizing the construction and testing of the dual-zone monitor well has been submitted concurrently with this report to the FDEP. The exploratory well was constructed to a total depth of 3,230 feet below pad level (bpl) with a final 24-inch-diameter steel casing installed to a depth of 2,985 feet bpl. A nominal 18-inch-diameter fiberglass reinforced pipe (FRP) liner was installed inside the final casing of EW-1 to a depth of 2,975 feet bpl. The well was designed by McNabb Hydrogeologic Consulting, Inc. (MHC). The well was constructed by Layne Christensen Company. Resident observation during well construction was provided by a consulting team consisting of MHC, ASRus, LLC, and GEOSCI, Inc. David Holtz, P.E., of Holtz Consulting Engineers, Inc. served as the Engineer of Record for construction of EW-1.

Construction activities at the project site included installation of a temporary drilling pad and shallow pad monitor wells, construction and testing of exploratory well EW-1 and construction and testing of dual-zone monitor well DZMW-1.

A tabulated summary of well construction activities for EW-1 and weekly construction summary cover letters are presented in Appendices B and C, respectively.

CONSTRUCTION PHASE

The following describes the construction and data collection associated with the construction of exploratory well EW-1 and the associated pad monitoring wells.

Pad Monitor Wells

The construction permit required the installation of pad monitor wells at the northeast, southeast, southwest and northwest corners of the EW-1 construction pad to monitor for groundwater impacts related to leakage from the temporary drilling pad or spillage of construction fluids. The wells were constructed to a depth of 30 feet below land surface with 20 feet of 2-inch-diameter schedule 40 PVC casing and a 10-foot long, 2-inch-diameter 20-slot PVC screen. Each pad monitor well was labeled with its name upon completion. The elevation of the top of casing of each of the pad monitor wells was measured relative to the North American Vertical Datum of 1988 (NAVD 88) to allow measurement of the elevation of the water table. The wells were completed with a steel enclosure to protect the wells from damage. Table 1 provides the pad monitor well top of casing elevations.

Table 1. Pad Monitor Well Top of Casing Elevations

Well Name	Elevation (feet above NAVD 88)
SE-EW PMW	8.59
NE-EW PMW	8.88
NW-EW PMW	8.84
SW-EW PMW	8.88

Water table elevation data and groundwater samples were collected from each pad monitor well and analyzed for specific conductance, chlorides, total dissolved solids (TDS), and temperature to establish background water quality data prior to beginning construction of EW-1. The pad monitor wells were then sampled weekly throughout the EW-1 well construction period. The samples were analyzed for specific conductance, chlorides, TDS, and temperature. Water level measurements were also taken just prior to each sample collection. Figure 3 provides a diagram of a typical pad monitor well.

Exploratory Well EW-1

FDEP approval to begin drilling operations was received on May 2, 2011. A copy of the e-mail providing approval to begin drilling is provided in Appendix D. Construction of exploratory well EW-1 began on May 11, 2011. Prior to beginning drilling operations, an elevation survey identified the pad elevation at the top of the 64-inch-diameter pit pipe at 7.18 feet NAVD 88. All measurements during construction and testing of EW-1 were taken relative to the pad elevation at the top of the 64-inch-diameter pit pipe. Mud rotary drilling was used to drill the interval from land surface to 1,095 feet bpl. A closed circulation, reverse-air system was used to drill the interval from 1,095 to 3,265 feet bpl to allow collection of pilot hole water samples. A stripping head was installed prior to penetrating the Floridan Aquifer and was utilized for blowout-prevention. A mixture of barite and bentonite was used to control the artesian head while drilling in artesian zones. Salt was also used for control of artesian head after casing had been installed to a depth below the base of the Underground Source of Drinking Water (USDW). The USDW is defined as a non-exempt aquifer or its portion which either a) supplies drinking water for human consumption b) is classified as F-I, G-I, or G-II groundwater, or c) contains less than 10,000 mg/L of TDS. A summary of the type of material used to control artesian head, the dates the material was used and the approximate amount of material used is provided in the Daily Kill Material Log provided in Appendix E.

Deviation surveys were performed on pilot and reamed holes to monitor the boreholes for deviation from vertical. The deviation surveys were performed at not greater than 90-foot intervals from land surface to a depth of 1,604 feet bpl, at which depth the testing intervals were decreased to not greater than 60 feet in accordance with the construction permit. A copy of the deviation survey summary sheet is provided in Appendix F. Deviation survey data indicate the boreholes were no greater than 0.6 degrees from vertical throughout the project.

Formation samples (drill cuttings) were collected and described at 10-foot intervals from land surface to a depth of 2,800 feet bpl and at 5-foot intervals below a depth of 2,800 feet bpl during the drilling of the pilot hole. Additional data collected during pilot hole drilling included water samples collected at 90-foot intervals during reverse-air drilling, packer

testing hydraulic data and water samples, geophysical logs and rock cores. These data were interpreted to provide geologic and hydrogeologic information for the site and to assist in selection of the casing setting depths. Geophysical logging was performed in conformance with the geophysical logging program provided in the EW-1 construction permit application supporting information and the requirements of the EW-1 construction permit. Following completion of pilot hole data collection, the pilot hole was reamed to the appropriate diameter for casing installation. Reamed holes were conditioned by making several wiper passes to enable unobstructed installation of casings and conditions for optimum bonding of cement to casing and cement to formation and to prevent channeling during cementing operations. MHC, Inc. prepared and submitted casing setting depth recommendations for FDEP approval prior to installation of the intermediate and final casings of EW-1.

Exploratory well EW-1 was constructed with new and unused 54-, 44-, 34-, and 24-inch outside diameter steel casings designed to last for the life expectancy of the well. The final 24-inch-diameter casing has a 0.5-inch wall thickness, is seamless, and conforms to American Petroleum Institute (API) 5L specifications. The final casing was selected to meet requirements set forth in Rule 62-528.410(4)(b), F.A.C., provide protection against casing failure during cementing operations, protect against failure during operation of the well and subsequent pressure tests, and provide sufficient corrosion protection. A nominal 18-inch-diameter FRP injection tubing was installed inside the 24-inch-diameter casing to protect the 24-inch-diameter casing from corrosion.

Each steel casing was fully cemented with American Society of Testing and Materials (ASTM) Type II cement from the base of the casing to land surface to prevent movement of fluids into or between USDWs, maintain groundwater quality in aquifers above the injection zone, and protect casings from corrosion. All cementing of casing was in accordance with American Water Works Association (AWWA) Standard for Water Wells, A100-06-2006. When appropriate, casings were pressurized during cementing to prevent against casing collapse. Temperature logs were performed following each cement stage that did not result in cement returns at surface. All casings were centralized to ensure the presence of an adequate annulus around the casing. Casing depths and the types and quantities of cement used for the construction of EW-1 are summarized in Appendix G. Casing mill certificates

for each of the casings and the FRP injection tubing used during construction of EW-1 are presented in Appendix H.

Prior to beginning construction of EW-1, the contractor vibrated a 64-inch-diameter steel pit pipe to a depth of 33 feet bpl and constructed a steel construction pad for containment of fluids introduced into and produced from the well during construction. Construction of EW-1 began with drilling a pilot hole to a depth of 255 feet bpl using a 12¼-inch-diameter bit. A caliper and gamma ray log was then performed on the pilot hole before reaming the pilot hole to a depth of 260 feet bpl using a 62½-inch-diameter drill bit. A caliper and gamma ray log was then performed on the reamed hole. The geophysical log and lithologic data were used to select a casing setting depth of 255 feet bpl. The 54-inch-diameter casing was installed to a depth of 255 feet bpl and cemented to land surface.

Below the base of the 54-inch-diameter casing, a pilot hole was drilled using mud rotary drilling techniques to a depth of 1,090 feet bpl using a 12¼-inch-diameter bit. The pilot hole then underwent geophysical logging, which included performance of caliper, gamma ray, spontaneous potential, and dual-induction logs. The pilot hole was then reamed using a 52½-inch-diameter drill bit to a depth of 1,095 feet bpl. A caliper and gamma ray log was then performed on the reamed hole. The 44-inch-diameter casing was installed to a depth of 1,090 feet bpl and cemented to land surface.

A 12¼-inch-diameter drill bit was then used to drill a pilot hole to a depth of 1,655 feet bpl. The open hole interval then underwent pilot hole geophysical logging. Logs performed 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 both static and dynamic conditions. The remaining logs were performed under static conditions. Geophysical log data were used to select four intervals for straddle packer testing. These intervals include 1,102 to 1,162, 1,225 to 1,285, 1,400 to 1,430, and 1,505 to 1,535 feet bpl. Packer testing was performed to identify the depth of the base of the USDW and to evaluate the fluid-producing characteristics of the test intervals.

Based on interpretation of the results of packer testing, geophysical logging, and formation sample data, a 34-inch-diameter casing setting depth of 1,535 feet bpl was recommended to

and approved by the FDEP. A copy of the FDEP e-mail approving the 34-inch diameter casing seat recommendation is provided in Appendix D. The pilot hole was then backplugged with 12 percent bentonite cement blend from the base of the pilot hole to a depth of 1,094 feet bpl to eliminate the possibility of an open conduit resulting from the reamed hole potentially tracking off of the pilot hole during drilling. A 42½-inch-diameter bit was then used to drill a hole to a depth of 1,542 feet bpl. A caliper and gamma ray log was then performed on the reamed hole in preparation for and to assist with installing the 34-inch-diameter intermediate casing. The 34-inch-diameter casing was then installed to a depth of 1,535 feet bpl and cemented to land surface.

A 12¼-inch-diameter bit was then used to drill a pilot hole from the base of the 34-inch-diameter casing to a depth of 3,265 feet bpl using reverse-air drilling techniques. When necessary, pilot hole drilling was interrupted to collect ten cores over the interval from 1,721.5 to 2,679 feet bpl.

Pilot hole drilling was slowed by the presence of a significant dredge zone that was encountered at a depth of 3,192 feet bpl and extended to the base of the pilot hole at a depth of 3,265 feet bpl. Because of this dredge zone the pilot hole filled in to a depth of 3,232 feet prior to geophysical logging of the pilot hole and it repeatedly filled in with limestone and dolomite gravel and sand, inhibiting advancement of the borehole below a depth of 3,265 feet bpl. Based on regional hydrogeologic data additional permeable strata are anticipated to be present at greater depth.

The open hole interval then underwent pilot hole geophysical logging. Logs conducted included; caliper, gamma ray, spontaneous potential, dual-induction, borehole compensated sonic, video, flowmeter, fluid conductivity, and temperature. All logs were performed under static conditions. In addition, the flowmeter, fluid conductivity and temperature logs were also performed under dynamic conditions. The pilot hole had filled in with formation material from the dredge zone to a depth of 3,232 feet bpl at the time of geophysical logging. The caliper log showed that the pilot hole had a very large diameter which exceeded 22-inches over most of the pilot hole. A borehole televiewer log, which had been specified to be performed on the pilot hole, was not performed on since the diameter of most of the pilot hole exceeded the field of investigation of the tool. Elimination of the borehole televiewer

from the logging program was discussed with FDEP. A copy of the FDEP e-mail approving the elimination of the borehole televiewer log is provided in Appendix D. Geophysical log data were used to select intervals for inflatable packer testing. The geophysical log data revealed that the diameter of much of the pilot hole exceeded the diameter to which the inflatable packers can safely inflate. Therefore, some of the inflatable packer tests were performed with sleeves installed on the inflatable packers to increase the effective diameter at which the inflatable packers can safely be inflated. Some portions of the borehole had to undergo reaming to allow installation of the sleeved inflatable packers. This reaming was performed in stages to allow geophysical logging and packer testing to proceed as portions of the borehole were reamed. The reaming that was performed to allow packer testing was originally specified to be performed after completion of packer testing. A total of six packer tests were successfully performed to evaluate the confining characteristics of the test intervals and to confirm the presence of the "Boulder Zone" at the site. One packer test and a formation test was performed to confirm the presence of the "Boulder Zone" prior to selecting a setting depth for the 24-inch diameter final casing. Performance of the formation test was not included in the well construction specifications but was deemed necessary to demonstrate that the borehole had at least partially penetrated the "Boulder Zone". A copy of the FDEP e-mail approving the performance of the formation test is provided in Appendix D.

Based on interpretation of the results of packer testing, coring, geophysical logging, and formation sample data, a 24-inch-diameter final casing setting depth of 2,980 feet bpl was recommended to and approved by the FDEP and TAC. A copy of the FDEP e-mail approving the final casing seat recommendation is provided in Appendix D. The pilot hole was then reamed to a depth of 2,978 feet bpl using a 32-inch-diameter bit. A 24-inch-diameter bit was then used to ream the interval from 2,978 to 2,980 feet bpl. A 22-inch-diameter bit was then used to ream the interval from 2,980 to 3,230 feet bpl, the total depth of the exploratory well. The well construction specifications indicated that the pilot hole would be backplugged with cement prior to performing the above described reaming, however, the large diameter of the pilot hole eliminated the need to backplug the pilot hole. A copy of the FDEP e-mail approving the elimination of the need to backplug the pilot hole is provided in Appendix D.

A caliper and gamma ray log was then performed on the reamed hole in preparation for installation of the 24-inch-diameter steel final casing. Based on field conditions, the 24-inch-diameter casing was installed to a depth of 2,985 feet bpl and cemented from the base of casing to a depth of 313 feet bpl. A cement bond log was then performed on the 24-inch-diameter casing prior to cementing the interval from 313 feet bpl to land surface. A video survey and successful pressure test was then performed on the 24-inch-diameter casing.

A nominal 18-inch-diameter FRP injection tubing was then installed inside the 24-inch-diameter casing to a depth of 2,975 feet bpl. The FRP transitions to 16.5-inch-diameter duplex steel casing at a depth of 12.5 feet bpl. The annular space between the 24-inch-diameter final steel casing and the nominal 18-inch-diameter FRP injection tubing was filled with a one percent solution of Baracor 100 corrosion inhibitor prior to seating the base of the FRP injection tubing into an annular packer installed on the inside of the 24-inch-diameter casing. The annular space between the final casing and the injection tubing was then successfully pressure tested. The open hole interval of 2,985 to 3,230 feet bpl would serve as a portion of the injection zone if EW-1 is converted to Class I Industrial deep injection well IW-1. A copy of the Material Safety and Data Sheet (MSDS) for Baracor 100 is provided in Appendix I.

The completed well was then developed and background "Boulder Zone" water sampling took place. EW-1 then underwent final video logging. Water level of the well was then allowed to recover and stabilize prior to measuring the static head of the open hole interval at an elevation of 6.20 feet above NAVD 88. Figure 4 provides a completion diagram of EW-1. A diagram of the temporary wellhead installed on EW-1 is provided in Figure 5. A final site survey was performed at the completion of construction to provide precise well location and elevation data. A copy of the Certified as-built survey, a Certification of Class V Well Construction Completion, Certification of Completion of surface equipment, and signed and sealed as-built diagrams of EW-1 are provide in Appendix J.

GEOLOGIC AND HYDROGEOLOGIC DATA COLLECTION AND FRAMEWORK

The geologic and hydrogeologic characteristics of the site were interpreted from physical (drill cutting samples and rock cores), hydraulic (packer tests) and electronic data (geophysical logs). These data help to identify and characterize the geologic formations and hydrogeologic units penetrated by the well bore.

Drill Cutting Samples

Drill cutting samples from EW-1 were collected at 10-foot intervals from land surface to a depth of 2,800 feet bpl, at which point sampling frequency was increased to 5-foot intervals. The samples were described for rock type, color, grain size, consolidation, porosity, and fossils. The lithologic descriptions were useful for determining the geologic formations penetrated by the well bore. A detailed lithologic log of drill cutting samples from EW-1 is provided in Appendix K.

Geophysical Logging

Geophysical logs were performed in the pilot hole of EW-1 to correlate drill cutting samples to geophysical logs, to identify formation and hydrogeologic boundaries, to aid in the selection of straddle packer testing intervals and casing setting depths, to assist in the delineation of the base of the lowermost USDW, and to obtain specific data pertaining to the subsurface formations. A copy of the geophysical log prints performed during construction of the well are provided in Volume 2, Appendix L of this report. A copy of each of the video surveys performed is provided on the digital video discs provided in Appendix L. Table 2 provides a summary of the logs performed during construction of EW-1.

Table 2. Geophysical Logging Schedule

Logging Event	Date Started	Logged Interval (feet bpl)	Logs Performed
1	May 15, 2011	0 to 255	GR and C
2	May 25, 2011	0 to 260	GR and C
3	June 5, 2011	0 to 1,090	GR, C, DI and SP
4	June 20, 2011	0 to 1,095	GR and C
5	June 23, 2011	0 to 1,085	CT
6	July 11, 2011	1,100 to 1,655	C, GR, DI, SP, BCS, FC, T and FM
7	July 31, 2011	1,000 to 1,542	GR and C
8	August 5, 2011	0 to 1,520	CT
9	November 30, 2011	1,500 to 3,230	C, GR, DI, SP, BCS, FC, T and FM
10	January 6, 2012	1,450 to 2,742	GR and C
11	January 15, 2012	1,500 to 2,900	GR and C
12	January 24, 2012	1,475 to 2,900	GR and C
13	February 11, 2012	1,535 to 3,232	V
14	February 21, 2012	1,450 to 3,230	GR and C
15	March 3, 2012	0 to 2,970	CT
16	March 7, 2012	0 to 2,985	CBL
17	March 10, 2012	0 to 2,980	V
18	April 11, 2012	0 to 3,230	V
19	June 15, 2012	0 to 3,230	T

GR = gamma ray; C = caliper; DI = dual-induction; SP = spontaneous potential;
 BCS = borehole compensated sonic; FC = fluid conductivity; T = temperature;
 CT = cement top temperature; FM = flowmeter; CBL = cement bond log; V = video

Rock Cores

Rock core samples were collected during pilot hole drilling to provide an intact rock sample of the cored intervals. Cores were obtained using a 4-inch-diameter core bit on a 17-foot-long core barrel. A description of each core, including rock type, color, grain size, consolidation and porosity was prepared after measuring each core. A total of 10 cores between the depths of 1,721.5 and 2,679.0 feet bpl were collected during pilot hole drilling of EW-1. Portions of the rock core samples were sent to a geotechnical testing laboratory for analysis. 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
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 percent to 95.4 percent. All cores consisted of dolomitic limestone and/or limestone. Each of the cores collected below a depth of 2,026 feet bpl have low porosity and permeability and show visually 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 Appendix M.

Site Geology and Hydrogeology

A stratigraphic profile of the site was derived from the correlation of formation samples with geophysical logs performed during pilot hole drilling. Strata encountered during construction of the exploratory well ranged from Holocene to Eocene Age deposits. The stratigraphic units and their respective ages are as follows: Miami Limestone and Fort Thompson Formation of Pleistocene Age, the Tamiami Formation of Pliocene to Miocene Age, the Hawthorn Group of formations of Miocene to Late Oligocene Ages, the Suwannee Limestone of Early Oligocene Age, and the Avon Park and Oldsmar Formations of the Eocene Age. Figure 6 provides a generalized hydrogeologic column of the lithologic and geophysical data for EW-1. Lithostratigraphic and hydrogeologic descriptions of the strata penetrated by the EW-1 borehole are provided below.

Lithostratigraphic and Hydrogeologic Descriptions

Miami Limestone, Ft. Thompson, and Tamiami Formations

The Miami Limestone, Ft. Thompson, and Tamiami Formations of the Pleistocene to Pliocene Ages make up layers of sand, shells, limestone, sandy limestone, and, in the basal unit of the Tamiami Formation, dark greenish gray, clay-rich silt. The Miami Limestone, Ft. Thompson Formation and upper portion of the Tamiami Formation make up the Biscayne Aquifer at the site. The presence of dark greenish-gray, clay-rich silt at a depth of approximately 140 feet bpl marks the base of the Biscayne Aquifer. The base of the Tamiami Formation is located at a depth of approximately 210 feet bpl and marks the top of the Hawthorn Group.

Hawthorn Group

The Hawthorn group of the Miocene and Late Oligocene Age constitutes the confining interval between the Biscayne Aquifer and the Floridan Aquifer System. It is present at the site from a depth of approximately 210 to approximately 1,010 feet bpl. The Hawthorn Group sediments at the site consist of interbedded green clays, silt, sand, phosphate-rich calcareous limemuds and limestone layers similar to a marl. The Hawthorn Group makes up the Intermediate Confining Unit that separates the Biscayne Aquifer from the Upper Floridan aquifer at the site.

Suwannee Limestone

The Suwannee Limestone of the Oligocene Age occurs from a depth of approximately 1,010 to 1,255 feet bpl and generally consists of fine grained, moderately to well consolidated limestone and dolomitic limestone. It is characterized by relatively low to moderate gamma ray activity (compared to the overlying Hawthorn Group) and moderate resistivity. The Suwannee Limestone is part of the Upper Floridan aquifer, is under artesian pressure and contains brackish water.

Avon Park Formation

The Avon Park Formation of the Eocene Age occurs from a depth of 1,255 to 2,580 feet bpl. The Avon Park Formation consists primarily of interbedded yellowish gray to very pale orange, very fine to fine grained, limestone interbedded with intervals of yellowish brown to dark yellowish brown, very fine grained dolomite. The upper portion of the Avon Park

Formation (1,255 to 1,930 feet bpl) is more permeable than the lower portion, however, there are additional confining intervals present between the base of the USDW at a depth of approximately 1,450 feet bpl and 1,930 feet bpl. Relatively confining intervals within permeable intervals of the Avon Park Formation prevent intra-aquifer mixing of fluids of differing quality. The lower portion (1,930 to 2,580 feet bpl) of the formation serves as part of the primary confinement below the base of the lowermost USDW and prevents fluids of differing quality from migrating between more permeable zones above and below this confining interval. As with the Suwannee Limestone above, the Avon Park Formation is also part of the artesian Upper Floridan Aquifer with brackish water less than 10,000 mg/L total dissolved solids residing in the upper portion and saline water residing in the lower portion.

Oldsmar Formation

The Oldsmar Formation of the Eocene Age occurs from a depth of 2,580 feet bpl to below the total depth of the well. The lithology of the Oldsmar Formation at this site is limestone, dolomitic limestone and dolomite. The upper portion of the Oldsmar Formation serves as the lower portion of the primary confinement below the base of the USDW. The Oldsmar Formation contains highly transmissive, fractured, and cavernous intervals known as the "Boulder Zone". EW-1 was designed to allow injection into the "Boulder Zone" if it is converted to a Class I Industrial deep injection well. The top of the "Boulder Zone" is located below the lowermost USDW at a depth of 3,030 feet bpl at the site and there are no USDWs within the "Boulder Zone" within ¼-mile of the EW-1 site.

HYDROGEOLOGIC TESTING DURING CONSTRUCTION

Hydrogeologic testing during construction of EW-1 included collection of pad monitor well samples, pilot hole water samples during reverse-air drilling, core analyses, and packer testing.

Pad Monitor Well Data

Prior to beginning construction of EW-1, groundwater samples and water level data were collected from the pad monitor wells to establish background conditions within the uppermost surficial aquifer at the site. Weekly sampling took place during construction and testing of EW-1. A final sampling event took place following completion of construction and testing of EW-1. Water level relative to NAVD 88 was recorded for each pad monitor well prior to purging the wells for groundwater sample collection. Samples were analyzed for specific conductance, TDS, chloride, and temperature. Water level measurements, sample collection and laboratory analyses were performed by Florida Spectrum Environmental Services, Inc. throughout the project.

Review of the pad monitor well water level data indicates that, in general, water table levels at the site decreased over time during construction of EW-1. Background water table levels ranged from -1.51 to -1.66 feet NAVD 88. Water table elevations ranged from -0.28 to -1.10 feet NAVD 88 after completion of construction and testing of EW-1. Pad monitor well water levels were generally lowest during November through May, corresponding to the South Florida dry season. Pad monitor well water quality parameters generally remained stable throughout the sampling period. Each of the pad monitor wells were plugged and abandoned in accordance with Rule 40E-3.531, F.A.C. following receipt of FDEP approval and a Miami-Dade Health Department permit to allow plug and abandonment of the wells. Pad monitor well data summary sheets and a copy of the Miami-Dade Health Department plug and abandonment permit are provided in Appendix N.

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, chloride, specific conductance, TDS, and total Kjeldahl nitrogen (TKN). The pilot hole specific conductance, chloride, and

TDS data were evaluated to provide information related to identifying the base of the lowermost USDW.

It should be noted that the drilling process for EW-1 used a closed circulation system in which drilling water was 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 4 provides a summary of the EW-1 pilot hole water quality data. A copy of the water quality sample analytical reports and pilot hole water quality summary table is provided in Appendix O. Figure 7 provides a graph of pilot hole water sample chloride, specific conductance and TDS results 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. With the exception of three peaks, a general trend of increasing chloride, specific conductance and TDS concentrations with depth is apparent. As the pilot hole drilling progressed, the pilot hole water consisted of a greater percentage of native groundwater than it did at shallower depths. Additionally, the concentration of TDS and chloride and specific conductance of the native groundwater increases with depth. Occasional peaks in chloride, specific conductance and TDS concentrations can be attributed to the closed circulation reverse-air drilling method.

Table 4. 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
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
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 8 provides a graph of ammonia and TKN concentrations relative to depth. Review of the data indicates the pilot hole water samples have low concentrations of ammonia and TKN, which is typical of the Floridan aquifer water quality.

Rock Core Analytical Data

As previously mentioned, a total of ten cores were collected between the depths of 1,721.5 and 2,679 feet bpl during pilot hole drilling of EW-1. Portions of each rock core sample were sent to a geotechnical testing laboratory (Ardaman & Associates, Inc.) for laboratory analysis. A total of 16 samples were analyzed for vertical and horizontal hydraulic conductivity, specific gravity, porosity, unconfined compressive strength, and Young's Modulus. Some of the core samples did not contain enough intact pieces to perform each of

the laboratory analyses. A copy of the detailed core samples laboratory report is provided in Appendix P. Table 5 presents a summary of the core analytical data.

Table 5. Core Analytical Data Summary

Sample Depth (ft. bpl)	Vertical Hydraulic Conductivity (cm/sec)	Horizontal Hydraulic Conductivity (cm/sec)	Specific Gravity	Total Porosity (%)	Compressive Strength (lb/in ²)	Young's Modulus (lb/in ²)
2026.4-2027.0	3.3×10^{-6}	3.2×10^{-6}	2.71	27.4	1,588	8.2×10^5
2027.0-2027.5	3.7×10^{-4}	7.8×10^{-4}	2.70	35.0	NA	NA
2029.4-2030.4	1.0×10^{-5}	2.8×10^{-5}	2.71	33.6	1,440	5.5×10^5
2030.4-2031.3	3.0×10^{-5}	1.3×10^{-4}	2.71	36.6	1,551	9.8×10^5
2036.2-2036.7	7.6×10^{-5}	1.1×10^{-4}	2.72	35.5	NA	NA
2036.7-2037.9	NA	NA	NA	NA	1,193	5.3×10^5
2295.2-2296.0	1.9×10^{-4}	1.0×10^{-4}	2.74	39.5	738	1.6×10^5
2296.0-2296.75	8.4×10^{-5}	5.9×10^{-4}	2.72	37.9	1,187	4.6×10^5
2296.75-2297.5	1.0×10^{-4}	1.0×10^{-4}	2.72	38.5	608	7.2×10^4
2399.9-2400.9	5.4×10^{-4}	5.4×10^{-4}	2.70	38.7	1,087	6.1×10^5
2576.0-2577.0	1.9×10^{-4}	2.5×10^{-4}	2.71	41.4	699	3.9×10^5
2639.3-2639.7	1.6×10^{-6}	8.4×10^{-5}	2.69	33.7	NA	NA
2639.7-2640.2	NA	NA	NA	NA	1,629	6.9×10^5
2645.1-2645.5	1.4×10^{-5}	6.2×10^{-6}	2.70	36.9	NA	NA
2645.5-2646.5	NA	NA	NA	NA	1,581	6.0×10^5
2652.0-2652.8	2.8×10^{-6}	4.6×10^{-6}	2.71	34.5	554	8.2×10^4
2652.8-2653.5	2.3×10^{-6}	2.5×10^{-5}	2.71	33.2	752	1.6×10^5
2675.1-2675.6	2.7×10^{-4}	2.9×10^{-4}	2.71	39.5	NA	NA
2675.6-2676.1	NA	NA	NA	NA	1,057	5.8×10^5
2676.1-2677.0	1.1×10^{-6}	5.3×10^{-4}	2.72	43.4	567	3.0×10^5

NA = Not available

Review of the core laboratory data indicates the vertical hydraulic conductivity ranged from 1.1×10^{-6} cm/second to 5.4×10^{-4} cm/second, indicating the cored intervals are confining in nature.

Packer Tests

A total of ten intervals were successfully packer tested during construction of EW-1. Packer testing was attempted on additional intervals, but were terminated when either the packers failed to isolate the test interval or the test interval was productive and not suitable for packer testing. 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. Nine of the ten packer tests were performed using straddle packers to isolate a test interval between the packers. The purpose of straddle packer testing was to delineate the base of the lowermost USDW and to evaluate the confining nature of strata above the injection zone and below the base of the lowermost USDW. One of the ten packer tests was performed using a single, open-ended packer to assist in the evaluation of the "Boulder Zone".

Packer testing took place by first inflating the packers at the test interval, developing the test interval until it was free of solids, allowing the water level to recover, pumping the test interval until water level had stabilized, then shutting off the pump and allowing water level in the test interval to recover. Water level data were collected and recorded during each test using a submerged pressure transducer and a Hermit 3000 data logger. Water samples were also collected at the end of pumping after establishing that the quality of water produced from the test interval had stabilized. Samples were field tested for specific conductance, temperature, and pH and sent to a state certified lab (Florida Spectrum Environmental Services, Inc.) for TDS, chloride, ammonia, TKN, and sulfate analyses. A copy of the lab report for each of the packer tests along with a table summarizing the packer test laboratory analytical results are provided in Appendix Q. Based on the packer tests water sample analytical data, the base of the lowermost USDW at the EW-1 site is located between a depth of 1,430 and 1,505 feet bpl. This is consistent with the log-derived TDS curve, which showed the base of the lowermost USDW at a depth of approximately 1,450 feet bpl. Water samples from all packer tests performed below a depth of 1,505 feet bpl had a TDS concentration of greater than 10,000 mg/L, further supporting this conclusion.

Table 6 provides a summary of pumping rate, water level drawdown, and the calculated specific capacity data of tested intervals. The specific capacity is calculated by dividing the pumping rate (in gpm) by the resulting drawdown (in feet) and is expressed in terms of gallons per minute per foot of drawdown (gpm/foot). Intervals where packer testing was terminated prior to performance of a test are also included in Table 6. Figures 9 through 18 provide an interpreted graph of water level drawdown data for each of the packer tests that

were performed. The specific capacity of the test intervals ranged from 0.003 gpm/foot to 49 gpm/foot. It should be noted that packer tests performed in low permeability zones typically provide a very conservative measurement of the confining characteristics of a confining interval due to fluids leaking past the inflatable packers used to isolate the test interval. Therefore, the true specific capacity of each of these tested intervals is probably less than is indicated by the packer test performance data.

Table 6. 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
5	1,930 - 1,952	2	60	0.03
6	2,984 - 3,011	Terminated due to test interval productivity		
7	3,020 - 3,232	78	1.6	49
8	1,970 - 1,992	0.5	145.8	0.003
9	2,058 - 2,080	4.9	98	0.05
10	2,183 - 2,205	Terminated due to packers not isolating test interval		
11	2,552 - 2,574	Terminated due to packers not isolating test interval		
12	2,634 - 2,656	Terminated due to packers not isolating test interval		
13	2,844 - 2,866	Terminated due to packers not isolating test interval		
14	2,480 - 2,502	Terminated due to packers not isolating test interval		
15	2,552 - 2,574	Terminated due to packers not isolating test interval		
16	2,694 - 2,716	Terminated due to packers not isolating test interval		
17	2,220 - 2,242	3.9	71	0.05
18	2,400 - 2,422	Terminated due to packers not isolating test interval		
19	2,478 - 2,500	22	91	0.24

The packer test water level data indicate that the packer tests performed between the depths of 1,930 feet bpl and 2,500 feet bpl were performed on intervals that 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 (3,020 to 3,232 ft bpl) is highly 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.” Friction losses within the drill pipe did negatively impact water level drawdown data, resulting in a lower specific capacity for the “Boulder Zone” than would be observed during well operation.

Additional interpretation of testing data is provided in the 34-Inch and 24-Inch Casing Seat Recommendations submitted to the TAC on July 20, 2011 and February 21, 2012, respectively. A copy of the text portion of the recommendation submittals is provided in Appendix R.

Background Injection Zone Sampling

Following completion of construction of EW-1, the exploratory well was fully developed to allow collection of a representative background water sample from the proposed injection zone. Development took place at a rate of approximately 145 gpm for a period of approximately 37 hours. A total volume of 324,000 gallons was developed from the well prior to sample collection. Florida Spectrum Environmental Services, Inc. then collected a groundwater sample of the injection zone to establish background water quality conditions. The sample was analyzed for Primary and Secondary Drinking Water Standards and Municipal Wastewater Minimum Criteria Groundwater Monitoring Parameters. The results of injection zone background water quality analyses are presented in Appendix S. Review of the background data indicates the TDS concentration of the “Boulder Zone” at the EW-1 location is 36,200 mg/L, which exceeds the 10,000 mg/L maximum TDS concentration to be classified as a USDW. The reported ammonia and TKN concentrations of <0.01 mg/L and 0.11 mg/L, respectively, demonstrate that groundwater in the “Boulder Zone” at the EW-1 location has not been impacted by the operation of Class I deep injection well systems in Miami-Dade County.

Formation Testing

A formation test was performed to confirm the penetration of EW-1 into the “Boulder Zone” and evaluate the aquifer below a depth of 3,010 feet bpl at the EW-1 site. 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.

Figure 19 presents downhole pressure and pumping rate data for the entire formation test period. Figure 20 presents the surface pressure and pumping data for the entire formation test period. Figures 21 and 22 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” and the “Boulder Zone” is capable of accepting injection.

Confinement Data Summary

Testing performed during construction of EW-1 to evaluate whether effective vertical confinement is present below the base of the USDW included analysis of rock cores, geophysical logging and packer testing. Interpretation of the testing data allowed identification of the interval from approximately 1,930 to 2,915 feet bpl as the primary confining interval between the base of the USDW and the “Boulder Zone”.

Geophysical log data included 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. The geophysical log data, coupled with the rock core and packer test data allowed the interval from 1,535 to 3,232 feet bpl to be divided into three intervals with varying confining characteristics.

The interval from 1,535 to 1,930 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 55 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.

Interpretation of the geophysical logs indicates the interval from 1,535 to 1,930 feet bpl consist of beds of 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. The relatively short acoustic travel time for beds within the interval between approximately 1,770 and 1,870 feet bpl, coupled with no indication of fracturing indicates the presence of good confinement within this interval. One rock core was collected within this interval, however, none of the core pieces were large enough for laboratory analysis. This interval has both confining and productive characteristics, but does not make up the primary confinement at the site due to the number of zones that appear to be permeable in nature.

The interval from 1,930 to 3,030 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 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 1,930 and 2,915 feet bpl. There is no indication of vertically extensive or significant fracturing within the interval. These data represent that almost all the interval between 1,930 and 2,915 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. It should be noted that the porosity curve provided on the borehole compensated sonic log shows a lower porosity than the measured porosity of rock core samples. This is

most likely due to the large diameter of the borehole when the geophysical logs were performed. A total of 16 rock core samples were collected and analyzed and five straddle packer tests were performed within this interval to provide additional confinement-related information. Rock core vertical hydraulic conductivities ranged from 1.1×10^{-6} cm/second to 5.4×10^{-4} cm/second. Based on geophysical log data, it appears that the cored intervals do not include the most confining strata. Specific capacity of test intervals for packer tests performed within this interval ranged from 0.003 gpm/foot to 0.24 gpm/foot. The low vertical hydraulic conductivity of rock core sample coupled with the low specific capacity of the straddle packer test intervals and geophysical log data indicate the interval from 1,930 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 3,030 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. A packer test performed within this interval demonstrated a high specific capacity. Additionally, formation testing confirmed the permeable nature of this interval. This interval represents the Boulder Zone at the site and is not confining in nature.

In summary, based on interpretation of data presented herein the interval from 1,930 to 2,915 feet bpl is the primary confining unit between the base of the USDW and the injection zone.

MECHANICAL INTEGRITY TESTING

Mechanical integrity testing (MIT) of exploratory well EW-1 was performed. Testing of exploratory well EW-1 included performance of pressure testing, cement bond logging and video inspection of the final casing of EW-1, video inspection of the FRP injection tubing, and pressure testing of the annular space between the final casing the FRP injection tubing. This testing was designed to demonstrate satisfactory internal mechanical integrity (no leaks in the tubing or casing) of the injection well system. Additional testing (radioactive tracer testing) will be performed if EW-1 is converted to Class I deep injection well IW-1 to demonstrate satisfactory external mechanical integrity. External mechanical integrity is defined as a lack of fluid movement within the annulus of an injection well. Results of the testing performed demonstrated satisfactory internal mechanical integrity of EW-1.

Pressure Testing

The 24-inch-diameter casing underwent pressure testing to demonstrate internal mechanical integrity. On March 12, 2012, a casing pressure test was successfully conducted on the 24-inch-diameter casing of EW-1. An inflatable packer was installed to a depth of 2,963 feet bpl in preparation for pressure testing. The casing was pressurized and pre-tested to allow any air introduced during pressurizing of the casing to rise to the surface. Precaution was taken to release a small portion of the pressure to ensure no air was trapped inside the casing before starting the 60-minute pressure test. The casing pressure at the start of the test was 155.0 psi. The pressure was monitored for a 60-minute period with a 200-psi calibrated pressure gauge. Pressure readings were recorded throughout the 60-minute test at 5-minute intervals. At the conclusion of the test, the casing pressure was 156.0 psi. The 1.0 psi gain in pressure is within the allowable 5 percent change in pressure (7.85 psi) specified in Rule 62-528.300(6)(e), F.A.C., and successfully demonstrated the mechanical integrity of the 24-inch diameter final casing. Deborah Daigle, P.G., (ASRus, LLC) observed the casing pressure test. FDEP was invited to witness the pressure test, but declined to witness the test. A total of approximately 50 gallons of water were drained to the containment pad when the pressure was released from the casing.

The annular space between the 24-inch-diameter casing and the nominal 18-inch-diameter FRP injection tubing underwent pressure testing to demonstrate internal mechanical integrity of the 24-inch-diameter casing, the FRP injection tubing and the positive-seal packer at the base of the injection tubing. On June 21, 2012, an annular pressure test was successfully conducted on the annular space. The annular space was pressurized and pre-tested to allow any air introduced during pressurizing of the annulus to rise to the surface. Precaution was taken to release a small portion of the pressure to ensure no air was trapped inside the casing before starting the 60-minute pressure test. The annular pressure at the start of the test was 160.5 psi. The annular pressure was monitored for a 60-minute period with a 200-psi calibrated pressure gauge. Pressure readings were recorded throughout the 60-minute test at 5-minute intervals. At the conclusion of the test, the annular pressure was 158.5 psi. The 2.0 psi loss in pressure is within the allowable 5 percent pressure change (8.025 psi) specified in Rule 62-528.300(6)(e), F.A.C., and successfully demonstrated mechanical integrity of the 24-inch diameter final casing, the FRP injection tubing and the positive-seal packer at the base of the injection tubing. Sally Durall (MHC, Inc.) and Len Fishkin (FDEP) observed the casing pressure test. A total of approximately 63 gallons of water were drained to the containment pad when the pressure was released from the annulus.

A copy of the pressure gauge calibration certificates for the pressure gauges used for the final casing pressure test and the annular pressure test, along with pressure test summary sheets are provided in Appendix T.

EW-1 Final Casing and Completed Well Video Surveys

A video survey of the final 24-inch-diameter casing and completed well was conducted to inspect the final casing, the FRP injection tubing and the open hole interval of EW-1. The color camera assembly was equipped with centralizers to keep it centered in the well, and its elevation was “zeroed” at pad level for both video surveys. On March 10, 2012, video logging of the 24-inch-diameter casing took place. The video survey showed the 24-inch-diameter casing to be in good condition.

On April 11, 2012, a video survey of the completed well was performed. The survey was performed from land surface to the total depth of the well and showed the FRP injection

tubing to be in good condition. The connection between the duplex steel transition piece and the FRP injection tubing was observed at a depth of 13 feet bpl. The connection between the FRP injection tubing and the positive-seal packer was observed at a depth of 2,974 feet bpl. The base of the final casing and the base of the borehole were observed at depths of 2,984 and 3,230 feet bpl, respectively. The discrepancy between the observed depth of the base of the casing (2,984 feet bpl) and the actual base of casing (2,985 feet bpl) is within expected instrument tolerance. A copy of each video survey is provided on the DVD in Volume 2, Appendix L of this report. A summary data sheet for each of the videos is provided in Appendix U.

Geophysical Logging

A cement bond log (CBL) was performed on the 24-inch-diameter final casing of EW-1 on March 7, 2012. The CBL was conducted to assess the quality of the cement-to-casing bond of the final casing of EW-1. The CBL was performed prior to cementing the upper 313 feet of casing to land surface to allow the tool to be calibrated to uncemented casing (above 313 feet bpl) and cemented casing (below 313 feet bpl). The low amplitude of the CBL demonstrates a good cement bond around the final 24-inch-diameter casing from 313 feet bpl to the base of the 24-inch-diameter casing. Above a depth of 313 feet bpl, the cement bond log shows that the casing is uncemented. The interval from 313 feet bpl to land surface was cemented after completion of the CBL.

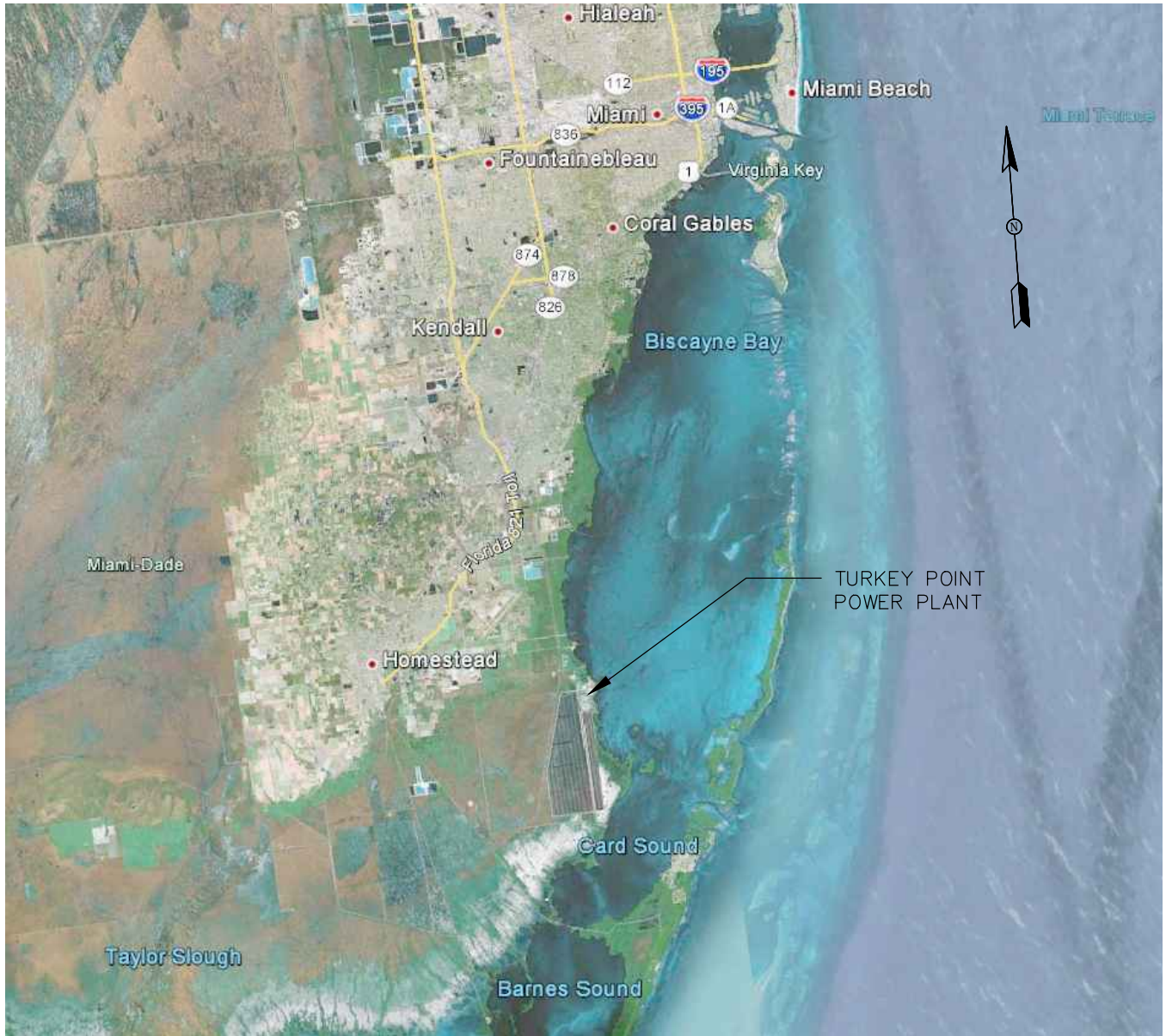
SUMMARY AND CONCLUSIONS

A Class V exploratory well EW-1 was constructed at the FPL Turkey Point power plant located in Miami-Dade County, Florida. The exploratory well was constructed to Class I Industrial deep injection well standards. The exploratory well was constructed to confirm geology and hydrogeology at the location of EW-1. A 24-inch outside diameter steel final casing with a wall thickness of 0.50-inches was installed to a depth of 2,985 feet bpl with a nominal 18-inch-diameter FRP injection tubing installed to a depth of 2,975 feet bpl. Testing performed after construction of the exploratory well demonstrates internal mechanical integrity of EW-1. The well was completed with an open hole interval from 2,985 feet to 3,230 feet bpl, the total depth of the exploratory well.

Testing during construction of EW-1 demonstrated the presence of a highly permeable zone (the "Boulder Zone") below the base of the final casing overlain by a thick confining interval from approximately 1,930 to 2,915 feet bpl. The base of the USDW was identified at a depth of approximately 1,450 feet bpl through interpretation of packer testing water quality data and geophysical logs. Permeable zones below a depth of 2,915 feet bpl identify the top of the injection zone of EW-1. The base of the borehole of EW-1 identifies the base of the injection zone of EW-1, resulting in a 315-foot thick injection zone. These conditions demonstrate that the hydrogeology of the EW-1 site is favorable for disposal of the Units 6 & 7 wastewaters via a Class I deep injection well system.

It is concluded that EW-1 is suitable for conversion to a Class I deep injection well for disposal of non-hazardous industrial wastewater. Prior to placing the well into service, a construction permit must be obtained from the FDEP Southeast District to convert the well to Class I deep injection well IW-1. If converted to a Class I deep injection well, the interval of 2,915 to 3,230 feet bpl would serve as the injection zone of the well. A dual-zone monitor well constructed to meet the requirements of Chapter 62-528, F.A.C., has been constructed approximately 75 feet to the south of EW-1. Construction and testing activities of this well are documented in a separate report.

Figures



McNabb Hydrogeologic Consulting, Inc.
601 HERITAGE DRIVE, SUITE 110
Jupiter, Florida 33458
Phone 561.891.0763 - Fax 561.623.5469

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

PROJECT LOCATION MAP

FIGURE 1



NOT TO SCALE



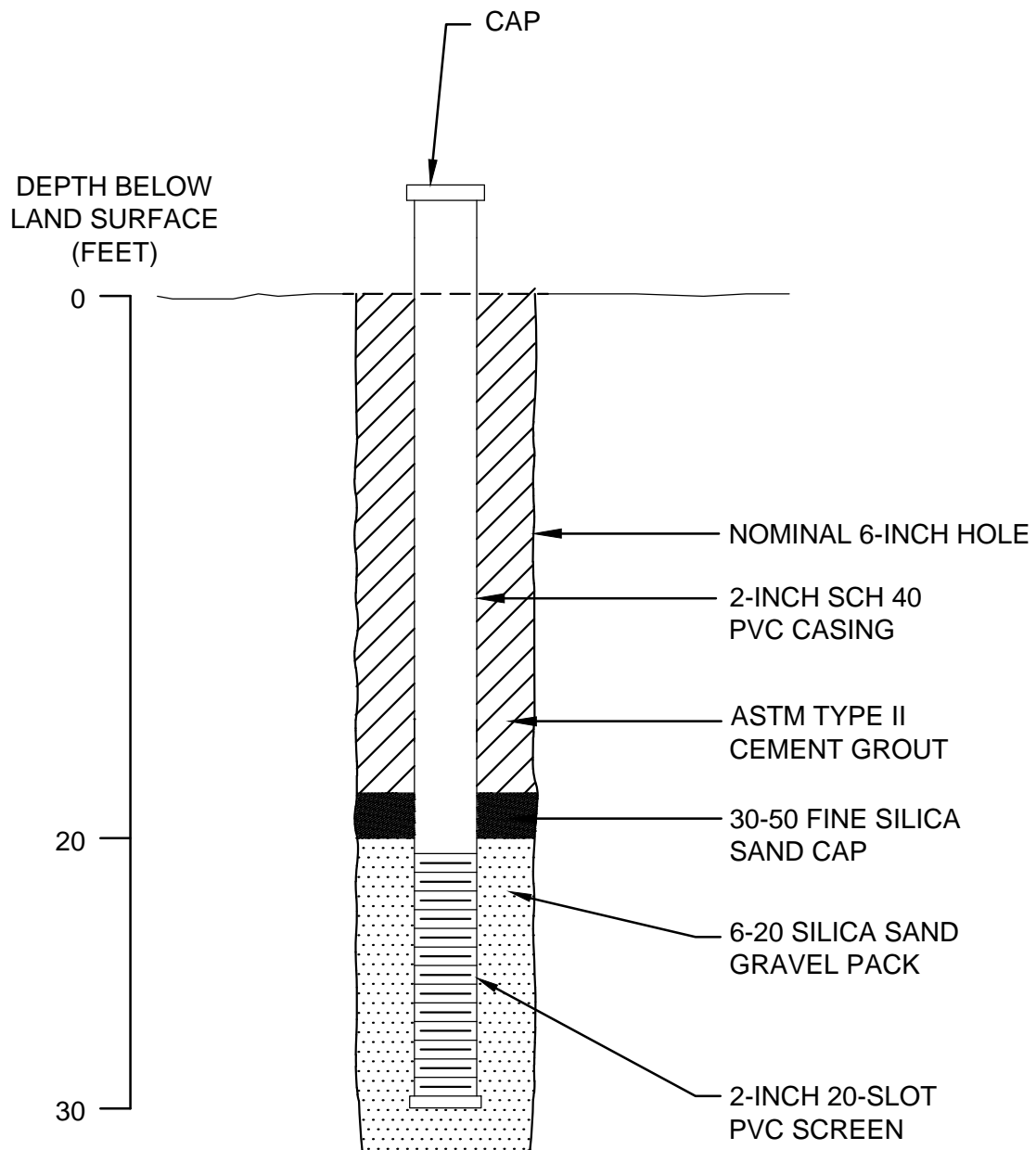
McNabb Hydrogeologic Consulting, Inc.

601 HERITAGE DRIVE, SUITE 110
Jupiter, Florida 33458
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FLORIDA POWER & LIGHT COMPANY
TURKEY POINT UNITS 6 & 7
EXPLORATORY WELL EW-1
PROJECT

SITE PLAN

FIGURE 2



NOT TO SCALE

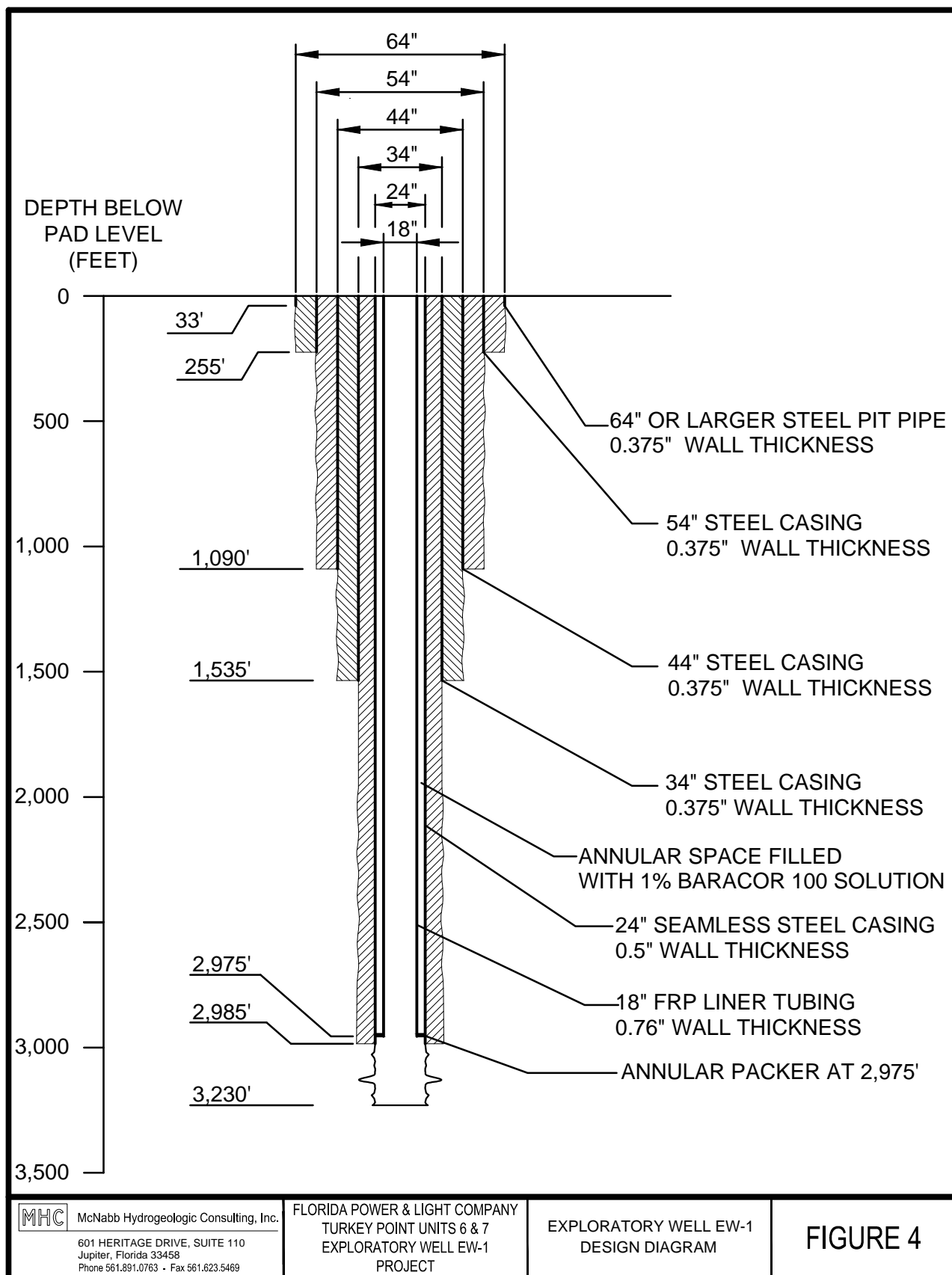


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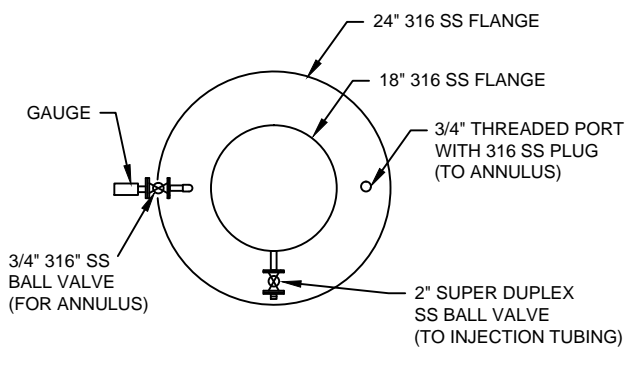
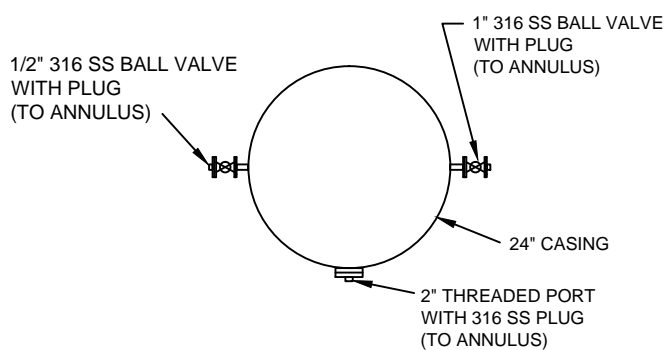
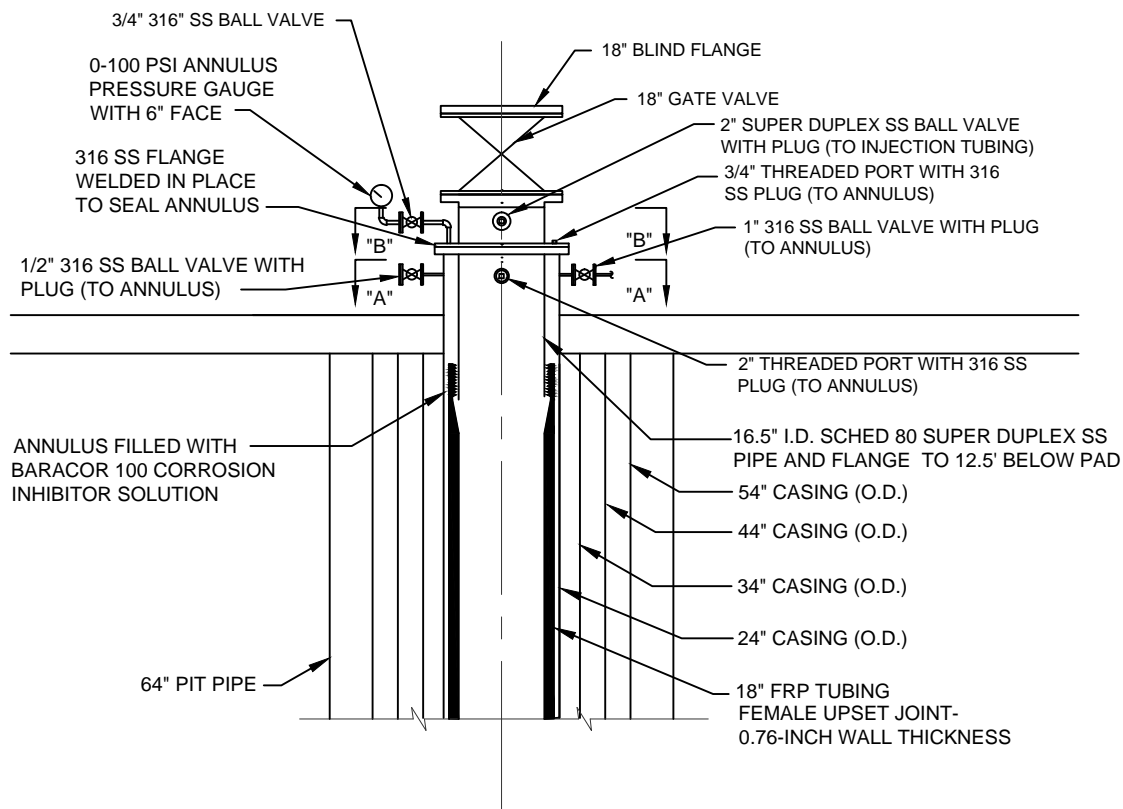
FLORIDA POWER & LIGHT COMPANY
TURKEY POINT UNITS 6 & 7
EXPLORATORY WELL EW-1
PROJECT

PAD MONITOR WELL
DIAGRAM

FIGURE 3



Note: Pad level for EW-1 is 7.18 feet NAVD 88.



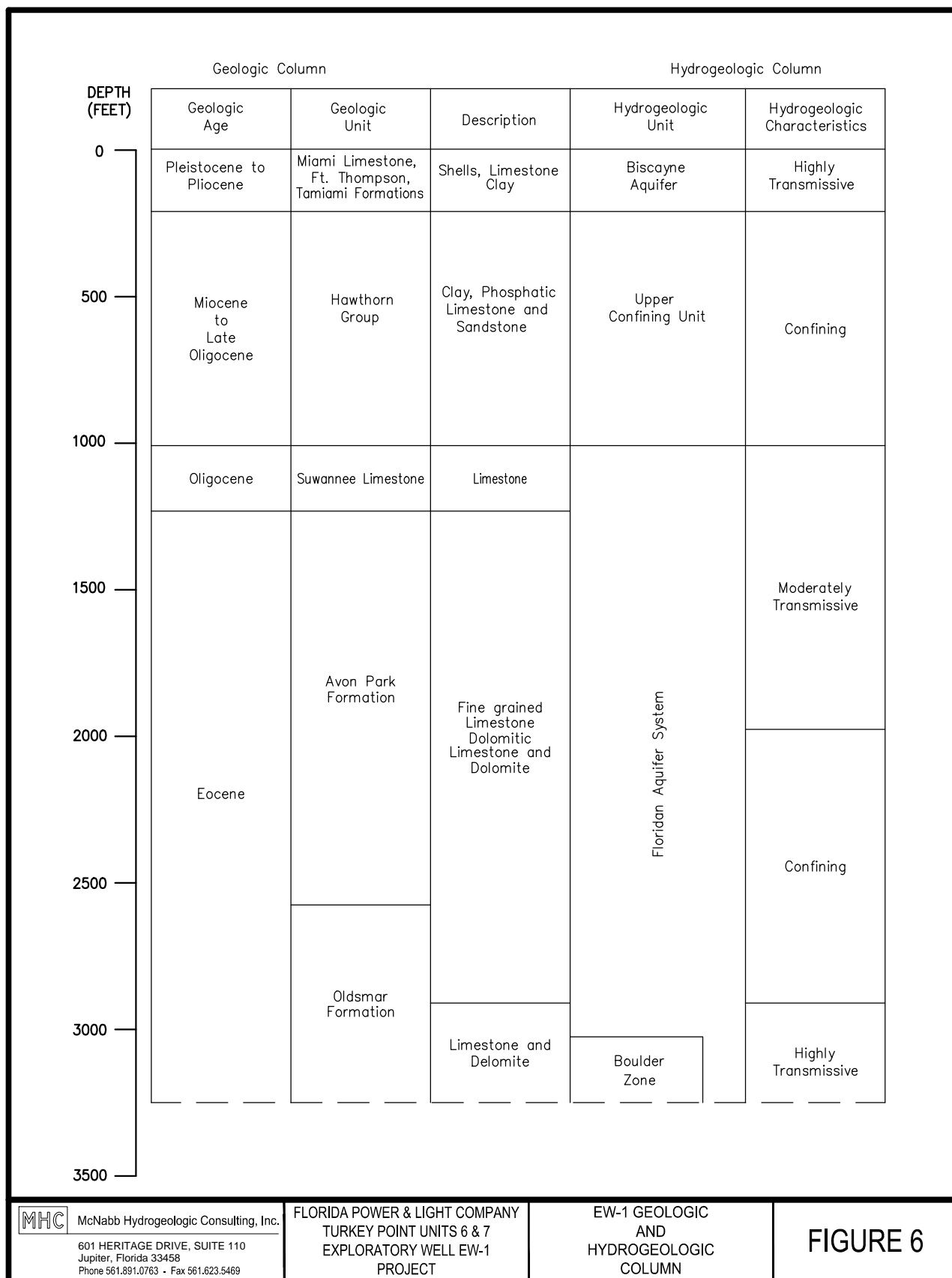
McNabb Hydrogeologic Consulting, Inc.

601 HERITAGE DRIVE, SUITE 110
Jupiter, Florida 33458
Phone 561.891.0763 • Fax 561.823.5469

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

EXPLORATORY WELL EW-1
WELLHEAD COMPLETION
DIAGRAM

FIGURE 5



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

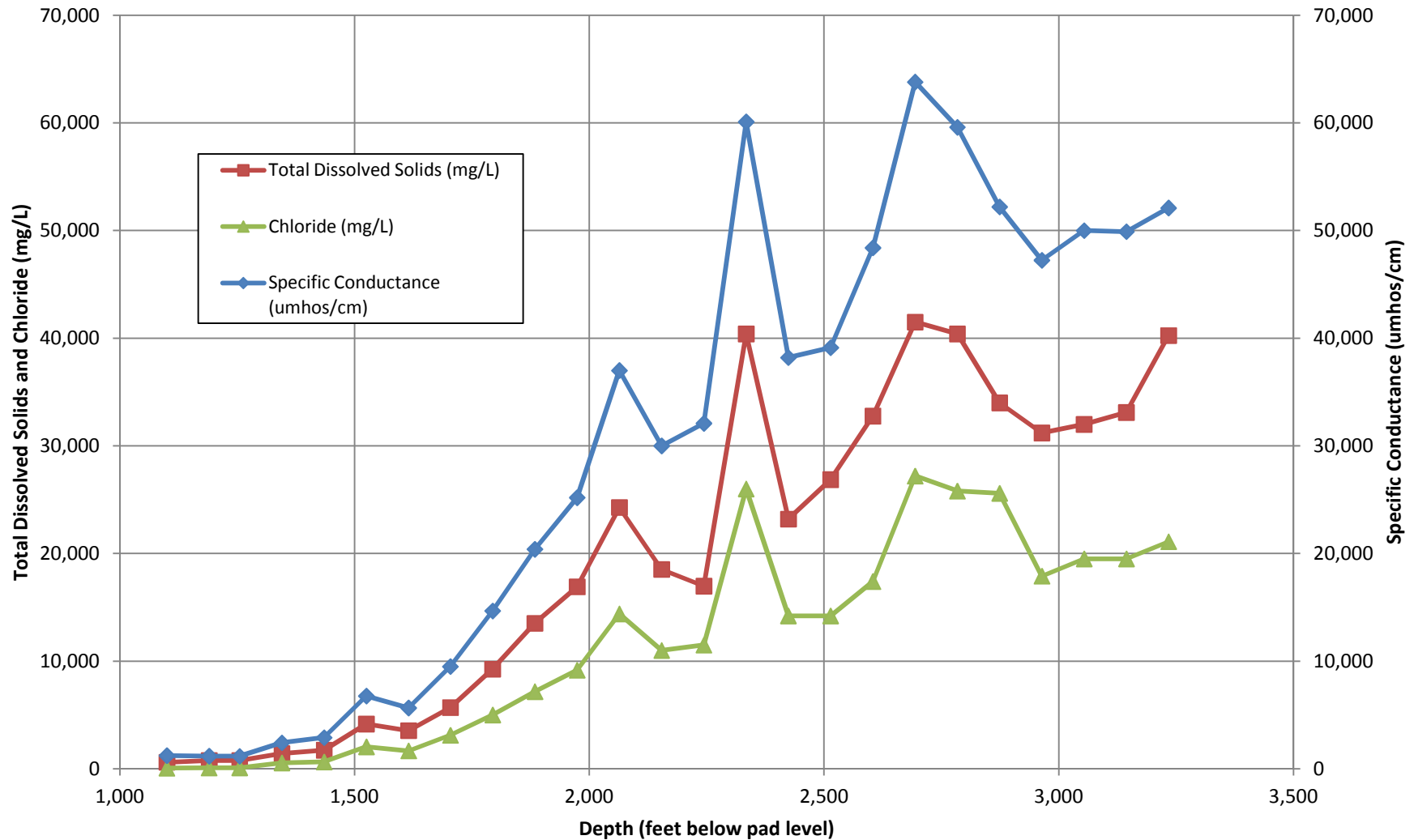


Figure 7. Pilot hole total dissolved solids, chloride and specific conductance data.

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

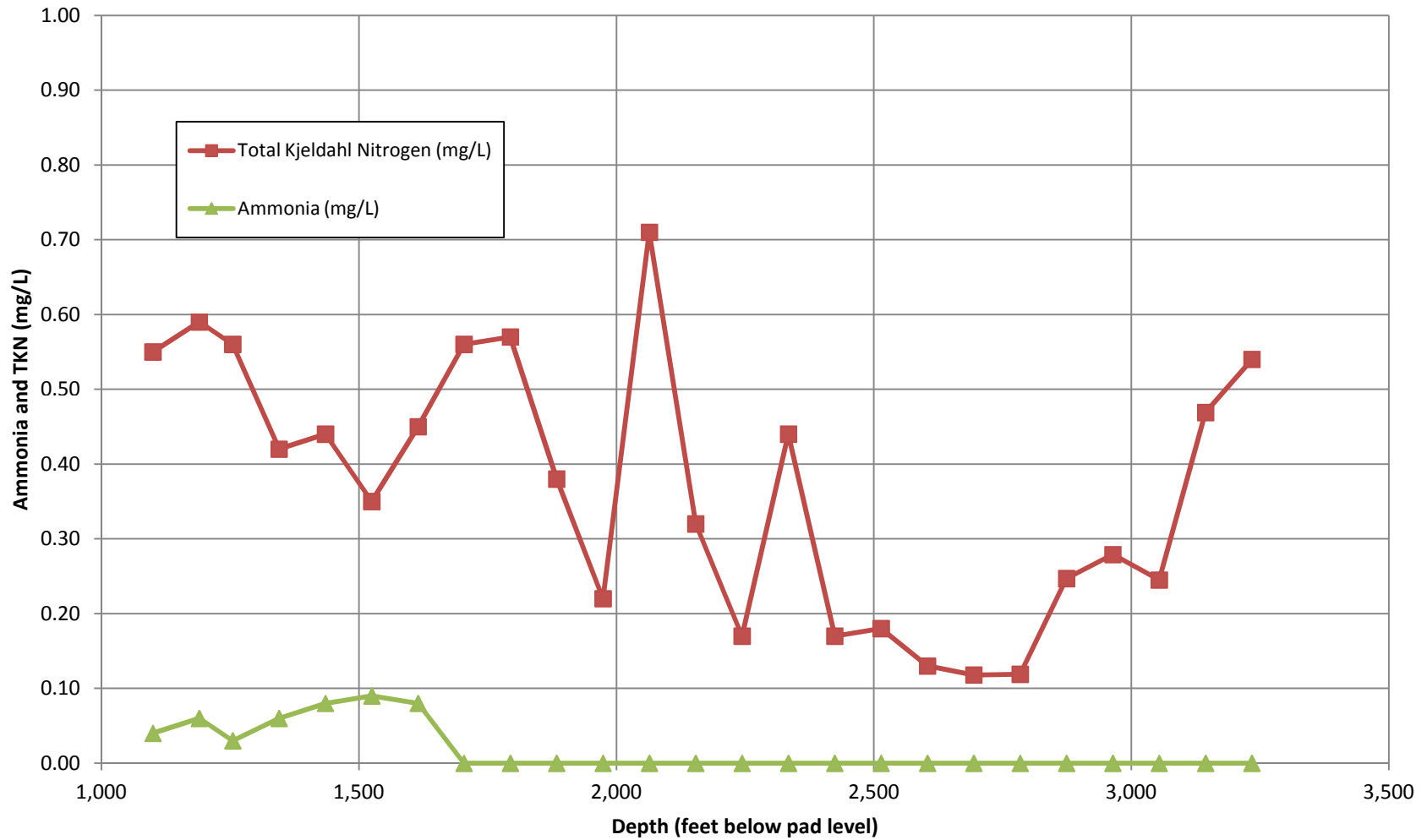


Figure 8. Pilot hole ammonia and TKN data.

Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Packer Test #1 (1,505 - 1,535 feet bpl)

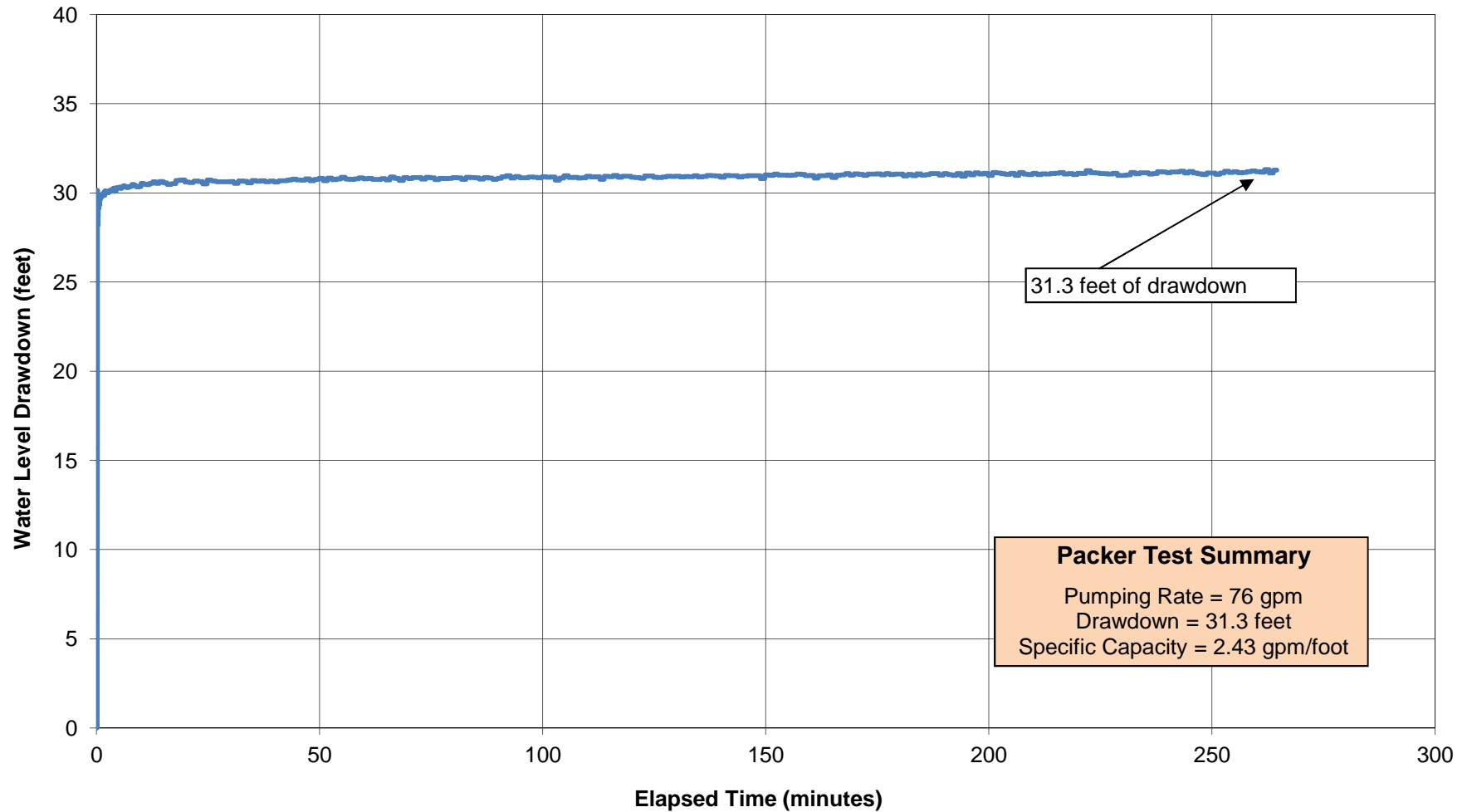


Figure 9. Packer Test #1 Water Level Drawdown Data.

Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Packer Test #2 (1,400 - 1,430 feet bpl)

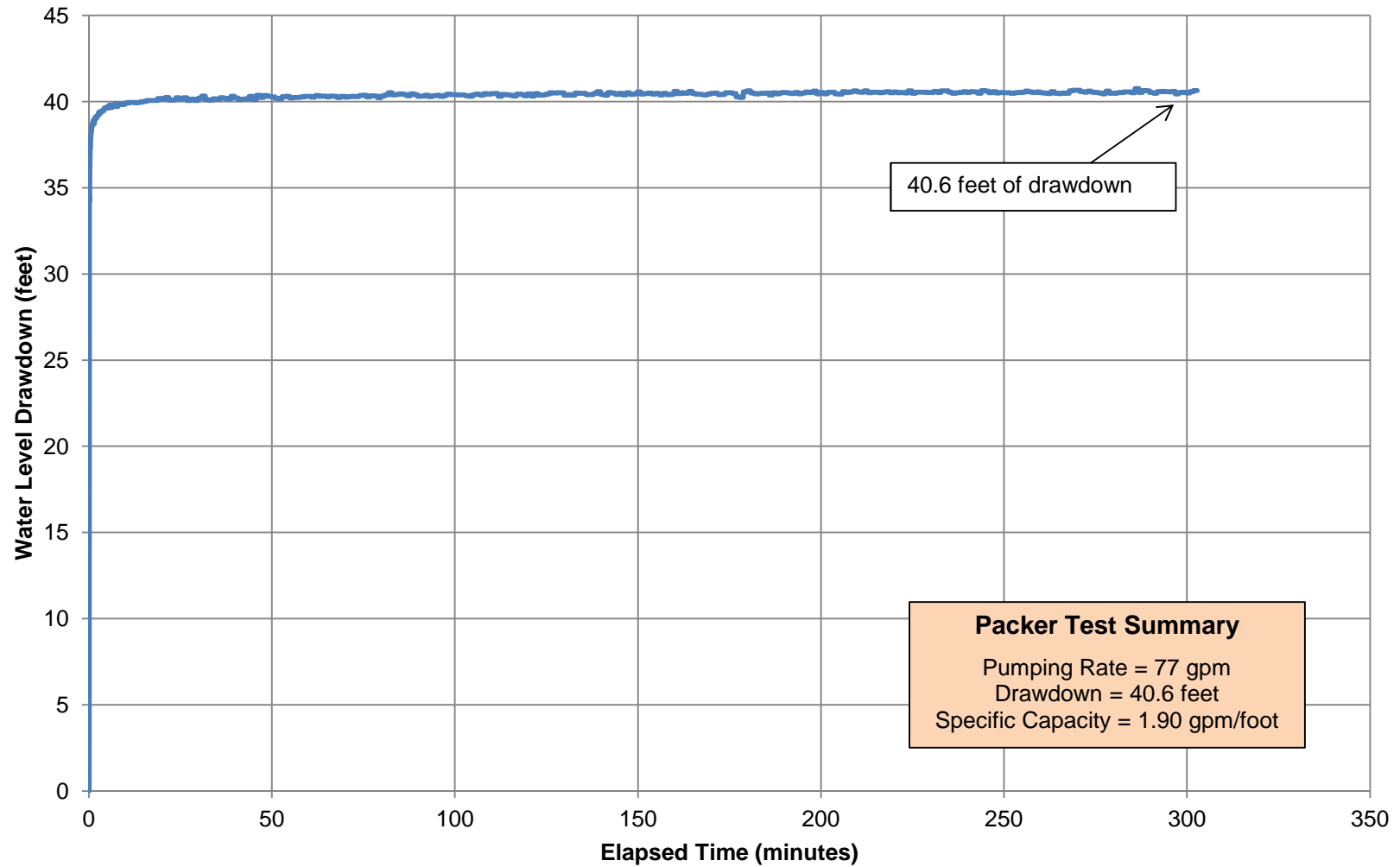


Figure 10. Packer Test #2 Water Level Drawdown Data

Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Packer Test #3 (1,225 - 1,285 feet bpl)

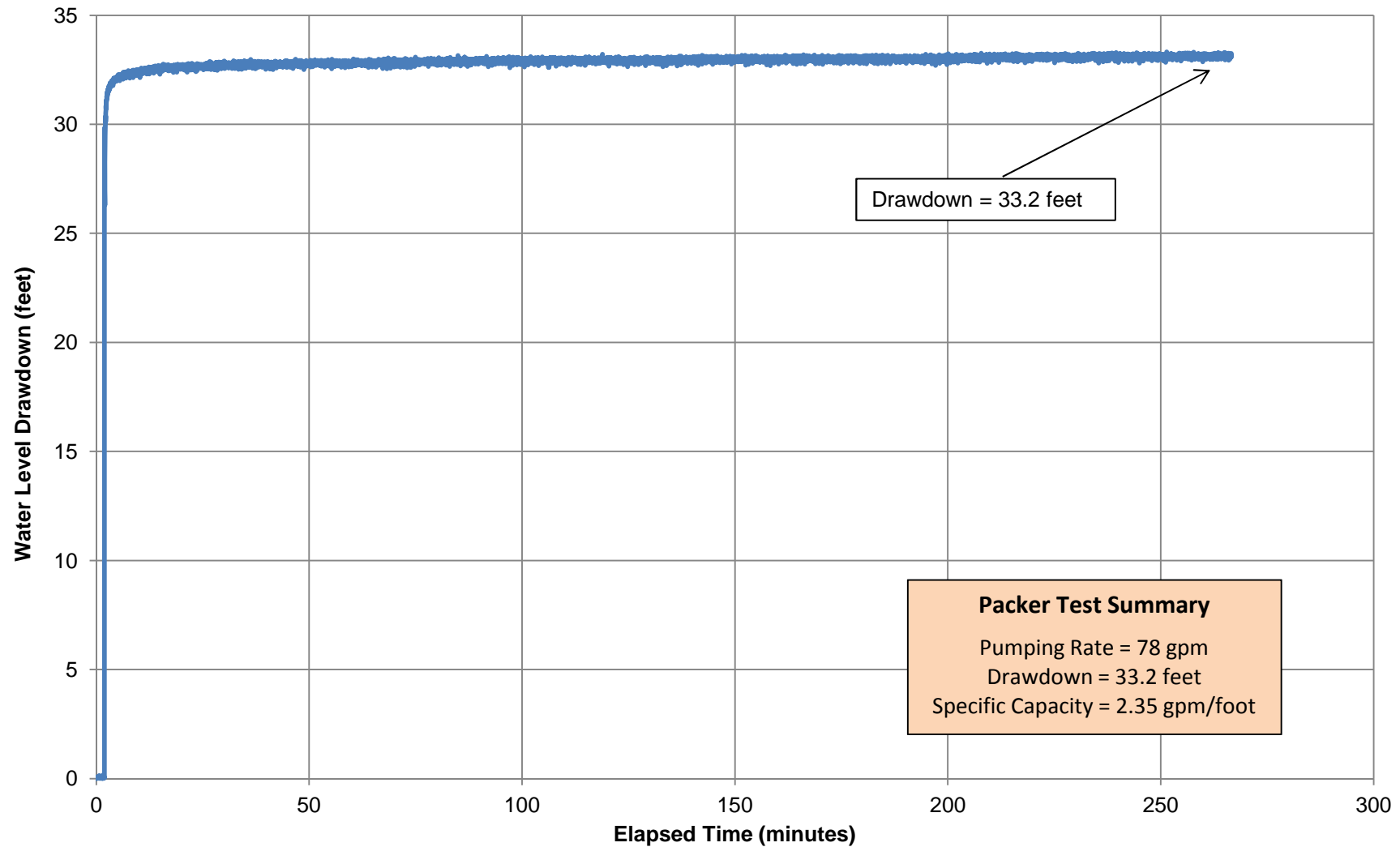


Figure 11. Packer Test #3 Water Level Drawdown Data

Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Packer Test #4 (1,102 - 1,162 feet bpl)

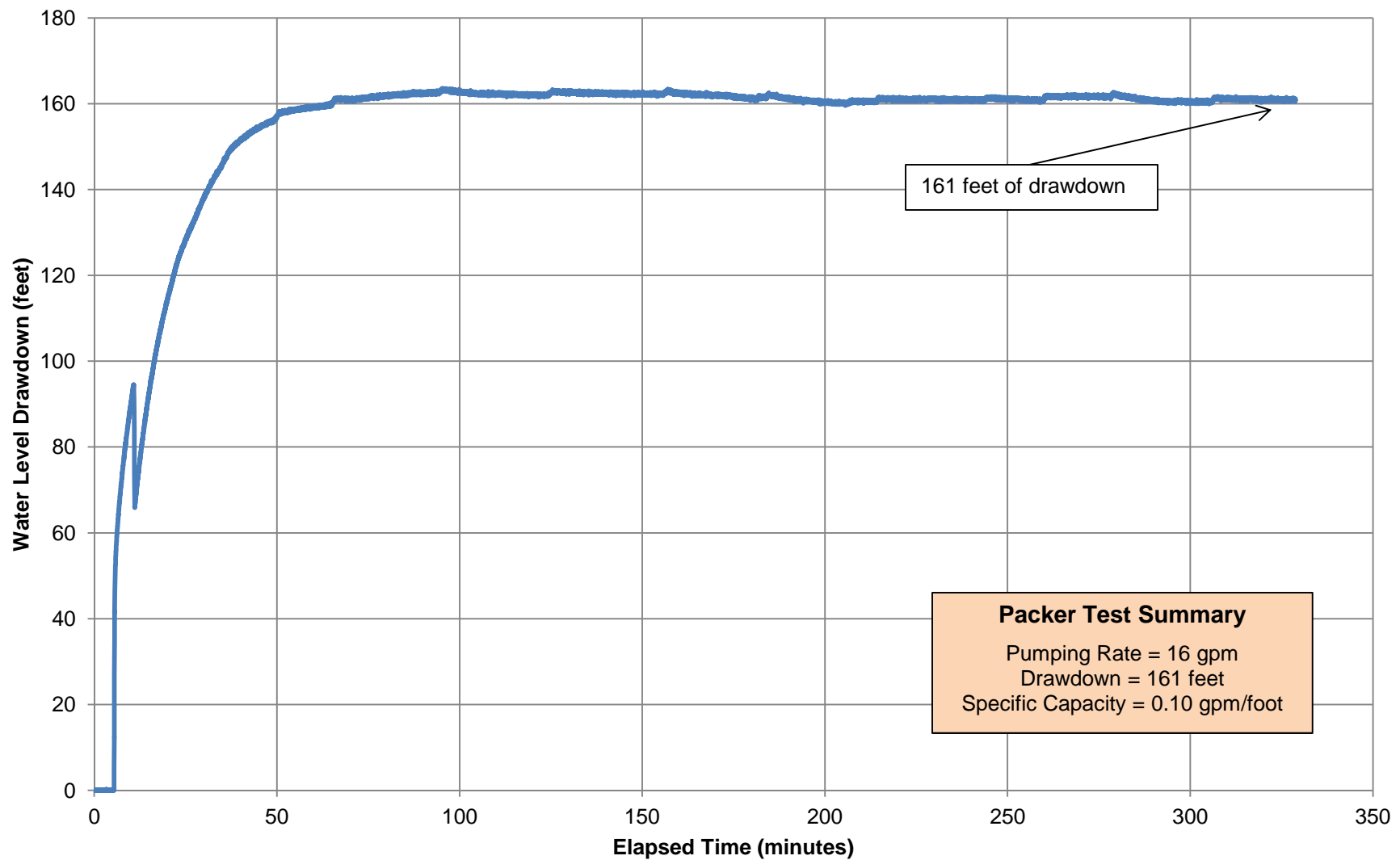


Figure 12. Packer Test #4 Water Level Drawdown Data

**Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Packer Test #5 (1,930 to 1,952 feet bpl)**

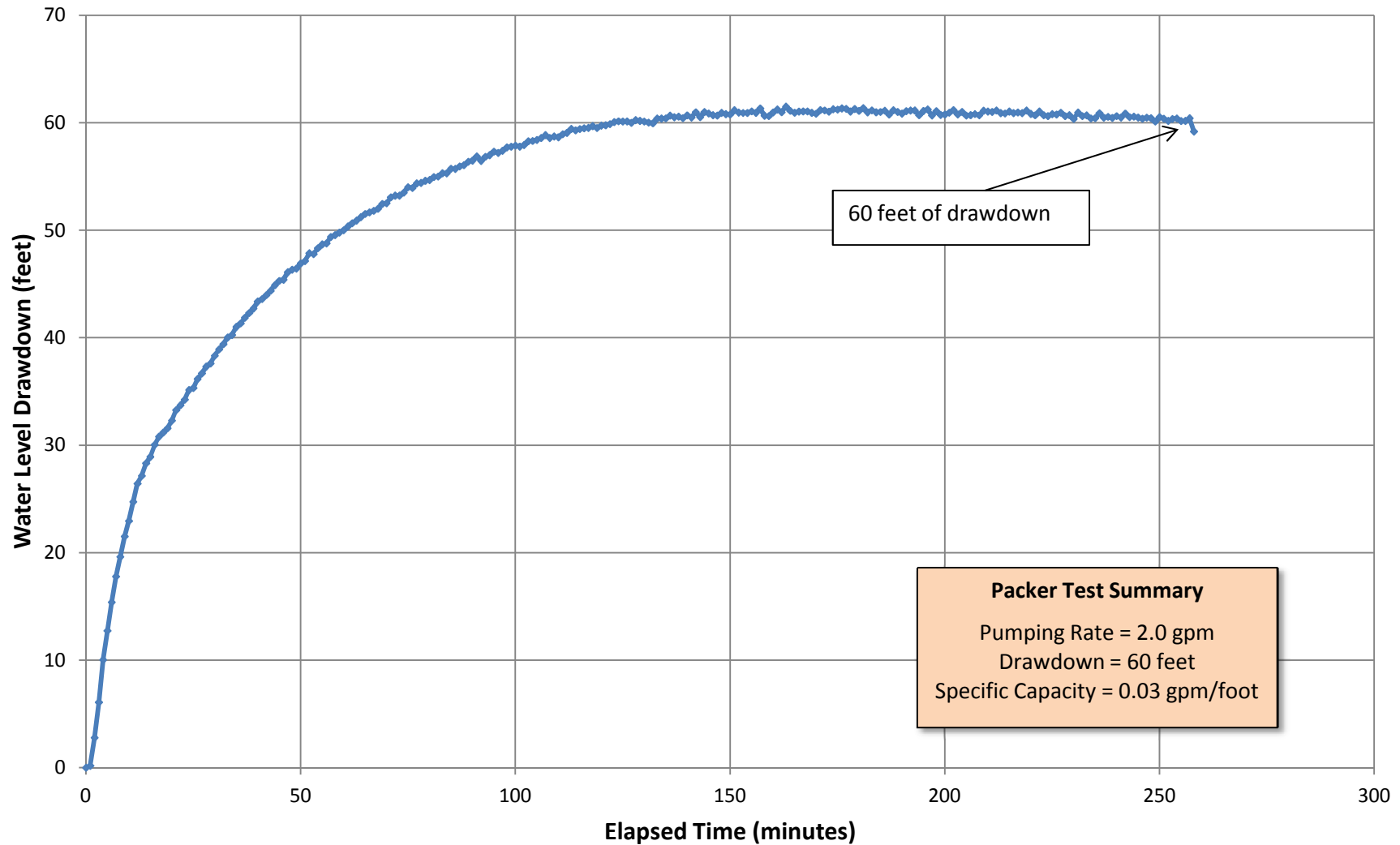


Figure 13. Packer Test #5 Water Level Drawdown Data

**Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Packer Test #7 (3,020 to 3,232 feet bpl)**

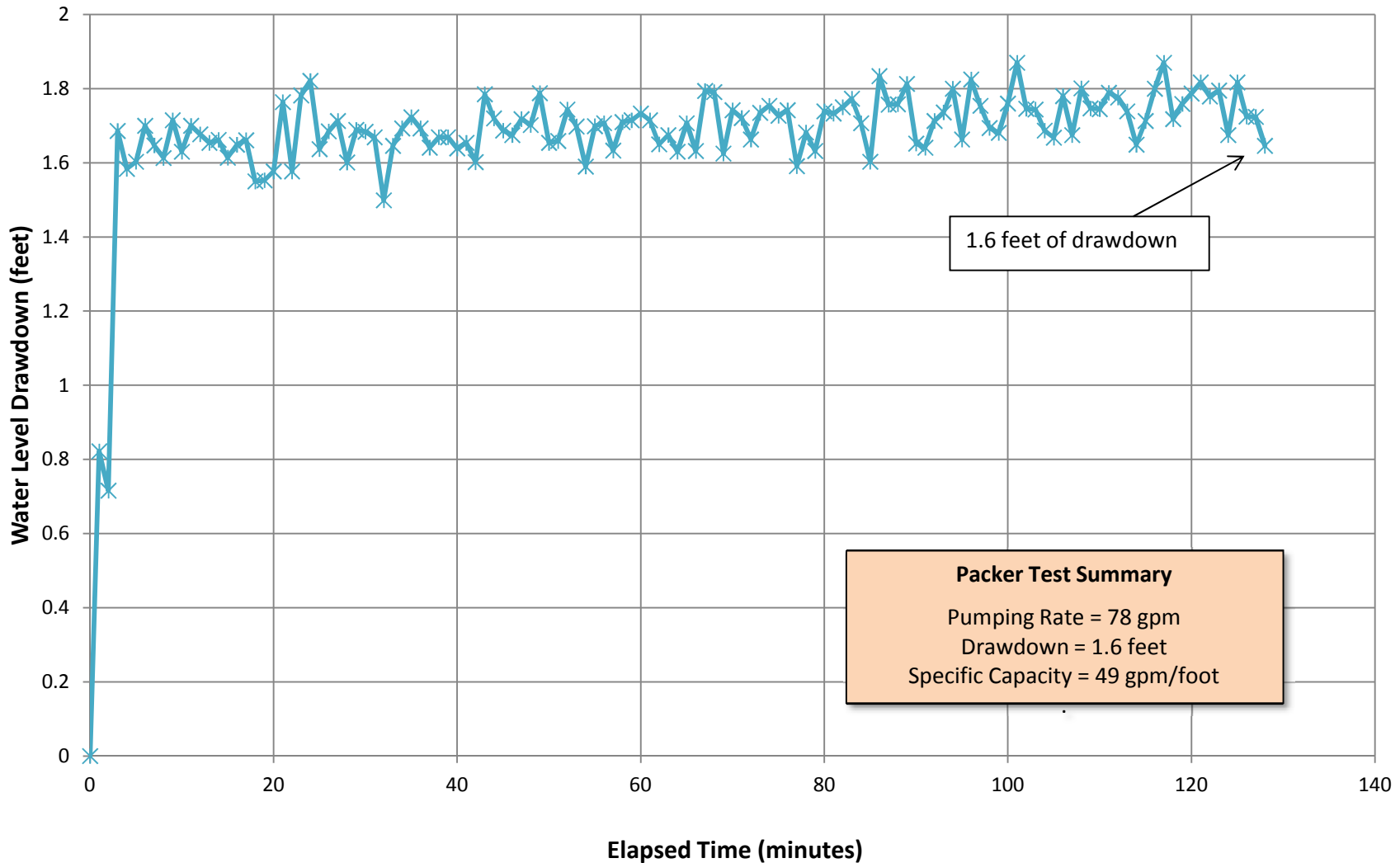


Figure 14. Packer Test #7 Water Level Drawdown Data

**Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Packer Test #8 (1,970 to 1,992 feet bpl)**

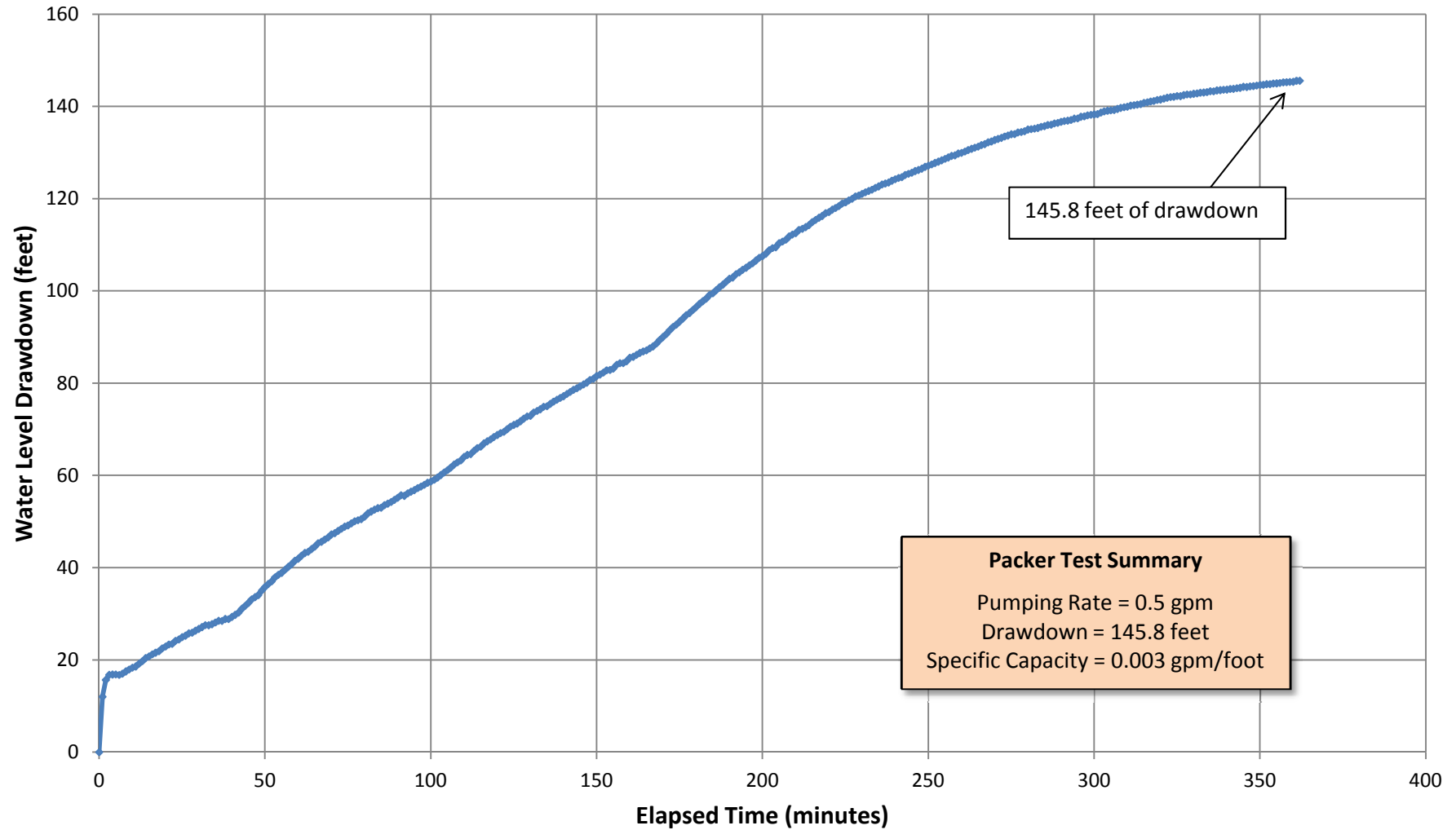


Figure 15. Packer Test #8 Water Level Drawdown Data

**Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Packer Test #9 (2,058 to 2,080 feet bpl)**

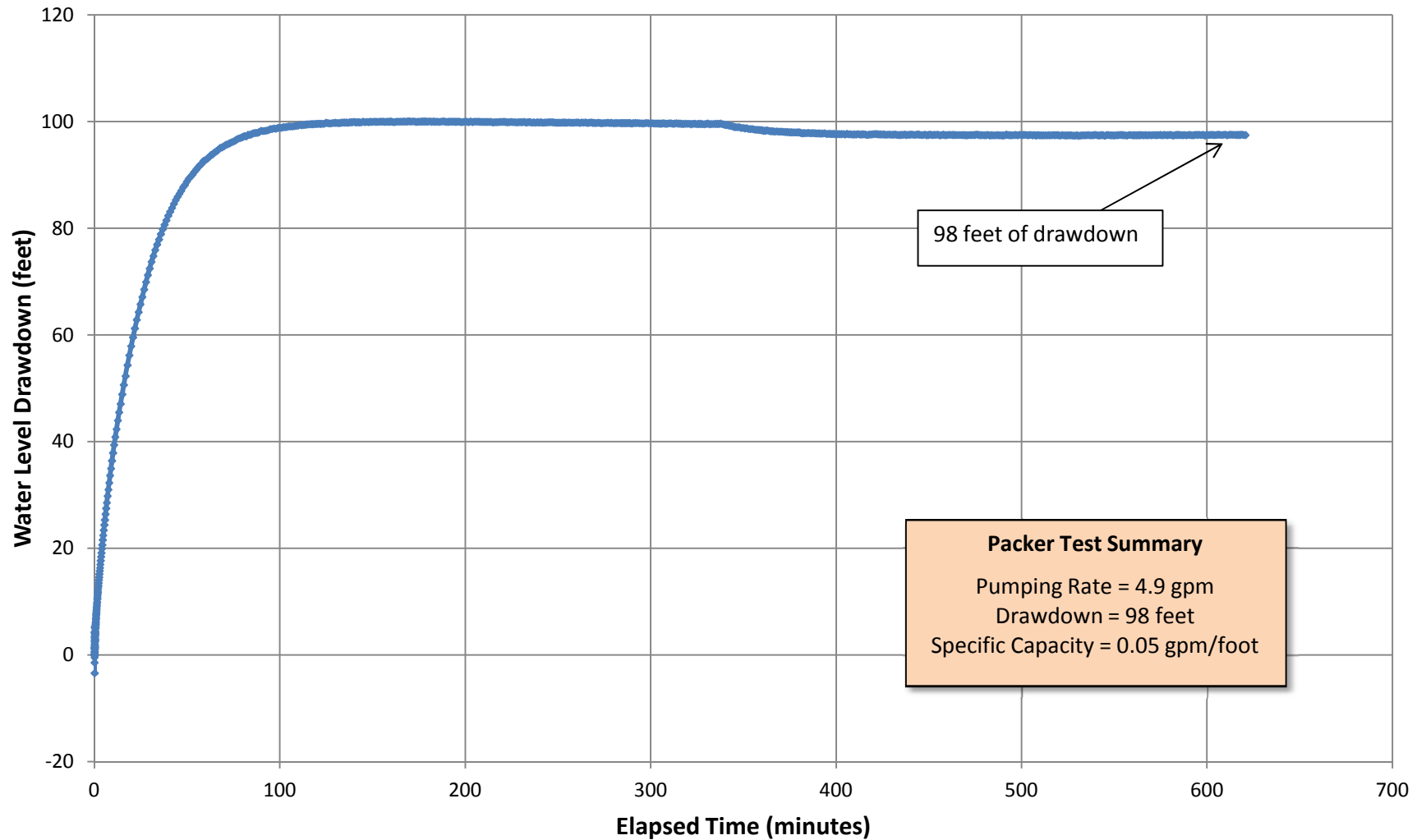


Figure 16. Packer Test #9 Water Level Drawdown Data

**Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Packer Test #17 (2,220 to 2,242 feet bpl)**

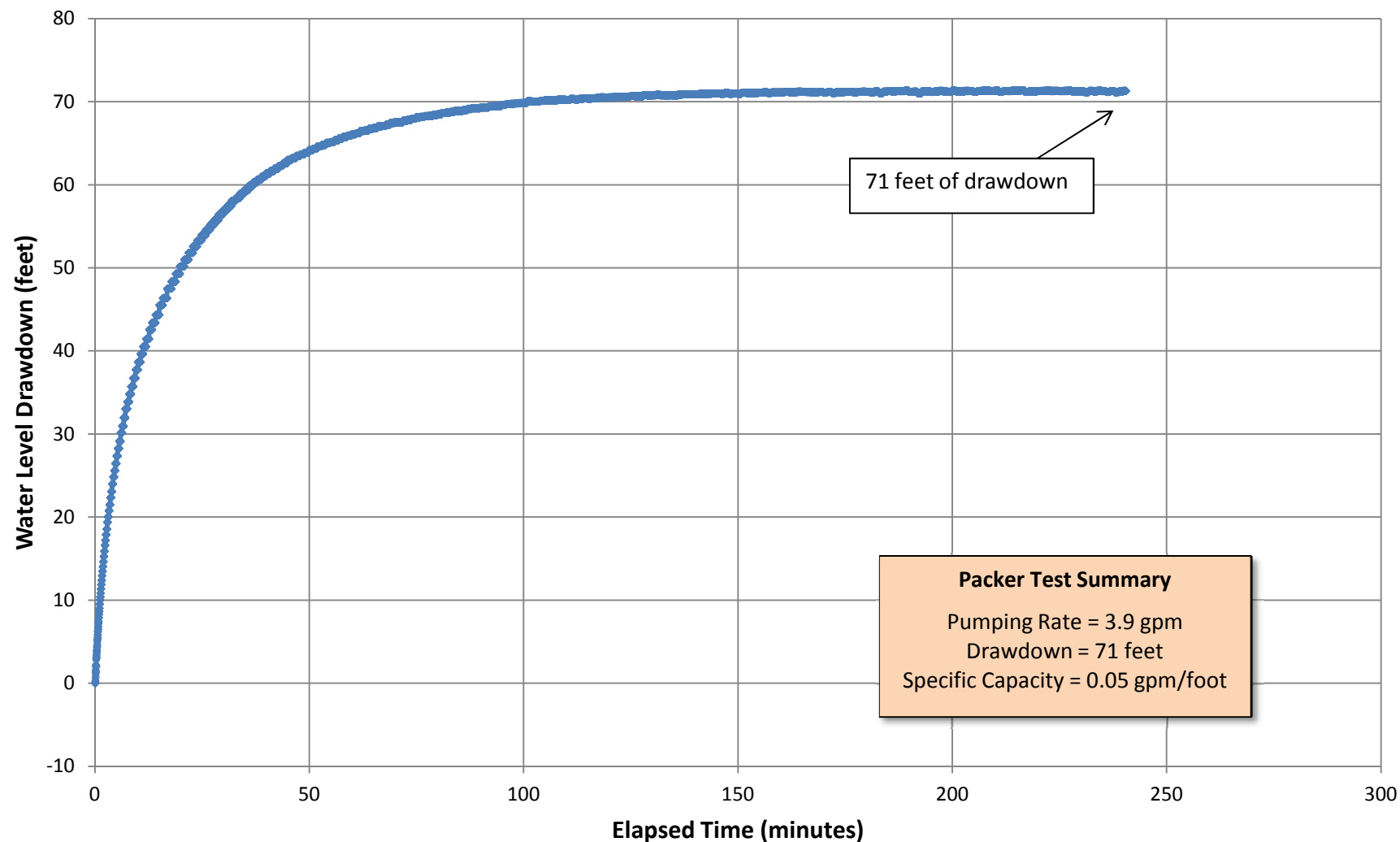


Figure 17. Packer Test #17 Water Level Drawdown Data

**Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Packer Test #19 (2,478 to 2,500 feet bpl)**

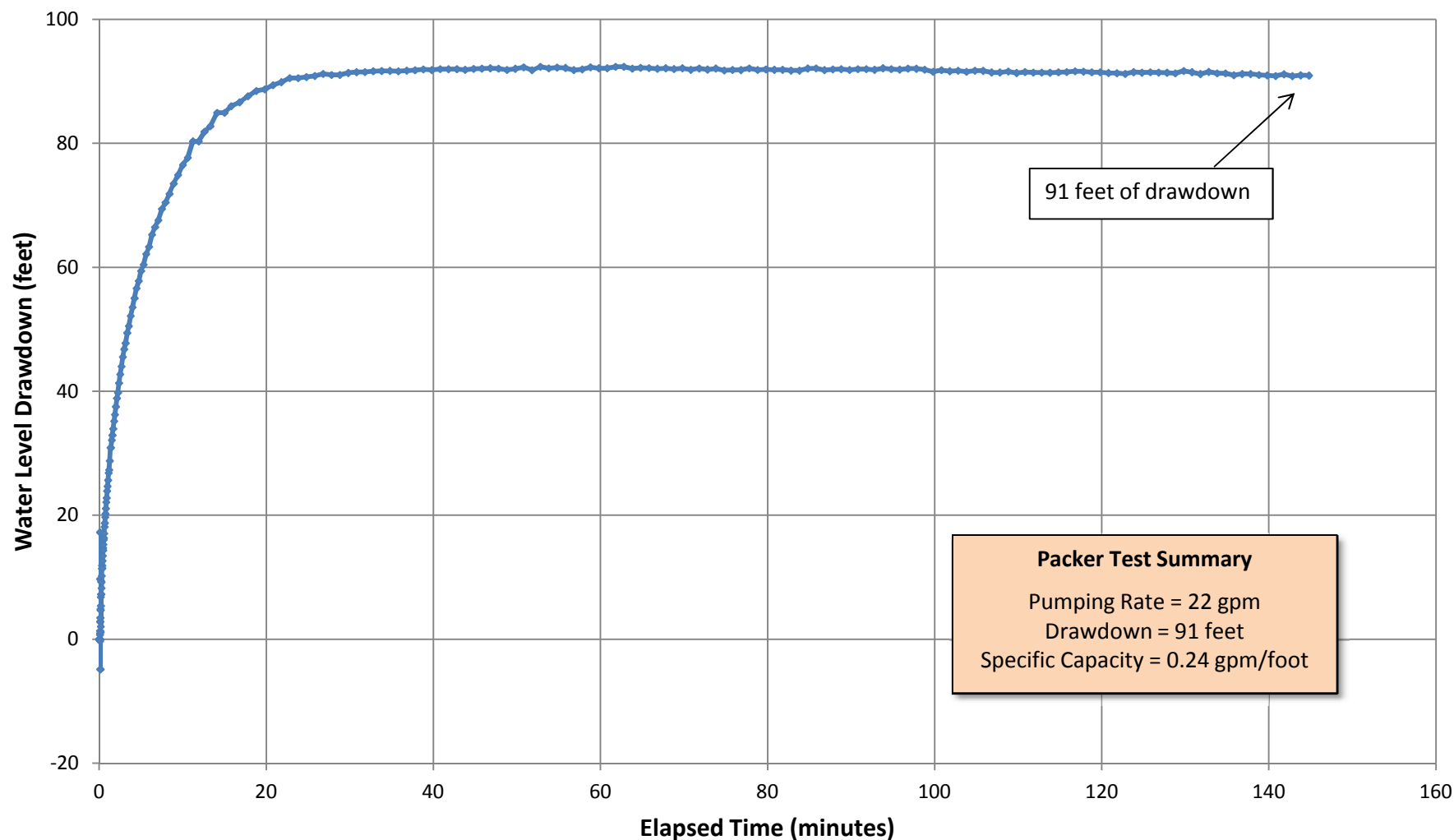


Figure 18. Packer Test #19 Water Level Drawdown Data

Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Formation Test

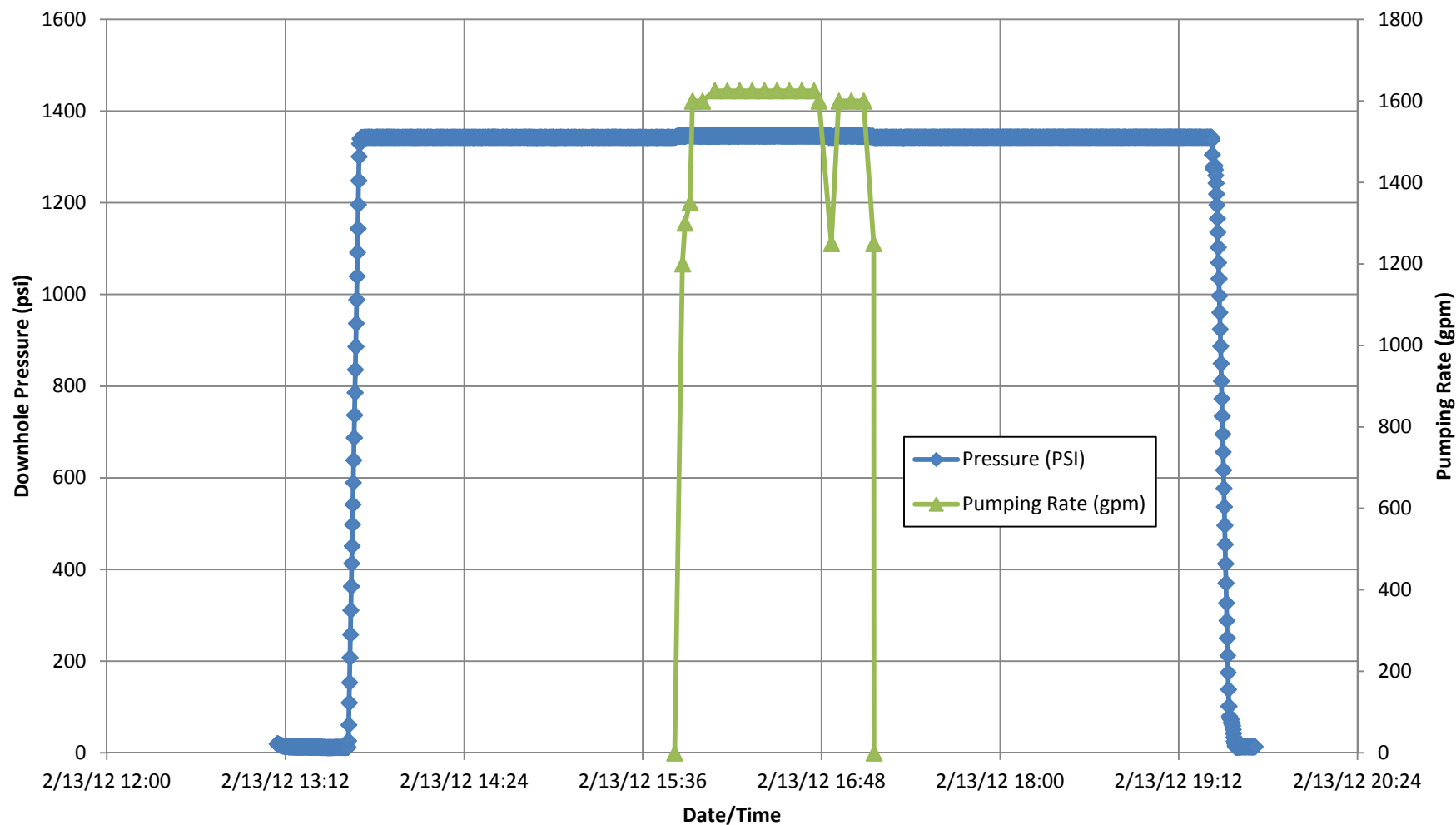


Figure 19. Downhole Pressure and Pumping Rate Data - Entire Test

Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Formation Test

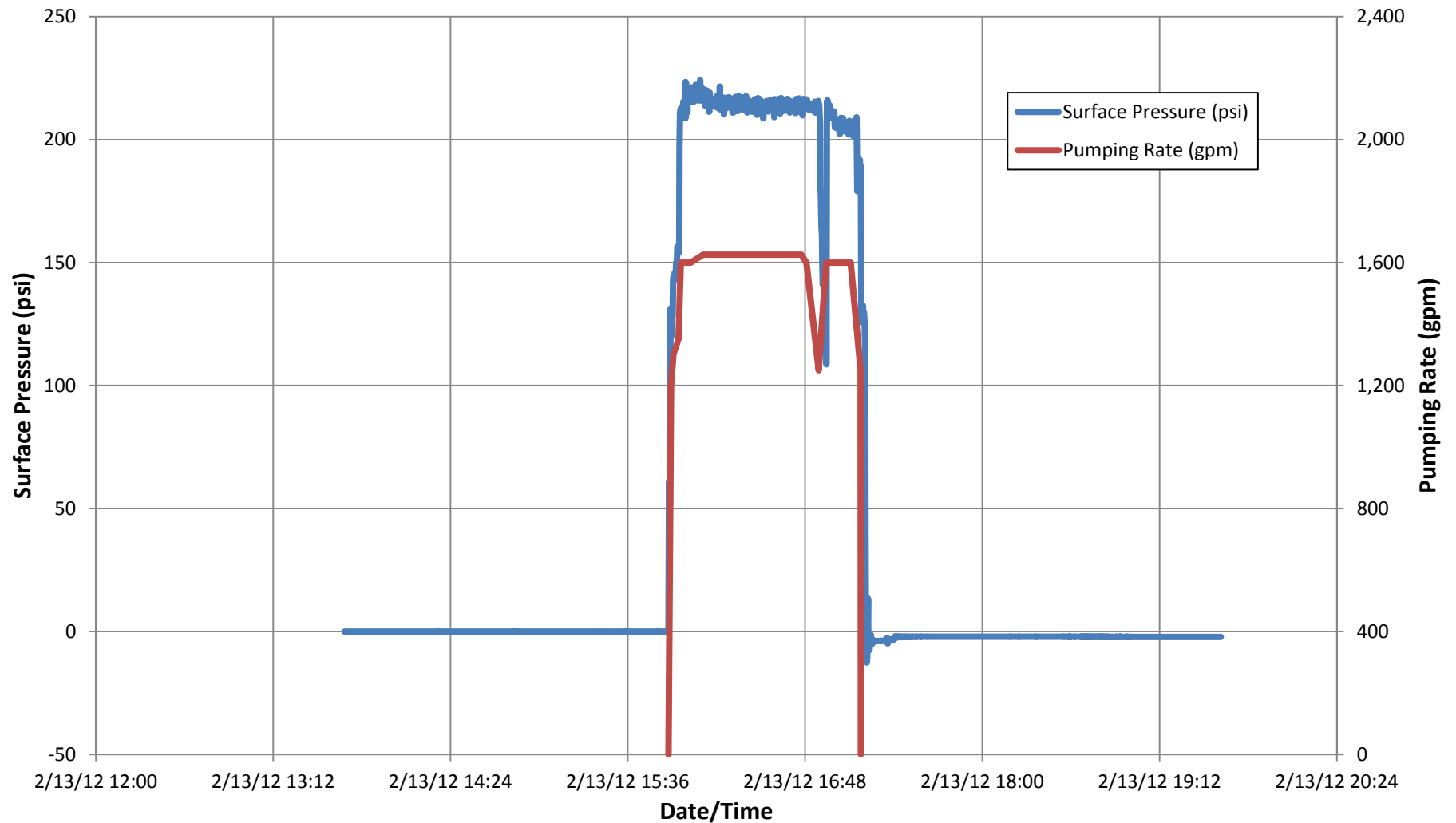


Figure 20. Surface Pressure and Pumping Rate Data - Entire Test

Florida Power & Light Company
Turkey Point
Exploratory Well EW-1
Formation Test

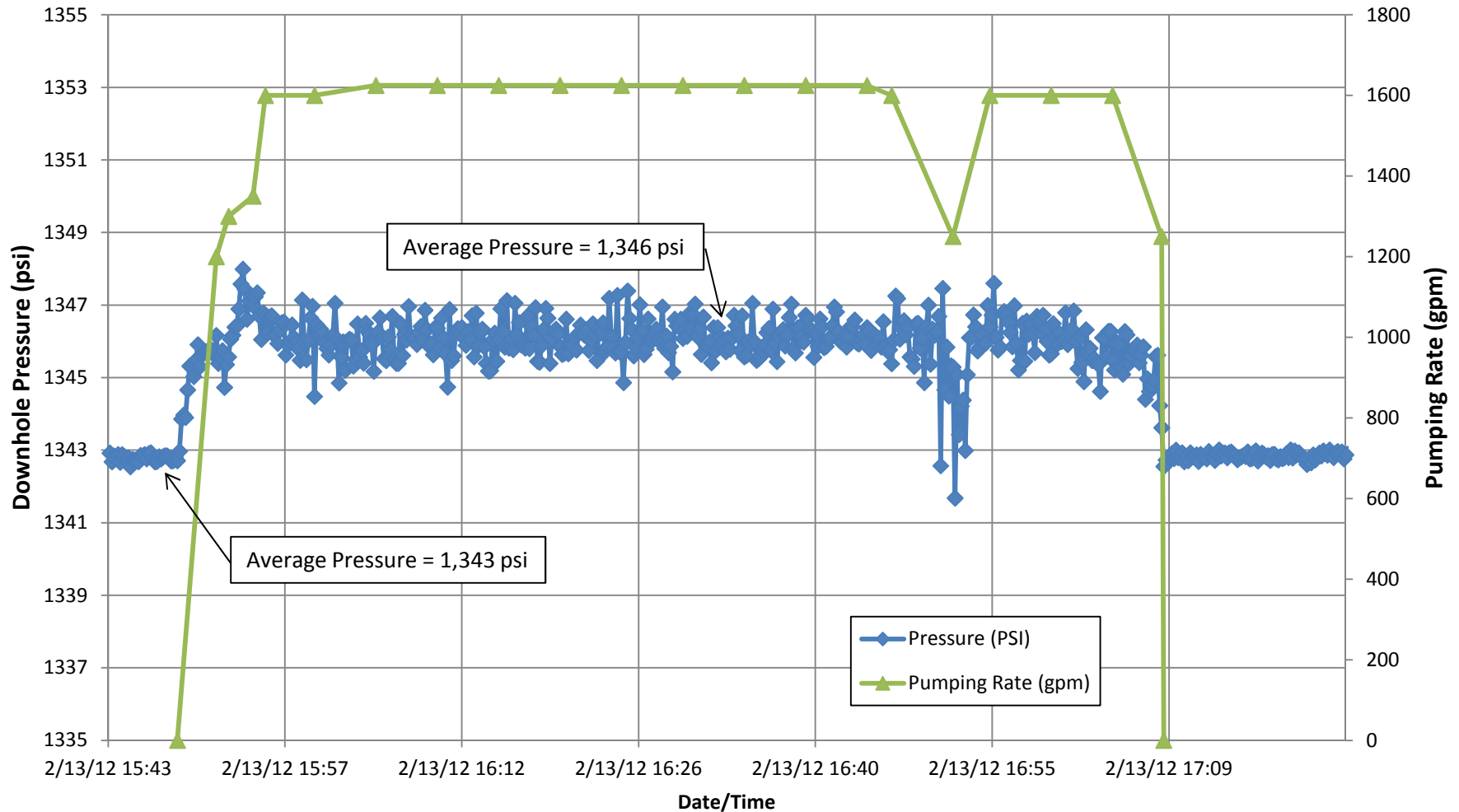


Figure 21. Downhole Pressure and Pumping Rate Data - Pumping Portion

Florida Power & Light Company
Turkey Point Unit 6 & 7
Exploratory Well EW-1
Formation Test

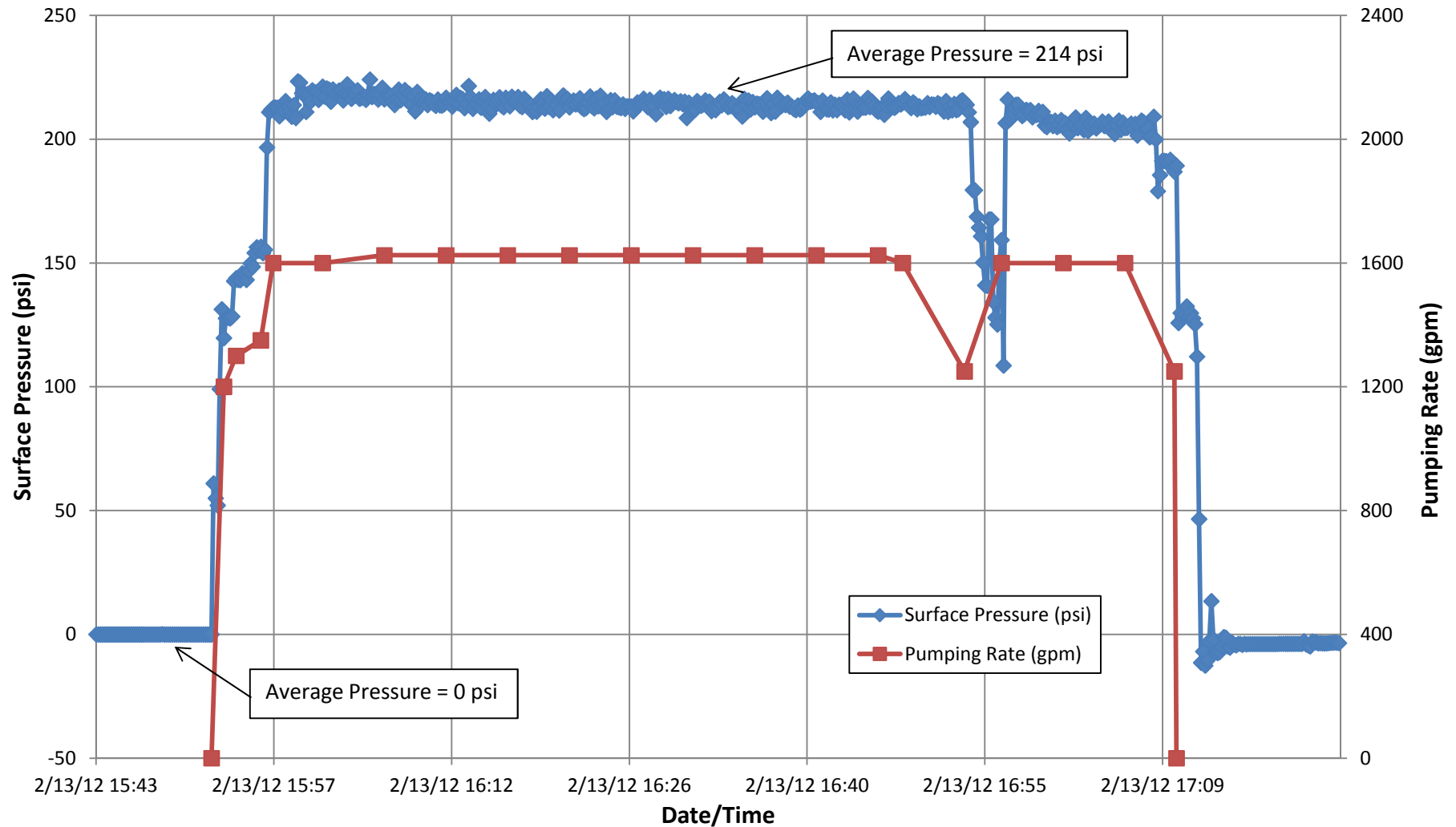


Figure 22. Surface Pressure and Pumping Rate Data - Pumping Portion

Appendix A
FDEP Class V Exploratory
Well Construction Permit
#0293962-001-UC



Department of

Environmental Protection

Southeast District
400 North Congress Avenue, Suite 200
West Palm Beach, Florida 33401

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

ELECTRONIC CORRESPONDENCE

May 05, 2010

In the Matter of an
Application for Permit by:

Mr. Randall LaBauve
Vice President
Florida Power & Light Company
700 Universe Blvd.
Juno Beach FL 33408

MIAMI-DADE COUNTY
UIC: FPL Turkey Point Exp Well
FILE: 0293962-001-UC

PROJECT: Class V Group 9 Exploratory Well and Dual Zone Monitoring Well.

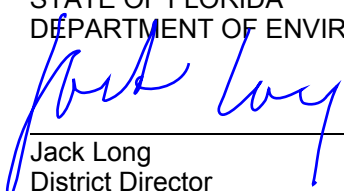
FINAL PERMIT

Enclosed is Permit Number 0293962-001-UC, to construct a Class V Exploratory Well and associated Dual Zone Monitoring Well. This permit has been issued pursuant to Section(s) 403.087, Florida Statutes and Florida Administrative Codes 62-4, 62-520, 62-522, 62-528, 62-550, 62-600 and 62-601. The system will be constructed at the FPL West County Energy Center, located at 20505 State Road 80, Loxahatchee, Florida.

Any party to this Order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, Mail Stop 35, 3900 Commonwealth Blvd., Tallahassee, Florida 32399-3000; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date this Notice is filed with the Clerk of the Department.

Executed in the City of West Palm Beach, Florida.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION



Jack Long
District Director
Southeast District



Date


JL/LAB/jmm

Copies furnished to:

Joe Haberfeld, FDEP/TLH
Steve Anderson, SFWMD/WPB
Luis Otero, M-D DERM

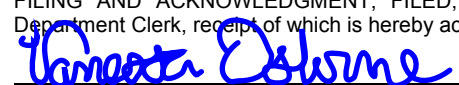
George Heuler, FDEP/TLH
Joe May, UIC
Mike Halpin, FDEP/SCO

Nancy Marsh, USEPA
Dave McNabb, McNabb Hydro

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this NOTICE OF DRAFT PERMIT and all copies were mailed before the close of business on 5/05/10 to the listed persons.

FILING AND ACKNOWLEDGMENT, FILED, on this date, pursuant to §120.52(11), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.



Clerk

5/05/10

Date



Department of Environmental Protection

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

Southeast District
400 N. Congress Avenue—Suite 200
West Palm Beach, Florida 33401

PERMITTEE:

Mr. Randall LaBauve, Vice President
Florida Power & Light Company
700 Universe Blvd.
Juno Beach FL 33408

PERMIT NUMBER: 0293962-001-UC

DATE OF ISSUANCE: May 5, 2010

EXPIRATION DATE: May 4, 2015

COUNTY: Miami-Dade

POSITION: 25° 25' 19" N / 80° 20' 08" W

PROJECT: FPL Units 6 & 7 Class V Group 9 Exploratory Well

I

PROJECT: FPL Turkey Point Units 6 & 7 — Class V Exploratory Well & Dual Zone Monitoring Well
Construction and Testing of a Class V, Group 9 Exploratory Well

This permit is issued under the provisions of Chapter 403.087, Florida Statutes, and Florida Administrative Code (F.A.C.) Rules 62-4, 62-520, 62-522, 62-528, 62-550, and 62-660. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

TO CONSTRUCT AND TEST: The Class V, Group 9 Exploratory Well and Dual Zone Monitoring well shall be constructed in four phases. The first phase shall be constructed first to explore to approximately 1650 feet below pad level (bpl). This phase will include the installation of conductor and surface casing, the drilling of a 12-inch diameter pilot hole to approximately 1650 feet bpl, conduct straddle packer testing, perform geophysical logging to determine the depth of the underground source of drinking water (USDW). The second phase shall include the drilling of a 12-inch diameter pilot hole to approximately 3500 feet bpl, conduct coring and straddle packer test, perform geophysical logging to determine confining sequences and injection zones. The third phase shall include reaming and setting of the intermediate casing, the injection casing and the Fiberglass Reinforced Plastic (FRP) tubing.

The conceptual design of the Class V, Group 9 Exploratory Well has a planned depth of approximately 3500 feet bpl with the packer center point at approximately 2890 feet bpl. The injection interval to be investigated shall be within the "Boulder Zone" in the lower Oldsmar Formation, and is preliminarily planned between approximately 2900 feet and the total depth of the well at 3500 feet bpl. Final depth of each casing and range of each interval for the well will be determined during construction and field-testing, subject to approval by the Department. The fourth phase shall be the construction of a dual zone monitoring well (DZMW). For planning purposes, this well proposes an upper monitoring interval of 1400-1420 feet bpl; and proposes a lower monitoring interval of 1850-1870 feet bpl. Final depth of each casing and range of each interval for the well will be determined during construction and field-testing, subject to approval by the Department. There will be no authorization to inject under this permit.

IN ACCORDANCE WITH: Application for a Class V, Group 9 Exploratory Well Construction and Testing Permit, received January 20, 2009; The application was deemed complete as of 1 November 2009; and publication of the Notice of Draft Permit 0293962-001-UC in The Miami-Herald newspaper on 13 November, 2010.

LOCATED AT: FPL Turkey Point Power Plant, 9760 SW 344th St., Florida City, FL 33035 adjacent to Biscayne Bay, approximately 25 miles south of Miami and eight miles east of Florida City.

TO SERVE: Florida Power & Light Co.

SUBJECT TO: General Conditions 1-24 and Specific Conditions 1-8.

GENERAL CONDITIONS:

The following General Conditions are referenced in Florida Administrative Code Rule 62-528.307.

1. The terms, conditions, requirements, limitations and restrictions set forth in this permit are "permit conditions" and are binding and enforceable pursuant to Section 403.141, F.S.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action.
3. As provided in Subsection 403.087(7), F.S., the issuance of this permit does not convey any vested rights or exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor infringement of federal, state, or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in this permit.
4. This permit conveys no title to land, water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
5. This permit does not relieve the permittee from liability for harm to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefrom; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed and used by the permittee to achieve compliance with the conditions of this permit, or are required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.
7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at reasonable times, access to the premises where the permitted activity is located or conducted to:
 - a. Have access to and copy any records that must be kept under conditions of this permit;
 - b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and
 - c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time will depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:
 - a. A description of and cause of noncompliance; and
 - b. The period of noncompliance, including dates and times; or, if not corrected the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent the recurrence of the noncompliance. The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.111 and 403.73, F.S. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.
10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance; provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.
11. This permit is transferable only upon Department approval in accordance with Rules 62-4.120 and 62-528.350, F.A.C. The permittee shall be liable for any non-compliance of the permitted activity until the Department approves the transfer.
12. This permit or a copy thereof shall be kept at the work site of the permitted activity.
13. The permittee shall comply with the following:
 - a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records shall be extended automatically unless the Department determines that the records are no longer required.
 - b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule. Since there is no facility at this site for the purposes of this permit then these records may be kept at the permittee's office in Juno Beach, Florida or the site office.
 - c. Records of monitoring information shall include:
 - 1) the date, exact place, and time of sampling or measurements;
 - 2) the person responsible for performing the sampling or measurements;
 - 3) the dates analyses were performed;
 - 4) the person responsible for performing the analyses;
 - 5) the analytical techniques or methods used
 - 6) the results of such analyses
 - d. The permittee shall furnish to the Department, within the time requested in writing, any information which the Department requests to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit.
 - e. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.
14. All applications, reports, or information required by the Department shall be certified as being true, accurate, and complete.
15. Reports of compliance or noncompliance with, or any progress reports on, requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each scheduled date.
16. Any permit noncompliance constitutes a violation of the Safe Drinking Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.
17. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

18. The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.
19. This permit may be modified, revoked and reissued, or terminated for cause, as provided in 40 C.F.R. Sections 144.39(a), 144.40(a), and 144.41 (1998). The filing of a request by the permittee for a permit modification, revocation or reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.
20. The permittee shall retain all records of all monitoring information concerning the construction of the well until five years after completion of any plugging and abandonment procedures specified under Rule 62-528.435, F.A.C. The permittee shall deliver the records to the Department office that issued the permit at the conclusion of the retention period unless the permittee elects to continue retention of the records.
21. All reports and other submittals required to comply with this permit shall be signed by a person authorized under Rules 62-528.340(1) or (2), F.A.C. All reports shall contain the certification required in Rule 62-528.340(4), F.A.C.
22. The permittee shall notify the Department as soon as possible of any planned physical alterations or additions to the permitted facility. In addition, prior approval is required for activities described in Rule 62-528.410(1)(h).
23. The permittee shall give advance notice to the Department of any planned changes in the permitted facility or injection activity that may result in noncompliance with permit requirements.
24. The permittee shall report any noncompliance which may endanger health or the environment including:
 - a. Any monitoring or other information which indicates that any contaminant may cause an endangerment to an underground source of drinking water; or
 - b. Any noncompliance with a permit condition or malfunction of the injection system which may cause fluid migration into or between underground sources of drinking water.

Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause, the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

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SPECIFIC CONDITIONS

1. General Requirements

- a. This permit is to construct and test a Class V, Group 9 Exploratory Well and construct and operate an associated Dual -Zone Monitoring Well–
- b. This permit approval is based upon evaluation of the data contained in the application and the plans and specifications submitted in support of the application. Any changes, except as provided elsewhere in this permit, must be approved by the Department before implementation.
- c. The permittee shall be subject to all requirements and regulations of Miami-Dade County and the South Florida Water Management District regarding the construction and testing of this exploratory well.
- d. Four surficial aquifer monitoring wells, identified as Pad Monitor Wells (PMWs), shall be located near the corners of the pad to be constructed for the exploratory well, and shall be identified by location number and pad location, i.e. NW, NE, SW, and SE. If located in a traffic area the well head(s) must be protected by traffic bearing enclosure(s) and cover(s). Each cover must lock and be specifically marked to identify the well and its purpose. The PMWs shall be sampled as follows:
 - 1) During the construction and associated testing phases, the PMWs shall be sampled weekly for chlorides (mg/L), specific conductance ($\mu\text{mho}/\text{cm}$ or $\mu\text{S}/\text{cm}$), temperature and water level (relative to the North American Vertical Datum of 1988 [NAVD 88]).
 - 2) Initial PMW water quality analysis results shall be submitted prior to the onset of drilling activities.
 - 3) The PMWs shall also be sampled weekly for total dissolved solids (mg/L) during the first four weeks of PMW sampling; prior to events as described under Item 4) below; and at all times when specifically requested by the Department.
 - 4) The PMWs shall be sampled within 48 hours prior to and after any planned maintenance, testing (including mechanical integrity testing) or repairs to the system which represent an increased potential for accidental discharge to the surficial aquifer.

The results of the PMW analyses shall be submitted to the Department weekly along with the well construction report for the weekly activity. A summary sheet from the FDEP Southeast District is attached for your use when reporting the above information. The PMWs shall be retained in service throughout the construction phase of the project.

- e. No underground injection is allowed that causes or allows movement of fluid into an underground source of drinking water if such fluid movement may cause a violation of any primary drinking water standard or may otherwise adversely affect the health of persons. Note: exploratory wells do not inject as part of the testing program.
- f. If historical or archaeological artifacts, such as Indian canoes, are discovered at any time within the project site, the permittee shall notify the FDEP SED office in West Palm Beach and the Bureau of Historic Preservation, Division of Archives, History and Records Management, R. A. Gray Building, Tallahassee, Florida 32301, telephone number (850) 487-2073.

2. Construction and Testing Requirements

- a. Prior to the commencement of any work, the name of the Florida-licensed water well contractors supervising the drilling operations and the water well contractors' registration number shall be submitted to the Department. The permittee or the engineer of record shall provide the Department with copies of all required federal, state or local permits prior to spudding the exploratory well.
- b. Blow-out preventers shall be installed on the exploratory well and dual-zone monitor well prior to penetration of the Floridan Aquifer.
- c. The measurement points for drilling and logging operations shall be surveyed and referenced to the NAVD 88 prior to the onset of drilling activities for the exploratory well and dual-zone monitor well.
- d. No drilling operations shall begin without an approved disposal site for drilling fluids, cuttings, or waste. It shall be the permittee's responsibility to obtain any necessary Department and local agency approvals for disposal prior to the start of construction. Any formation waters discharged to surface or surficial aquifer waters during an aquifer performance test shall require an Industrial Wastewater permit from the Department, unless otherwise authorized.
- e. The Department shall be notified within forty-eight (48) hours after work has commenced.
- f. Hurricane Preparedness — Upon the issuance of a "Hurricane Watch" by the National Weather Service, the preparations to be made include but are not necessarily limited to the following:
 - 1) Secure all on-site salt and stockpiled additive materials to prevent surface and/or groundwater contamination.
 - 2) Properly secure drilling equipment and rig(s) to prevent damage to well(s) and on-site treatment process equipment.
- g. Waters spilled during construction or testing of the exploratory well and dual-zone monitor well shall be contained and properly disposed.
- h. Department approval and UIC-TAC review is required prior to the following stages of construction:
 - 1) Spud date for the exploratory well
 - 2) The landing of the 34-inch diameter and 24-inch diameter casings of the exploratory well
 - 3) Injection zone interval
 - 4) The landing of the 16-inch diameter and 6-5/8 inch diameter casings of the dual-zone monitor well
 - 5) Upper and lower monitoring intervals
- i. The drilling and geophysical logging program, during the drilling of the exploratory well, shall at a minimum include:

- 1) Conventional mud-rotary method through setting of the outer casing; reverse-air rotary for the remainder of the drilling; no salt or brine may be used for weight control during any of the drilling operations until after the intermediate casing of the exploratory well has been installed. Drill a 12-inch diameter borehole using the mud rotary method from pad level to approximately 250 feet bpl. Perform the following logging techniques prior to subsequent reaming:
 - X-Y caliper
 - Natural gamma ray
- 2) Ream the pilot hole to a nominal 64-inch diameter and perform the following logging techniques prior to installing and cementing the 54-inch conductor casing from 0–225 feet bpl.:
 - X-Y caliper
 - Natural gamma ray
- 3) Drill a 12-inch diameter pilot hole using the mud rotary method from the landing of the conductor casing to approximately 950 feet bpl, conducting inclination surveys every 90 feet (1 degree maximum allowed). Perform the following logging techniques prior to subsequent reaming:
 - X-Y caliper
 - Natural gamma ray
 - Dual induction
 - Spontaneous Potential
- 4) Ream the pilot hole to a nominal 54-inch diameter borehole using the mud rotary method, conducting inclination surveys every 90 feet (1 degree maximum allowed), from bottom of conductor casing to approximately 925 feet bpl. Perform the following logging techniques:
 - X-Y caliper
 - Natural gamma ray
- 5) Install and cement a 44-inch diameter steel outer casing from pad level to approximately 925 feet bpl, and perform the following logging techniques:
 - Temperature log after each lift of cement
- 6) Switch to reverse-air drilling. Drill a 12-inch diameter pilot hole from the landing of the outer casing to approximately 1650 feet bpl, conducting inclination surveys every 90 feet (1 degree maximum allowed). Perform the following logging techniques prior to subsequent reaming:
 - X-Y caliper
 - Natural gamma ray
 - Dual induction
 - Spontaneous potential
 - Temperature (static and flowing)
 - Fluid conductivity (static and flowing)
 - Borehole Compensated Sonic with VDL
 - Flowmeter (static and flowing)

A minimum of two and an anticipated maximum of 4 packer-pumping tests shall be performed between the depths of 1250 and 1650 feet bpl to determine the depth of the 10,000 mg/L TDS isopleth based upon field determined conditions. Note: Pumping logs shall be run to adequately stress the confining units to make them clearly identifiable.

- 7) Ream the pilot hole to a nominal 44-inch diameter borehole using the reverse-air rotary method, conducting inclination surveys every 90 feet (1 degree maximum allowed), from bottom of conductor casing to approximately 1600 feet bpl. Perform the following logging techniques:
 - X-Y caliper
 - Natural gamma ray
- 8) Install and cement a 34-inch diameter intermediate steel casing from pad level to approximately 1600 feet bpl, and perform the following logging techniques:
 - Temperature log after each lift of cement
- 9) Drill a 12-inch diameter pilot hole using the reverse air method from the landing of the intermediate casing to approximately 3500 feet bpl, conducting inclination surveys every 60 feet (1 degree maximum allowed). Perform the following logging techniques prior to subsequent reaming:

Static conditions

- X-Y caliper
- Natural gamma ray
- Dual induction
- Spontaneous potential
- Borehole Compensated Sonic — VDL
- Temperature with differential plot
- Fluid Conductivity
- Flowmeter
- Television Survey and Borehole televiewer

Dynamic conditions

- Temperature with differential plot
- Fluid conductivity
- Flowmeter

Collect a minimum of six (6) and up to eight (8) cores. A minimum of four and up to eight packer-pumping tests shall be performed between the depths of 1650 and 2900 feet bpl to evaluate the confining characteristics of strata in this interval. Note: Pumping logs shall be run to adequately stress the confining units to make them clearly identifiable.

- 10) Ream the pilot hole to a nominal 34-inch diameter borehole using the reverse air method, conducting inclination surveys every 90 feet (1 degree maximum allowed), from bottom of intermediate casing to approximately 2898 feet bpl. Ream the pilot hole to a nominal 24-inch diameter using the reverse air method, conducting inclination surveys every 90 feet (1 degree maximum allowed), to 2900 feet bpl. Ream the pilot hole to a nominal 22-inch diameter using the reverse air method from 2900 to 3500 feet bpl. Perform the following logging techniques:
 - X-Y caliper
 - Natural gamma ray

- 11) Install and cement a 24-inch diameter seamless steel injection casing from 0 to approximately 2900 feet bpl, and perform the following logging techniques:
 - Temperature log after each lift of cement
 - Cement Bond Log with VDL after completion of cementing
 - Television Survey
 - 12) Conduct casing pressure test on the 24-inch diameter steel injection casing .
 - 13) Install the 18-inch FRP injection tubing of 0.76-inch thickness with external casing packer from 0 to approximately 2890 feet bpl.
 - 14) Develop well and collect background water samples. The background water samples shall be collected and analyzed, at a minimum, for: Primary and Secondary Drinking Water Standards and Municipal Wastewater Minimum Criteria Groundwater Monitoring Parameters. This may also be accomplished between 10) and 11), above.
 - 15) Conduct Mechanical Integrity Test (annulus pressure test on 18 -inch FRP injection tubing and perform the following logging techniques:
 - Television Survey
 - Temperature
 - 16) Complete wellhead assembly.
 - 17) Demobilize injection well rig and move to dual zone monitor well site.
- j. The drilling and geophysical logging program, during the drilling of the dual-zone monitor well, shall at a minimum include:
- 1) Conventional mud-rotary method through setting of the outer casing; reverse-air rotary for the remainder of the drilling; no salt or brine may be used for weight control during any of the drilling operations until after the final casing of the dual-zone monitor well has been installed. Drill a 12-inch diameter borehole using the mud rotary method from pad level to approximately 250 feet bpl. Perform the following logging techniques prior to subsequent reaming:
 - X-Y caliper
 - Natural gamma ray
 - 2) Ream the pilot hole to a nominal 44-inch diameter and perform the following logging techniques prior to installing and cementing the 34-inch conductor casing from 0–225 feet bpl::
 - X-Y caliper
 - Natural gamma ray

- 3) Drill a 12-inch diameter pilot hole using the mud rotary method from the landing of the conductor casing to approximately 950 feet bpl, conducting inclination surveys every 90 feet (1 degree maximum allowed). Perform the following logging techniques prior to subsequent reaming:
 - X-Y caliper
 - Natural gamma ray
 - Dual induction
 - Spontaneous Potential
- 4) Ream the pilot hole to a nominal 34-inch diameter borehole using the mud rotary method, conducting inclination surveys every 90 feet (1 degree maximum allowed), from bottom of conductor casing to approximately 925 feet bpl. Perform the following logging techniques:
 - X-Y caliper
 - Natural gamma ray
- 5) Install and cement a 24-inch diameter steel outer casing from pad level to approximately 925 feet bpl, and perform the following logging techniques:
 - Temperature log after each lift of cement
- 6) Switch to reverse-air drilling. Drill a 12-inch diameter pilot hole from the landing of the outer casing to approximately 1,900 feet bpl, conducting inclination surveys every 90 feet (1 degree maximum allowed). Perform the following logging techniques prior to subsequent reaming:
 - X-Y caliper
 - Natural gamma ray
 - Dual induction
 - Spontaneous potential
 - Temperature (static and flowing)
 - Fluid conductivity (static and flowing)
 - Borehole Compensated Sonic with VDL
 - Flowmeter (static and flowing)

A minimum of two and an anticipated maximum of 4 packer-pumping tests shall be performed between the depths of 1300 and 1900 feet bpl to determine the depth of the 10,000 mg/L TDS isopleth based upon field determined conditions and evaluate hydraulic characteristics of potential monitoring intervals. Note: Pumping logs shall be run to adequately stress the confining units to make them clearly identifiable.

- 7) Install drillable bridge plug to a depth of 1850 feet bpl and backplug pilot hole from approximately 1850 to 1430 feet bpl with cement. Install limestone gravel over interval from 1430 to 1390 feet bpl. Backplug pilot hole over the interval from approximately 1390 to within 100 feet of the base of the 24-inch diameter outer casing.

- 8) Ream the backplugged pilot hole to a nominal 24-inch diameter borehole using the reverse-air rotary method, conducting inclination surveys every 90 feet (1 degree maximum allowed), from bottom of outer casing to approximately 1,400 feet bpl. Perform the following logging techniques:
 - X-Y caliper
 - Natural gamma ray
 - 9) Install and cement a 16-inch diameter intermediate steel casing from pad level to approximately 1400 feet bpl, and perform the following logging techniques:
 - Temperature log after each lift of cement
 - 10) Drill a 16-inch diameter hole using the reverse air method from the landing of the intermediate casing to approximately 1845 feet bpl and a 12-inch diameter hole from 1845 to 1870 feet bpl conducting inclination surveys every 60 feet (1 degree maximum allowed). Perform the following logging techniques:
 - X-Y caliper
 - Natural gamma ray
 - 11) Install and cement a 6-⁵/₈ inch diameter final FRP casing from pad level to approximately 1850 feet bpl, and perform the following logging techniques:
 - Temperature log after each lift of cement
 - 12) Develop monitor zones and collect background water samples. The background water samples shall be collected and analyzed, at a minimum, for: Primary and Secondary Drinking Water Standards and Municipal Wastewater Minimum Criteria Groundwater Monitoring Parameters. This may also be accomplished between 12) and 13), below.
 - 13) Conduct Mechanical Integrity Test (casing pressure test on 6-5/8-inch FRP casing and perform the following logging techniques:
 - Cement Bond Log with VDL after completion of cementing
 - Television Survey
 - 14) Complete wellhead assembly.
 - 15) Demobilize rig.
- k. Packer testing shall at a minimum include:
- 1) At least one packer test from each monitoring zone.
 - 2) At least one packer test to reliably determine the base of the USDW.
 - 3) Water samples shall be collected from each packer test and analyzed, at a minimum, for: total dissolved solids, chlorides, specific conductance, pH, temperature, dissolved ammonia and total Kjeldhal nitrogen and sulfates.

I. The depth of the USDW and the background water quality of the monitoring zones shall be determined during drilling and testing. This determination shall be accomplished, analyzed, and interpreted using, at least, the following information:

- 1) Water sample analysis results from packer testing.
- 2) Aquifer performance testing data.
- 3) Geophysical logging data.
- 4) Plots of sonic porosity and apparent fluid resistivity (R_{wa}). Interpretation shall also include calculations of the sonic porosity and the R_{wa} and the input parameters provided.

The lower monitoring zone shall be positioned in a suitably transmissive interval at an appropriate point above the injection interval, and the immediately overlying major confining unit, and have a TDS concentration significantly greater than 10,000 mg/L with regard to TDS. The upper monitoring interval shall be located in immediate proximity to the base of the USDW. Final hydrogeological evaluation shall be done once all pertinent data and results have been submitted and incorporated in the proposal.

- a. If effluent (e.g., uncharacteristic liquid waste components or odors) is encountered or suspected during drilling or testing, the Department shall be notified immediately by telephone, and subsequently in writing. Immediate precautionary measures shall be taken to prevent any upward fluid movement.
- b. Testing:
 - i. Injection of any wastewater is prohibited as this is an exploratory well.
 - ii. The Department shall be notified at least seventy-two (72) hours prior to all testing that requires the presence of a FDEP representative.
- c. UIC-TAC meetings are scheduled on the 2nd and 4th Tuesday of each month subject to a five working day prior notice and timely receipt of critical data by all UIC-TAC members and the USEPA, Region IV, Atlanta. Emergency meetings may be arranged when justified to avoid undue construction delays.
- d. Department approval at a scheduled UIC-TAC meeting shall be based on the permittee's presentation that shows compliance with Department rules and this permit.
- e. No fluids shall be injected with the exception of fluids used while drilling operations are under way.

3. Quality Assurance/Quality Control Requirements.

- a. The permittee shall ensure that the construction of this facility shall be as described in the application and supporting documents. Any proposed modifications to this permit shall be submitted in writing to the Underground Injection Control program manager for review and clearance prior to implementation. Changes of negligible impact to the environment and staff time will be reviewed by the program manager, cleared when appropriate and incorporated into this permit. Changes or modifications other than those described above will require submission of a completed application and appropriate processing fee as per Rule 62-4.050, F.A.C.

- b. A Florida registered professional engineer, pursuant to Chapter 471, Florida Statutes (F.S.), shall be retained throughout the construction period and operational testing to be responsible for the construction and operation and to certify the application, specifications and completion report and other related documents, pursuant to Rule 62-528.440(5), F.A.C. A professional engineer or professional geologist, pursuant to Chapter 492, F.S., shall provide monitoring of the drilling and testing operation. The permittee shall notify the Department immediately of any change of the Engineer of Record or Geologist of Record.
- c. In accordance with Chapter 492, Florida Statutes, all documents prepared for the geological/hydrogeological evaluation of the exploratory well shall be signed and sealed by a Florida Licensed Professional Geologist or qualified Florida Licensed Professional Engineer.
- d. All water quality samples required in this permit shall be collected and analyzed in accordance with Department Standard Operating Procedures (SOP), pursuant to the FDEP Quality Assurance, Chapter 62-160, F.A.C. The various components of the collection of the FDEP SOPs are found in DEP-SOP-001/01 (Field Procedures) and DEP-SOP-002/-1 (Laboratory Procedures).
- e. Continuous on-site supervision by qualified personnel (engineer or geologist) is required during all drilling, testing, geophysical logging and cementing operations.
- f. The permittee shall calibrate all pressure gauge(s), flow meter(s) and other related measurement equipment associated with the exploratory well (system on a semi-annual basis). The permittee shall maintain all monitoring equipment and shall ensure that the monitoring equipment is calibrated and in proper operating condition at all times. Laboratory equipment, methods, and quality control will follow EPA guidelines as expressed in Standard Methods for the Examination of Water and Wastewater. The pressure gauge(s), flow meter(s) and other related measurement equipment associated with the exploratory well shall be calibrated using standard engineering methods.
- g. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures.

4. Reporting Requirements.

- a. This project shall be monitored by the Department with the assistance of the EPA - Region 4 and the TAC, which consists of representatives of the following agencies:
 - Department of Environmental Protection, West Palm Beach and Tallahassee.
 - South Florida Water Management District (SFWMD), West Palm Beach.
 - United States Geological Survey (USGS), Miami.
- b. The permittee shall provide copies of all correspondence relative to this permit to each member of the TAC (not EPA). Such correspondence includes but is not limited to reports, schedules, analyses and geophysical logs required by the Department under the terms of this permit. The permittee is not required to provide specific correspondence to any TAC member who submits to the permittee a written request to be omitted as a recipient of specific correspondence.
- c. Throughout the construction period allowed by this permit, daily progress reports shall be submitted to the Department and the TAC (not EPA) each week. The reporting period shall run Friday through Thursday and reports shall be mailed on Friday of each week. The weekly progress reports, certified by a Florida Licensed Professional Geologist or qualified Florida Licensed Professional Engineer, pursuant to S.C.s 3.b. and 7.a., and shall include at a minimum the following information:

- 1) A cover letter summarizing each week's activities and a projection of activities for the next reporting period;
 - 2) Description of daily footage drilled by diameter of bit or size of hole opener or reamer being used;
 - 3) Description of work during installation and cementing of casing, including amounts of casing and cement used. Details of cementing operations shall include the number of cementing stages, and the following information for each stage of cementing: cement slurry composition, specific gravity, pumping rate, volume of cement pumped, theoretical fill depth, and actual tag depth. From both the physical tag and the geophysical logs, a percent fill shall be calculated. An explanation of any deviation between actual versus theoretical fill shall be provided;
 - 4) Daily engineers report and driller's log with detailed descriptions of all drilling progress, cementing, testing, logging, and casing installation activities;
 - 5) Lithologic log with cuttings description, formation and depth encountered;
 - 6) Collection of drilling cuttings at least every 10 feet and at every formation change, with 5 foot sampling starting at a depth of 2800 feet bpl and continuing through the injection zone;
 - 7) Well development records;
 - 8) Water quality analyses, including but not limited to the weekly water quality analysis and water levels for the four PMWs;
 - 9) Description of work and type of testing accomplished including geophysical and video logs and pumping tests;
 - 10) Description of any construction problems that developed during the reporting period and current status;
 - 11) Copies of the driller's log;
 - 12) Description of any deviation survey conducted;
 - 13) Details of any packer tests, pump tests and core analyses; and
 - 14) Details of the additions of salt or other materials to suppress well flow, and include the date, depth and amount of material used
- d. If any problem develops that may seriously hinder compliance with this permit, construction progress or good construction practice, the Department shall be notified immediately. The Department may require a detailed written report describing what problems have occurred, the remedial measures applied to assure compliance and the measures taken to prevent recurrence of the problem.
- e. Abnormal Events.
- 1) In the event the permittee is temporarily unable to comply with any conditions of this permit due to breakdown of equipment, power outages, destruction by hazard of fire, wind or by other cause, the permittee shall notify the Department. Notification shall be made in person, by telephone or by electronic mail within 24 hours of breakdown or malfunction to the UIC Program staff, SED office in West Palm Beach.

- 2) A written report of any noncompliance referenced in Specific Condition (S.C.) 4.e above shall be submitted to the SED office within five days after discovery of the occurrence. The report shall describe the nature and cause of the breakdown or malfunction, the steps being taken or planned to be taken to correct the problem and prevent its reoccurrence, emergency procedures in use pending correction of the problem, and the time when the facility will again be operating in accordance with permit conditions.
 - f. An interpretation of all test results must be submitted with all submittals.
 - g. Within 30 days of well completion of the Exploratory Well, the permittee or the authorized representative shall submit to the Department the following information:
 - h. Certification of Class I Well Construction Completion, DEP Form 62-528.900(4);
 - i. Upon completion of construction of the well, a complete set of as-built engineering drawings (Florida registered P.E. signed and sealed) shall be submitted to the Department's SED office in West Palm Beach and Tallahassee UIC Program.
 - j. After completion of construction and testing of the well, the following requirements shall apply:
 - 1) A final engineering report shall be submitted to the Department, the TAC (not EPA). The report shall include, but not be limited to, all information and data collected under Rules 62-528.605, 62-528.615, and 62-528.635, F.A.C., with appropriate interpretations. Mill certificates for the casings shall be included in the report. This report shall also be signed and sealed by a Florida licensed professional engineer and professional geologist.
 - a) Surface equipment completion certification or certification of interim completion for the purposes of testing;
 - b) Signed and sealed record (as-built) engineering drawings of all well construction, subsurface and surface equipment, and appurtenances. The drawings shall include but not be limited to the wellhead and subsurface well components.
 - c) All other applicable permits;
5. Surface Equipment
- a. The well surface equipment and piping shall be kept free of corrosion at all times.
 - b. Spillage onto the well pad during construction activities, and any waters spilled during testing, other maintenance, testing or repairs to the system shall be contained by an impermeable containment pad and disposed of via approved and permitted methods.
 - c. The four surficial aquifer monitor wells installed at the corners of the well pad shall be secured, maintained, and retained in service throughout the construction phase of the project. The permittee may submit a request to the Department for cessation of sampling followed by capping, or plugging and abandonment of these wells.
6. Plugging and Abandonment and Alternate Use Plans.
- a. Permittees who are unable to operate the well to meet its intended purpose shall within 180 days of FDEP notification:

- 1) Submit a plugging and abandonment permit application in accordance with Rules 62-528.625 and 62-528.645, F.A.C., or
- 2) Submit an alternate use plan for the well. Alternate use may commence after the plan has been approved by the Department, including any necessary permit or permit modifications as required by the Department or any other agency, or
- 3) Implement the plugging and abandonment plan.

7. Signatories

- a. All reports and other submittals required to comply with this permit shall be signed by a person authorized under Rules 62-528.340(1) or (2), F.A.C.
- b. In accordance with Rule 62-528.340(4), F.A.C., all reports and submittals shall contain the following certification signed by a person authorized under Rules 62-528.340(1) or (2), F.A.C. or be included under such certification as may have been previously provided (i.e., responses to a Request for Information (RFI) which are simple clarifications are thereby certified):

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

8. Permit Extension(s) and Renewal(s).

- a. Pursuant to Rule 62-4.080(3), a permittee may request that a permit be extended as a modification of an existing permit. A request for an extension is the responsibility of the permittee and shall be submitted to the Department before the expiration of the permit. In accordance with Rule 62-4.070(4), F.A.C., a permit cannot be extended beyond the maximum 5-year statutory limit.

Issued this 05 day of May, 2010

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION



Jack Long
District Director
Southeast District

JL/LAB/jnn

Appendix B
EW-1 Construction
Summary

**Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Construction Summary**

Date	Milestone
5/11/2011	Begin drilling a 12¼-inch diameter pilot hole from land surface via mud rotary drilling method.
5/14/2011	Complete drilling the pilot hole to 255 feet bpl.
5/15/2011	Perform caliper and gamma ray logging.
5/17/2011	Begin reaming from surface using a 62½-inch diameter bit via mud rotary drilling method.
5/25/2011	Complete reaming the 62½-inch diameter hole to a depth of 259.8 feet bpl. Perform caliper and gamma ray logging on the reamed hole.
5/26/2011	Install 54-inch diameter casing to a depth of 255 feet bpl and cement casing to land surface.
5/27/2011	Drill out cement plug at the base of the 54-inch diameter casing using a 52½-inch diameter bit.
5/28/2011	Begin pilot hole drilling with a 12¼-inch diameter bit via mud rotary drilling method from the base of the 54-inch casing.
6/1/2011	Complete pilot hole drilling to a depth of 1,090 feet bpl.
6/5/2011	Perform caliper, gamma ray, spontaneous potential, and dual-induction logging on the pilot hole.
6/6/2011	Begin reaming the pilot hole using a 52½-inch diameter reaming bit.
6/20/2011	Complete reaming the pilot hole to a depth of 1,095 feet bpl. Begin caliper and gamma ray logging of the reamed hole.
6/21/2011	Complete caliper and gamma ray logging of the reamed hole. Begin installation of the 44-inch diameter casing.
6/22/2011	Complete installation of the 44-inch diameter casing to a depth of 1,090 feet bpl and begin cementing the casing in place.
6/24/2011	Complete cementing the 44-inch diameter casing in place.
6/28/2011	Begin to drill out cement plug at the base of the 44-inch diameter casing using a 42½-inch diameter bit.
6/29/2011	Complete drilling out cement plug at the base of the 44-inch diameter casing using a 42½-inch diameter bit.
6/30/2011	Begin pilot hole drilling with a 12¼-inch diameter bit from the base of the 44-inch casing via reverse air drilling method.
7/3/2011	Complete pilot hole drilling to a depth of 1,655 feet bpl.
7/11/2011	Begin performing caliper, gamma ray, dual induction, spontaneous potential, sonic, fluid conductivity, temperature, and flowmeter logs on the open hole interval.
7/12/2011	Complete performing caliper, gamma ray, dual induction, spontaneous potential, sonic, fluid conductivity, temperature, and flowmeter logs on the open hole interval.
7/14/2011	Perform packer testing on the interval from 1,505 to 1,535 feet bpl.
7/15/2011	Perform packer testing on the interval from 1,400 to 1,430 feet bpl.
7/17/2011	Perform packer testing on the interval from 1,225 to 1,285 feet bpl.
7/18/2011	Perform packer testing on the interval from 1,102 to 1,162 feet bpl.
7/22/2011	Begin backplugging the pilot hole with cement.
7/23/2011	Complete backplugging the pilot hole with cement (tag the top of cement at 1,094 feet bpl). Begin reaming from the base of the 44-inch diameter casing using a 42½-inch drill bit.
7/30/2011	Complete reaming using a 42½-inch diameter bit to a depth of 1,542 feet bpl.
7/31/2011	Perform caliper and gamma ray logs on the reamed hole.
8/1/2011	Begin installation of the 34-inch diameter casing.
8/2/2011	Complete installation of the 34-inch diameter casing to a depth of 1,535 feet bpl.
8/5/2011	Begin cementing the 34-inch diameter casing in place.
8/8/2011	Complete cementing the 30-inch diameter casing to land surface.
8/9/2011	Drill out cement plug at the base of the 34-inch diameter casing using a 32½-inch diameter bit.
8/12/2011	Begin pilot hole drilling with a 12.25-inch diameter bit from the base of the 34-inch casing via reverse air drilling method.
8/14/2011	Core the interval from 1,721.5 to 1,734.5 feet bpl.
8/18/2011	Core the interval from 2,026 to 2,040 feet bpl.
8/20/2011	Core the interval from 2,110 to 2,124 feet bpl.
8/21/2011	Core the interval from 2,288 to 2,302 feet bpl.
8/24/2011	Core the interval from 2,396 to 2,410 feet bpl.
8/27/2011	Core the interval from 2,576 to 2,578 feet bpl.
8/28/2011	Core the interval from 2,580 to 2,590 feet bpl.
8/31/2011	Core the interval from 2,638 to 2,652 feet bpl.

**Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Construction Summary**

Date	Milestone
9/1/2011	Core the interval from 2,652 to 2,666 feet bpl.
9/3/2011	Core the interval from 2,666 to 2,679 feet bpl.
9/6/2011	Completed pilot hole to a depth of 3,192 feet bpl and began dredging below this depth.
11/28/2011	Complete pilot hole drilling to a depth of 3,234 feet bpl.
11/30/2011	Perform caliper, gamma ray, dual induction, spontaneous potential, sonic, fluid conductivity, temperature, flowmeter, and video logs on the open hole interval.
12/3/2011	Perform packer testing on the interval from 1,930 to 1,952 feet bpl.
12/5/2011	Perform packer testing on the interval from 3,020 to 3,232 feet bpl.
12/6/2011	Begin reaming from the base of the 34-inch diameter casing to allow packer testing with sleeved inflatable packers.
12/27/2011	Perform packer testing on the interval from 1,970 to 1,972 feet bpl.
1/6/2012	Perform caliper and gamma ray logs on the reamed hole.
1/8/2012	Perform packer testing on the interval from 2,058 to 2,080 feet bpl.
1/15/2012	Performed caliper and gamma ray logs.
1/24/2012	Perform caliper and gamma ray logs on the reamed hole.
1/28/2012	Perform packer testing on the interval from 2,220 to 2,242 feet bpl.
1/30/2012	Perform packer testing on the interval from 2,478 to 2,500 feet bpl.
2/6/2012	Completed reaming the pilot hole to a depth of 2,978 feet bpl with a 32-inch diameter bit.
2/11/2012	Perform caliper and gamma ray logs on the reamed hole.
2/13/2012	Perform formation test over the interval from 3,010 to 3,230 feet bpl.
2/14/2012	Begin reaming the pilot hole from 2,978 feet bpl with a 24-inch diameter bit.
2/15/2012	Complete reaming with a 24-inch diameter bit to a depth of 2,980 feet bpl.
2/16/2012	Begin reaming the pilot hole from 2,980 feet bpl with a 22-inch diameter bit.
2/17/2012	Completed reaming the pilot hole to a depth of 3,230 feet bpl with a 22-inch diameter bit.
2/21/2012	Perform caliper and gamma ray logs on the reamed hole.
2/23/2012	Begin installation of the 24-inch diameter casing.
3/1/2012	Complete installation of the 24-inch diameter casing to a depth of 2,985 feet bpl. Begin cementing casing in place.
3/7/2012	Perform cement bond log on the 24-inch diameter casing and complete cementing the casing to land surface.
3/10/2012	Perform video survey of the 24-inch diameter casing.
3/12/2012	Perform a successful pressure test on the 24-inch diameter casing.
3/14/2012	Begin installation of the 18-inch diameter FRP injection tubing.
3/17/2012	Complete FRP injection tubing installation to a depth of 2,975 feet bpl and install Baracor corrosion inhibitor in the annulus.
3/18/2012	Re-seat the FRP injection tubing and begin demobilizing the rig and equipment the dual-zone monitor well location.
3/26/2012	Complete demobilizing the rig and equipment to the dual-zone monitor well location.
4/11/2012	Collected background water samples from the Boulder Zone and performed final video survey.
6/15/2012	Performed temperature logging of the well.
6/21/2012	Performed a successful annular pressure test in the presence of an FDEP witness.
7/31/2012	Completed wellhead installation.

bpl = below pad level

Appendix C

Weekly Construction Summary Cover Letters

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458

Phone: 561-891-0763

Fax: 561-623-5469

May 13, 2011

MHCDEP-11-0169

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
Weekly Construction Summary #1**

Dear Mr. May:

This is the first weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 6:15 PM (when drilling operations at EW-1 began), Wednesday, May 11, 2011 and ended at 7:00 AM, Thursday, May 12, 2011. For this project, the reporting period for all future weekly construction summaries will begin at 7:00 AM on Thursday and end at 7:00 AM on the following Thursday. Consultant and drilling contractor daily reports were prepared for this reporting period commencing with the initiation of drilling activities. Copies of the consultant and drilling contractor daily construction logs are attached.

During this reporting period, the drilling contractor (Layne Christensen Company) began drilling exploratory well EW-1 using a 12.25-inch diameter drill bit. The interval 33 to 55 feet below pad level (bpl) was drilled during the reporting period. Deviation surveys will be performed on the hole at 90 foot intervals. There were no geophysical logging, coring, packer testing, well development, casing installation or cementing activities. Salt or other material was not used to suppress well flow and there were no construction problems during the reporting period.

During construction of the containment pad on April 14, 2011, when the 64 inch diameter pit pipe was installed to a depth of 30 feet bpl, formation samples were collected from land surface to a depth of 30 feet bpl. Once drilling commenced, formation samples were collected at 10 foot intervals. A lithologic log of formation samples collected during the pit pipe installation (land surface to 30 feet bpl) and formation samples collected during drilling during this reporting period (30 feet bpl to 50 feet bpl) is attached.

During the next reporting period, it is anticipated the Contractor will complete pilot hole drilling to a depth of approximately 250 feet bpl, perform geophysical logging on the pilot

hole, ream the pilot hole, perform geophysical logging on the reamed hole and install and cement the 54-inch diameter casing in place.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on May 5, 2011. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. A copy of the pad monitor wells data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact me at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



5/13/11

David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Contractor's Daily Construction Log
Lithologic Log
Pam Monitor Well Summary Sheets

Cc: George Heuler/FDEP-Tallahassee
Steve Anderson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberland/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458

Phone: 561-891-0763

Fax: 561-623-5469

May 20, 2011

MHCDEP-11-0180

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
Weekly Construction Summary #2**

Dear Mr. May:

This is the second weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, May 12, 2011 and ended at 7:00 AM, Thursday, May 19, 2011. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period, the drilling contractor (Layne Christensen Company) began drilling a pilot hole via the mud rotary drilling method using a 12 ¼-inch diameter drill bit. The pilot hole was drilled from a depth of 33 feet to 55 feet below pad level (bpl).

During this reporting period, the drilling contractor continued drilling the pilot hole from a depth of 55 feet to 255 feet bpl. Lost circulation was encountered while drilling the interval from approximately 33 feet bpl to 177 feet bpl. Based on review of the drill cutting sample, we expect that the lost circulation is present between 33 feet bpl and 120 feet bpl. Upon completion of drilling the pilot hole to 255 feet bpl, the geophysical logging sub-contractor performed gamma-ray and caliper logging. The geophysical log is attached. Based on the results of the geophysical logging and the lithology, a 54-inch diameter casing setting depth of between 240 feet bpl and 250 feet bpl will be selected depending on field conditions. The drilling contractor then began to ream the pilot hole using a 62 ½-inch diameter drill bit. The interval from 33 feet to 61 feet bpl was reamed during this reporting period. Deviation surveys were performed on the pilot hole at 90 foot intervals. A deviation survey summary sheet is attached. Formation samples were collected at 10 foot intervals. A lithologic log of formation samples is attached.

There were no coring, packer testing, well development, casing installation or cementing activities. Salt or other materials were not used to suppress well flow and there were no construction related issues during the reporting period.

During the next reporting period, it is anticipated that the drilling contractor will complete reaming of the pilot hole to a depth of approximately 255 feet bpl, perform geophysical logging on the reamed borehole, install and cement the 54-inch diameter casing in place, and begin the next phase of pilot hole drilling.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The most recent set of pad monitoring well sample results available is for samples collected on May 11, 2011.. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor wells data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact me at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.

David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Contractor's Daily Construction Log
Lithologic Log
Pad Monitor Well Summary Sheets

Cc: George Heuler/FDEP-Tallahassee
Steve Anderson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458

Phone: 561-891-0763

Fax: 561-623-5469

May 27, 2011

MHCDEP-11-0187

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
Weekly Construction Summary #3**

Dear Mr. May:

This is the third weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, May 19, 2011 and ended at 7:00 AM, Thursday, May 26, 2011. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period, the drilling contractor (Layne Christensen Company) completed drilling a pilot hole via the mud rotary drilling method using a 12 ¼-inch diameter drill bit to a depth of 255 feet below pad level (bpl), performed geophysical logging on the pilot hole, and began reaming the pilot hole using a 62 ½-inch diameter drill bit. The pilot hole was reamed to a depth of 61.8 feet bpl by the end of the previous reporting period.

During this reporting period, the drilling contractor continued to ream the pilot hole from a depth of 61.8 feet to 259.8 feet bpl. Upon completion of reaming the pilot hole to 259.8 feet bpl, the geophysical logging sub-contractor performed gamma-ray and caliper logging. A copy of the geophysical log is attached. The drilling contractor was preparing to install the 54-inch diameter steel casing at the end of this reporting period. Deviation surveys were performed on the pilot hole at 90 foot intervals. A deviation survey summary sheet is attached.

There were no coring, packer testing, exploratory well development, casing installation or cementing activities. Salt or other materials were not used to suppress well flow and there were no construction related issues during the reporting period.

During the next reporting period, it is anticipated that the drilling contractor will install and cement the 54-inch diameter casing in place, and begin the next phase of pilot hole drilling.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on May 26, 2011. The most recent set of pad monitoring well sample results available is for samples collected on May 19, 2011. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor wells data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact me at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



David McNabb, P.G.

Attachments: Consultant Daily Construction Logs
Drilling Contractor Daily Construction Logs
Pad Monitor Well Summary Sheets
Deviation Survey Summary Sheet
Geophysical Log

Cc: George Heuler/FDEP-Tallahassee
Steve Anderson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458

Phone: 561-891-0763

Fax: 561-623-5469

June 3, 2011

MHCDEP-11-0231

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
Weekly Construction Summary #4**

Dear Mr. May:

This is the fourth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, May 26, 2011 and ended at 7:00 AM, Thursday, June 2, 2011. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period, the drilling contractor (Layne Christensen Company) completed reaming the pilot hole using a 62 ½-inch diameter drill bit via the mud rotary drilling method to a depth of 259.8 feet below pad level (bpl). Caliper and gamma ray geophysical logs were performed on the reamed borehole by the end of the previous reporting period.

During this reporting period, the drilling contractor installed the 54-inch diameter steel casing to a depth of 255 feet bpl and cemented the casing in place in one cement stage. A total of 206 barrels of cement, 102 barrels of 12% bentonite blend cement and 104 barrels of neat cement, were used to cement the casing in place. A cementing stage sheet and cementing summary sheet of the cementing event is attached. The cement was allowed to cure for approximately 24 hours prior to drilling out the cement plug at the base of the 54-inch diameter casing using a 52 ½-inch diameter bit from a depth of 250 feet to 259 feet bpl. The drilling contractor then drilled the next phase of pilot hole using a 12 ¼-inch diameter drill bit via the mud rotary method from a depth of 259 feet to 1,090 feet bpl. The drilling contractor was conditioning the borehole in preparation for geophysical logging by the end of this reporting period. Deviation surveys were performed on the pilot hole at 90 foot intervals. A deviation survey summary sheet is attached.

There were no coring, packer testing, or exploratory well development activities. Salt or other materials were not used to suppress well flow and there were no construction related issues during the reporting period.

During the next reporting period, it is anticipated that the drilling contractor will perform geophysical logging on the pilot hole and begin to ream the pilot hole from the base of the 54-inch diameter casing using a 52 1/2-inch diameter bit.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on June 2, 2011. The most recent set of pad monitoring well sample results available is for samples collected on May 26, 2011. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor wells data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact me at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



David McNabb, P.G.

Attachments: Consultant Daily Construction Logs
Drilling Contractor Daily Construction Logs
Pad Monitor Well Summary Sheets
Lithologic Log
Deviation Survey Summary Sheet
Cementing Stage Sheet
Cementing Summary Sheet

Cc: George Heuler/FDEP-Tallahassee
Steve Anderson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458

Phone: 561-891-0763

Fax: 561-623-5469

June 10, 2011

MHCDEP-11-0238

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
Weekly Construction Summary #5**

Dear Mr. May:

This is the fifth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, June 2, 2011 and ended at 7:00 AM, Thursday, June 9, 2011. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period, the drilling contractor installed the 54-inch diameter steel casing to a depth of 255 feet below pad level (bpl) and cemented the casing in place in one cement stage. The drilling contractor drilled out the cement plug and drilled the next phase of pilot hole using a 12 ¼-inch diameter drill bit via the mud rotary method from the base of the 54-inch diameter casing to a depth of 1,090 feet bpl. The drilling contractor was conditioning the borehole in preparation for geophysical logging at the end of the previous reporting period.

During this reporting period, the drilling contractor continued conditioning the borehole in preparation for geophysical logging. Upon completion of conditioning the pilot hole, the geophysical logging subcontractor performed caliper, gamma-ray, dual-induction, and spontaneous-potential geophysical logs on the pilot hole. Copies of the geophysical logs are attached. Based on the geophysical log and the lithologic data, a 44-inch diameter casing setting depth of 1,090 feet bpl was selected. The drilling contractor then began to ream the pilot hole using a 52 ½-inch diameter drill reaming bit. The interval from the base of the 54-inch diameter casing at 255 feet bpl to 437 feet bpl was reamed during this reporting period. Deviation surveys were performed on the reamed hole at 90 foot intervals. A deviation survey summary sheet is attached.

There were no coring, packer testing, exploratory well development, casing installations or cementing activities. Salt or other materials were not used to suppress well flow and there were no construction related issues during the reporting period.

During the next reporting period, it is anticipated that the drilling contractor will continue reaming the pilot hole.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on June 9, 2011. The most recent set of pad monitoring well sample results available is for samples collected on June 2, 2011. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor wells data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact me at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



David McNabb, P.G.

Attachments: Consultant Daily Construction Logs
Drilling Contractor Daily Construction Logs
Pad Monitor Well Summary Sheets
Deviation Survey Summary Sheet
Geophysical logs

Cc: George Heuler/FDEP-Tallahassee
Steve Anderson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458

Phone: 561-891-0763

Fax: 561-623-5469

June 17, 2011

MHCDEP-11-0256

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
Weekly Construction Summary #6**

Dear Mr. May:

This is the sixth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, June 9, 2011 and ended at 7:00 AM, Thursday, June 16, 2011. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period, the drilling contractor continued conditioning the borehole in preparation for geophysical logging. Upon completion of conditioning the pilot hole, the geophysical logging subcontractor performed caliper, gamma-ray, dual-induction, and spontaneous-potential geophysical logs on the pilot hole. Based on the geophysical log and the lithologic data, a 44-inch diameter casing setting depth of 1,090 feet bpl was selected. The drilling contractor then began to ream the pilot hole using a 52 ½-inch diameter drill reaming bit. The interval from the base of the 54-inch diameter casing to 437 feet bpl was reamed during the previous reporting period.

During this reporting period, the drilling contractor continued reaming the pilot hole using a 52 ½-inch diameter drill reaming bit. The interval from 437 feet bpl to 902 feet bpl was reamed during this reporting period. Deviation surveys were performed on the reamed hole at 90 foot intervals. A deviation survey summary sheet is attached.

There were no coring, packer testing, exploratory well development, casing installations or cementing activities. Salt or other materials were not used to suppress well flow and there were no construction related issues during the reporting period.

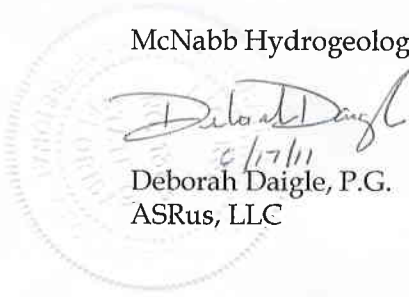
During the next reporting period, it is anticipated that the drilling contractor will continue reaming the pilot hole and perform geophysical logging. Setting of the 44-inch diameter casing will follow the geophysical logging.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on June 16, 2011. The most recent set of pad monitoring well sample results available is for samples collected on June 9, 2011. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor wells data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



6/17/11
Deborah Daigle, P.G.
ASRus, LLC

Attachments: Consultant Daily Construction Logs
Drilling Contractor Daily Construction Logs
Pad Monitor Well Summary Sheets
Deviation Survey Summary Sheet

Cc: George Heuler/FDEP-Tallahassee
Steve Anderson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Habermeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458

Phone: 561-891-0763

Fax: 561-623-5469

June 24, 2011

MHCDEP-11-0263

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
Weekly Construction Summary #7**

Dear Mr. May:

This is the seventh weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, June 16, 2011 and ended at 7:00 AM, Thursday, June 23, 2011. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period, the drilling contractor continued reaming the pilot in preparation for installing the 44-inch diameter casing to a depth of 1,090 feet below pad level (bpl). The interval from 437 feet bpl to 902 feet bpl was reamed during the previous reporting period.

During this reporting period, the drilling contractor continued reaming the pilot hole using a 52 ½-inch diameter drill reaming bit. The interval from 902 feet bpl to 1,095 feet bpl was reamed in preparation for installing the 44-inch diameter casing. Caliper and gamma ray logs were performed on the reamed hole prior to installing the 44-inch diameter casing to depth of 1,090 feet bpl. A copy of the caliper and gamma ray log is attached. Cementing the 44-inch diameter casing in place then began. Cement stage #1 was completed by the end of the reporting period. Cement stage #1 consisted of pumping 91 barrels of neat cement and 154 barrels of 4% bentonite blend cement. The drilling contractor was preparing to perform a temperature log and tag the top of cement stage #1 at the end of this reporting period. Deviation surveys were performed on the reamed hole at 90 foot intervals. A deviation survey summary sheet is attached along with a cementing stage sheet and cementing summary sheet is attached.

There were no coring, packer testing or exploratory well development during this reporting period. Salt or other materials were not used to suppress well flow and there were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will perform temperature logs to assist in the identification of the top of cement and will continue cementing the 44-inch diameter casing in place. Following completion of cementing, the drilling contractor will begin pilot hole drilling below the base of the 44-inch diameter casing.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on June 23, 2011. The most recent set of pad monitoring well sample results available is for samples collected on June 16, 2011. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor wells data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.

David McNabb, P.G.

Attachments: Consultant Daily Construction Logs
Drilling Contractor Daily Construction Logs
Pad Monitor Well Summary Sheets
Deviation Survey Summary Sheet
Cementing Stage Sheet
Cementing Summary Sheet
Geophysical Logs

Cc: George Heuler/FDEP-Tallahassee
Steve Anderson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberland/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458

Phone: 561-891-0763

Fax: 561-623-5469

July 1, 2011

MHCDEP-11-0279

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
Weekly Construction Summary #8**

Dear Mr. May:

This is the eighth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, June 23, 2011 and ended at 7:00 AM, Thursday, June 30, 2011. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period, the drilling contractor completed reaming the pilot to a depth of 1,095 feet below pad level (bpl). Geophysical logging was performed on the reamed borehole and the 44-inch diameter casing was installed to a depth of 1,090 feet bpl. The drilling contractor had begun cementing the casing in place and had completed cement stage #1, consisting of 91 barrels of neat cement and 154 barrels of 4% bentonite blend cement, during the previous reporting period.

During this reporting period, the drilling contractor completed cementing the 44-inch diameter casing in place. Cement stages 2 through 4 were used to cement the casing in place. A total of 598 barrels of cement (91 barrels of neat cement and 507 barrels of 4% bentonite blend cement) were used to cement the 44-inch diameter casing in place in the 4 cementing stages that occurred during this and the previous reporting period. Temperature logging was performed to assist in the identification of the top of cement after each cementing stage that did not reach surface. A copy of the cement top temperature log is attached. Cementing stage sheets and a cementing summary sheet are attached. The drilling contractor then rigged up for the reverse-air drilling method, and reamed out the cement plug at the base of the 44-inch diameter casing using a 42 1/2-inch diameter bit from a depth of 1,078 feet to 1,095 feet bpl. The drilling contractor was preparing to drill the next phase of pilot hole using a 12 1/4-inch diameter drill bit via the reverse-air drilling method by the end of this reporting period.

There was no coring, packer testing or exploratory well development during this reporting period. Salt or other materials were not used to suppress well flow and there were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will complete pilot hole drilling to a depth of 1,650 feet bpl, perform a full suite of geophysical logging and begin packer testing of the pilot hole.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on June 30, 2011. The most recent set of pad monitoring well sample results available is for samples collected on June 23, 2011. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor wells data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



7/1/11
David McNabb, P.G.

Attachments: Consultant Daily Construction Logs
Drilling Contractor Daily Construction Logs
Pad Monitor Well Summary Sheets
Cementing Stage Sheets
Cementing Summary Sheet
Geophysical Logs

Cc: George Heuler/FDEP-Tallahassee
Steve Anderson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458

Phone: 561-891-0763

Fax: 561-623-5469

July 8, 2011

MHCDEP-11-0288

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
Weekly Construction Summary #9**

Dear Mr. May:

This is the ninth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, June 30, 2011 and ended at 7:00 AM, Thursday, July 7, 2011. There were no construction activities at the site between 3:30 PM on July 3, 2011 through 7:00 AM on July 5, 2011 in observance of the July 4th holiday. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period, the drilling contractor completed cementing the 44-inch diameter casing to land surface, had reamed out the cement plug at the base of the 44-inch diameter casing and was preparing to begin pilot hole drilling below the base of the 44-inch diameter casing.

During this reporting period, the drilling contractor drilled a pilot hole over the interval from 1,095 feet below pad level (bpl) to a depth of 1,655 feet bpl using a 12 1/4-inch diameter drill bit and the reverse-air drilling method. Pilot hole water samples were collected at intervals no greater than 90-feet during reverse-air drilling. Pilot hole water samples were sent to a testing laboratory for conductivity, chloride, total dissolved solids, total Kjeldahl nitrogen, and ammonia analysis. The pilot hole water sample laboratory results for samples collected during this reporting period are not yet available and will be provided in the next weekly construction summary. Deviation surveys were performed at 90-foot intervals and formation samples were collected at 10-foot intervals during pilot hole drilling. A copy of the deviation survey summary sheet and a lithologic log of the formation samples collected during this reporting period are attached. The drilling contractor conditioned the pilot hole for geophysical logging after pilot hole drilling had reached a depth of 1,655 feet bpl. Pilot hole geophysical logging was about to begin at the end of this reporting period.

There was no coring, geophysical logging, casing installation, cementing, packer testing or exploratory well development during this reporting period. Salt or other materials were not used to suppress well flow and there were no construction related issues during this reporting period.

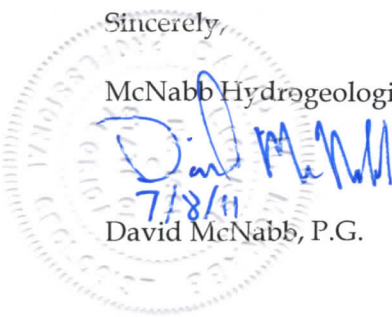
During the next reporting period, it is anticipated that the pilot hole will undergo geophysical logging and packer testing. After completing packer testing, the pilot hole will be backplugged with cement.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on July 7, 2011. The most recent set of pad monitoring well sample results available is for samples collected on June 30, 2011. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor wells data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



7/8/11
David McNabb, P.G.

Attachments: Consultant Daily Construction Logs
Drilling Contractor Daily Construction Logs
Pad Monitor Well Summary Sheets
Lithologic Log
Deviation Survey Summary Sheet

Cc: George Heuler/FDEP-Tallahassee
Steve Anderson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

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Fax: 561-623-5469

July 15, 2011

MHCDEP-11-299

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
Weekly Construction Summary #10**

Dear Mr. May:

This is the tenth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, July 7, 2011 and ended at 7:00 AM, Thursday, July 14, 2011. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor completed pilot hole drilling to a depth of 1,655 feet below pad level (bpl) and was conditioning the pilot hole for geophysical logging.

The drilling contractor spent this reporting period conditioning the pilot hole for geophysical logging and performing geophysical logs. Logs performed include caliper, gamma ray, dual-induction, spontaneous potential, borehole compensated sonic, fluid conductivity, temperature, and flowmeter. The fluid conductivity, temperature, and flowmeter logs were performed under static and pumping conditions. All other logs were performed under static conditions. Copies of the geophysical logs are attached. The pilot hole was killed with a mixture of barite and bentonite during the reporting period. A daily kill material log providing a summary of daily kill material and kill volume is attached. The drilling contractor was preparing to perform a packer test on the interval from 1,505 to 1,535 feet bpl at the end of the reporting period. A pilot hole water quality summary sheet providing laboratory results for pilot hole water samples collected during the previous reporting period is also attached.

There was no coring, casing installation, cementing, packer testing or exploratory well development during this reporting period. There were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will perform packer testing on selected intervals. After completing packer testing, the pilot hole will be backplugged with cement.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on July 13, 2011. The most recent set of pad monitoring well sample results available is for samples collected on July 8, 2011. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor wells data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.

David McNabb, P.G.

Attachments: Consultant Daily Construction Logs
Drilling Contractor Daily Construction Logs
Pad Monitor Well Summary Sheets
Pilot Hole Water Quality Summary Sheet
Daily Kill Material Log
Geophysical Logs

Cc: George Heuler/FDEP-Tallahassee
Steve Anderson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458

Phone: 561-891-0763

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July 22, 2011

MHCDEP-11-310

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
Weekly Construction Summary #11**

Dear Mr. May:

This is the eleventh weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, July 14, 2011 and ended at 7:00 AM, Thursday, July 21, 2011. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor completed geophysical logging of the pilot hole drilling to a depth of 1,655 feet below pad level (bpl) and was preparing to perform the first of four packer test on selected interval of the pilot hole.

The drilling contractor spent this reporting period performing packer testing 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. Water samples were collected at the end of each packer test and analyzed in the field for specific conductance. Samples for chlorides, total dissolved solids (TDS), ammonia, and total kjeldahl nitrogen (TKN) were sent to Florida Spectrum Environmental Services, Inc. for analysis. A packer test summary sheet, providing water level, pumping rate data and analyses required by the construction permit for each of the packer tests is attached. The pilot hole was killed with a mixture of barite and bentonite during the reporting period. A daily kill material log providing a summary of daily kill material and kill volume is attached.

There was no coring, casing installation, cementing, geophysical logging or exploratory well development during this reporting period. There were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will backplug the pilot hole with cement (following receipt of Florida Department of Environmental Protection approval of the 34-inch diameter casing seat recommendation of 1,535 feet bpl) and begin reaming the backplugged hole using a 42 ½-inch diameter reaming bit.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on July 21, 2011. The most recent set of pad monitoring well sample results available is for samples collected on July 14, 2011. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor wells data summary sheets are attached.

Please note, the chloride concentration of 55.1 mg/L reported in last week's construction summary for the pilot hole water sample collected at a depth of 1,345 feet bpl has been rechecked by the laboratory and found to be a typographical error. The actual chloride concentration for the pilot hole water sample from the depth of 1,345 feet bpl is 551 mg/L. A revised pilot hole water summary sheet is attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.

David McNabb, P.G.

Attachments: Consultant Daily Construction Logs
Drilling Contractor Daily Construction Logs
Pad Monitor Well Summary Sheets
Packer Test Summary Sheet
Daily Kill Material Log
Pilot Hole Water Quality Summary Sheet

Cc: George Heuler/FDEP-Tallahassee
Steve Anderson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

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July 29, 2011

MHCDEP-11-0327

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
Weekly Construction Summary #12**

Dear Mr. May:

This is the twelfth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, July 21, 2011 and ended at 7:00 AM, Thursday, July 28, 2011. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor performed packer testing on the intervals from 1,505 to 1,535 feet below pad level (bpl), 1,400 to 1,430 feet bpl, 1,225 to 1,285 feet bpl, and 1,102 to 1,162 feet bpl.

The drilling contractor spent this reporting period backplugging the pilot hole over the interval from 1,655 feet bpl to 1,094 feet bpl with 107 barrels of 12% bentonite blend cement. After allowing the cement to set, the drilling contractor began reaming the backplugged pilot hole using a 42 ½-inch diameter reaming bit. The interval from the base of the 44-inch diameter casing to 1,394 feet bpl had been reamed by the end of the reporting period. Florida Department of Environmental Protection (FDEP) approval of the recommended 34-inch diameter intermediate casing setting depth of 1,535 feet bpl was received on July 22, 2011. Deviation surveys were performed at 90-foot intervals. A copy of the deviation survey summary sheet along with a pilot hole backplug cement summary sheet is attached.

There was no coring, casing installation, packer testing, geophysical logging or exploratory well development during this reporting period. Salt or other materials were not used to suppress well flow and there were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor complete reaming the hole using a 42 ½-inch diameter reaming bit to a depth of 1,540 feet bpl and install the 34-inch diameter intermediate casing to a depth of 1,535 feet bpl. The 34-inch diameter intermediate casing will then be cemented from the base of casing to land surface.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on July 28, 2011. The most recent set of pad monitoring well sample results available is for samples collected on July 21, 2011. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor wells data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



David McNabb, P.G.

Attachments: Consultant Daily Construction Logs
Drilling Contractor Daily Construction Logs
Pad Monitor Well Summary Sheets
Deviation Survey Summary Sheet
Pilot Hole Backplug Cement Summary Sheet

Cc: George Heuler/FDEP-Tallahassee
Steve Anderson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

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Fax: 561-623-5469

August 5, 2011

MHCDEP-11-0340

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
Weekly Construction Summary #13**

Dear Mr. May:

This is the thirteenth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, July 28, 2011 and ended at 7:00 AM, Thursday, August 4, 2011. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor backplugged the pilot hole over the interval from 1,655 feet below pad level (bpl) to 1,094 feet bpl and then reamed the backplugged pilot hole using a 42 ½-inch diameter reaming bit. The interval from the base of the 44-inch diameter casing to a depth of 1,394 feet bpl had been reamed by the end of the reporting period.

During this reporting period, the drilling contractor continued to ream the pilot hole from a depth of 1,394 feet bpl to a depth of 1,542 feet bpl. Deviation surveys were performed at 90-foot intervals during reaming. A copy of the deviation survey summary sheet is attached. Upon completion of reaming to a depth of 1,542 feet bpl, the borehole was conditioned and caliper and gamma ray geophysical logs were performed. A copy of the geophysical logs print is attached. The drilling contractor then installed the 34-inch diameter steel intermediate casing to a total depth of 1,535 feet bpl. A casing run summary sheet is attached. The drilling contractor then prepared to begin cementing the 34-inch casing in place by installing a 2-inch diameter tubing inside of the casing to a total depth of 1,532 feet bpl and sealing the well at the surface. The drilling contractor was waiting on the cementer to arrive on site at the end of the reporting period. The reamed hole was killed with a mixture of barite and bentonite during the reporting period. A daily kill material log providing a summary of daily kill material and kill volume is attached.

There was no coring, packer testing, or exploratory well development during this reporting period. There were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will cement the 34-inch diameter intermediate casing from the base of the casing to land surface. The drilling contractor will then begin drilling a pilot hole from the base of the 34-inch casing to a total depth of approximately 3,500 feet bpl.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on August 4, 2011. The most recent set of pad monitoring well sample results available is for samples collected on July 28, 2011. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor wells data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



David McNabb, P.G.

Attachments: Consultant Daily Construction Logs
Drilling Contractor Daily Construction Logs
Pad Monitor Well Summary Sheets
Deviation Survey Summary Sheet
34-Inch Diameter Casing Run Summary Sheet
Daily Kill Material Log
Geophysical Log

Cc: George Heuler/FDEP-Tallahassee
Steve Anderson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

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Jupiter, Florida 33458

Phone: 561-891-0763

Fax: 561-623-5469

August 12, 2011

MHCDEP-11-0345

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
Weekly Construction Summary #14**

Dear Mr. May:

This is the fourteenth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, August 4, 2011 and ended at 7:00 AM, Thursday, August 11, 2011. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor reamed the pilot hole from a depth of 1,394 feet below pad level (bpl) to a depth of 1,542 feet bpl, installed the 34-inch diameter intermediate casing to a depth of 1,535 feet bpl, performed caliper logging of the reamed hole and prepared to begin cementing the casing in place.

During this reporting period, the drilling contractor cemented the 34-inch diameter casing in place from the base of casing to land surface. The 34-inch diameter casing was cemented to land surface in seven stages using 661 barrels of neat cement, 228 barrels of four percent bentonite blend cement, and 669 barrels of twelve percent bentonite blend cement. Most of the cement stages yielded greater than 100% of the theoretical fillup, suggesting the reamed hole caliper log performed during the previous reporting period over-estimated borehole volume. This is not uncommon in quantifying the volume of a large diameter borehole based on a caliper log that shows variation in the X and Y dimension of the borehole. The second stage of cementing showed the greatest deviation from theoretical (169% fill) and the borehole caliper log similarly showed the greatest deviation in the X and Y hole diameters. Cement top temperature logs were performed after each cement stage that did not reach surface and temperature logs closely matched the physical top-of-cement tags as expected. A copy of the cement top temperature log print is attached. After completing cementing operations, a 32 ½-inch

diameter reaming bit was used to drill out the cement plug at the base of the 34-inch diameter casing. The top of the cement plug inside the casing was encountered at a depth of 1,528 feet bpl. The cement plug was reamed to a depth of 1,543 feet bpl. A deviation survey was performed at a depth of 1,530 feet bpl after reaming to a depth of 1,542 feet bpl. A copy of the deviation survey summary sheet is attached. The drilling contractor was preparing to begin pilot hole drilling below a depth of 1,543 feet bpl at the end of the reporting period. The well was killed during the reporting period. A daily kill material log providing a summary of daily kill material and kill volume is attached.

There was no coring, packer testing, or exploratory well development during this reporting period. There were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will begin drilling a pilot hole from the base of the 34-inch casing to a total depth of approximately 3,500 feet bpl.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on August 11, 2011. The most recent set of pad monitoring well sample results available is for samples collected on August 4, 2011. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor wells data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.

David McNabb, P.G.

Attachments: Consultant Daily Construction Logs
Drilling Contractor Daily Construction Logs
Pad Monitor Well Summary Sheets
Cementing Summary Sheet
Deviation Survey Summary Sheet
Daily Kill Material Log
Geophysical Log

Cc: George Heuler/FDEP-Tallahassee
Steve Anderson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

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Jupiter, Florida 33458

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August 19, 2011

MHCDEP-11-0365

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
Weekly Construction Summary #15**

Dear Mr. May:

This is the fifteenth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, August 11, 2011 and ended at 7:00 AM, Thursday, August 18, 2011. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor cemented the 34-inch diameter intermediate casing in place, reamed the cement plug at the base of the 34-inch diameter casing to a depth of 1,543 feet below pad level (bpl) and was preparing to begin pilot hole drilling.

During this reporting period, the drilling contractor drilled a pilot hole over the interval from 1,543 feet bpl to 2,026 feet bpl. Pilot hole drilling was interrupted to allow coring of the interval from 1,721.5 feet bpl to 1,734.5 feet bpl. A total of 39 inches of core was collected within the cored interval, resulting in 25% core recovery. A lithologic description of the core is attached. Pilot hole drilling resumed after core collection and advanced to a depth of 2,026 feet bpl. The drilling contractor was preparing to collect another core at a starting depth of 2,026 feet bpl at the end of the reporting period. Pilot hole water samples were collected at 90-foot intervals during pilot hole drilling. The laboratory reports for the pilot hole water samples collected during this reporting period were not available by the end of this reporting period. The data for the pilot hole water samples collected during this reporting period will be included in the next weekly construction summary. Deviation surveys were collected at 60-foot intervals during pilot hole drilling. A deviation survey summary sheet is attached. Lithologic samples were collected at 10-foot intervals during pilot hole drilling. A description of the lithologic samples collected during this reporting period is attached. A

daily kill material log providing a summary of daily kill material and kill volume is attached.

There was no casing installation, cementing, packer testing, or exploratory well development during this reporting period. There were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will continue pilot hole drilling and collecting cores.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on August 18, 2011. The most recent set of pad monitoring well sample results available is for samples collected on August 11, 2011. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.

David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
Pad Monitor Well Water Quality Data Summary Sheets
Core No.1 Lithologic Description
Deviation Survey Summary Sheet
Lithologic Log
Daily Kill Material Log

Cc: George Heuler/FDEP-Tallahassee
Steve Anderson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458

Phone: 561-891-0763

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August 26, 2011

MHCDEP-11-0383

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
Weekly Construction Summary #16**

Dear Mr. May:

This is the sixteenth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, August 18, 2011 and ended at 7:00 AM, Thursday, August 25, 2011. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor drilled a pilot hole over the interval from 1,543 to 2,026 feet below pad level (bpl) and cored the interval from 1,721.5 feet bpl to 1,734.5 feet bpl.

During this reporting period, the drilling contractor drilled a pilot hole over the interval from 2,026 feet bpl to 2,396 feet bpl. Pilot hole drilling was interrupted to allow coring of the intervals from 2,026 feet bpl to 2,040 feet bpl, 2,110 feet bpl to 2,124 feet bpl, and 2,288.3 to 2,302.3 feet bpl. A core summary table providing the length of core recovered for each of the cored intervals is attached. A lithologic description of each of the cores is attached. The drilling contractor was preparing to collect another core at a starting depth of 2,396 feet bpl at the end of the reporting period. Pilot hole water samples were collected at 90-foot intervals during pilot hole drilling. The laboratory reports for the pilot hole water samples collected during this reporting period were not available by the end of this reporting period. The data for the pilot hole water samples collected during this reporting period will be included in the next weekly construction summary. The data for the pilot hole water sampled collected during the previous reporting period are included in the attached pilot hole water quality table. Deviation surveys were collected at 60-foot intervals during pilot hole drilling. A deviation survey summary sheet is attached. Lithologic samples were collected at 10-foot intervals during pilot hole drilling. A description of the lithologic

samples collected during this reporting period is attached. A daily kill material log providing a summary of daily kill material and kill volume is attached.

There was no casing installation, cementing, packer testing, or exploratory well development during this reporting period. There were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will continue pilot hole drilling and collecting cores.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on August 25, 2011. The most recent set of pad monitoring well sample results available is for samples collected on August 18, 2011. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
Pad Monitor Well Water Quality Data Summary Sheets
Core Summary Table
Core No.2-4 Lithologic Descriptions
Deviation Survey Summary Sheet
Lithologic Log
Pilot Hole Water Quality Summary
Daily Kill Material Log

Cc: George Heuler/FDEP-Tallahassee
Steve Anderson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458

Phone: 561-891-0763

Fax: 561-623-5469

September 2, 2011

MHCDEP-11-0394

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
Weekly Construction Summary #17**

Dear Mr. May:

This is the seventeenth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, August 25, 2011 and ended at 7:00 AM, Thursday, September 1, 2011. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor drilled a pilot hole over the interval from 2,026 feet below pad level (bpl) to 2,396 feet and cored the intervals from 2,026 feet bpl to 2,040 feet bpl, 2,110 feet bpl to 2,124 feet bpl, and 2,288.3 to 2,302.3 feet bpl.

During this reporting period, the drilling contractor drilled a pilot hole over the interval from 2,396 feet bpl to 2,652 feet bpl. Pilot hole drilling was interrupted to allow coring of the intervals from 2,396 feet bpl to 2,410 feet bpl, 2,576 feet bpl to 2,578 feet bpl, 2,580 feet bpl to 2,590 feet bpl, and 2,638 to 2,652 feet bpl. A core summary table providing the length of core recovered for each of the cored intervals is attached. A lithologic description of each of the cores is attached. The drilling contractor was preparing to collect another core at a starting depth of 2,652 feet bpl at the end of the reporting period. Pilot hole water samples were collected at 90-foot intervals during pilot hole drilling. The laboratory reports for the pilot hole water samples collected during this reporting period were not available by the end of this reporting period. The data for the pilot hole water samples collected during this reporting period will be included in the next weekly construction summary. The data for the pilot hole water sampled collected during the previous reporting period are included in the attached pilot hole water quality table. Deviation surveys were collected at 60-foot intervals during pilot hole drilling. A deviation survey summary sheet is attached. Lithologic samples were collected at 10-foot intervals during pilot hole drilling. A description of the lithologic samples collected during this reporting period is attached. A

daily kill material log providing a summary of daily kill material and kill volume is attached.

There was no casing installation, cementing, packer testing, or exploratory well development during this reporting period. There were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will continue pilot hole drilling and collecting cores.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on September 1, 2011. The most recent set of pad monitoring well sample results available is for samples collected on August 25, 2011. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



9/2/11
David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
Pad Monitor Well Water Quality Data Summary Sheets
Core Summary
Rock Core Lithologic Descriptions (Core # 5-8)
Deviation Survey Summary
Lithologic Description
Pilot Hole Water Quality
Daily Kill Material Log

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458

Phone: 561-891-0763

Fax: 561-623-5469

September 9, 2011

MHCDEP-11-0408

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
Weekly Construction Summary #18**

Dear Mr. May:

This is the eighteenth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, September 1, 2011 and ended at 7:00 AM, Thursday, September 8, 2011. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor drilled a pilot hole over the interval from 2,396 feet below pad level (bpl) to 2,652 feet and cored the intervals from 2,396 feet bpl to 2,410 feet bpl, 2,576 feet bpl to 2,578 feet bpl, 2,580 feet bpl to 2,590 feet bpl, and 2,638 to 2,652 feet bpl.

During this reporting period, the drilling contractor drilled a pilot hole over the interval from 2,652 feet bpl to 3,205 feet bpl. Pilot hole drilling was interrupted to allow coring of the intervals from 2,652 feet bpl to 2,666 feet bpl and 2,666 feet bpl to 2,679 feet bpl. A core summary table providing the length of core recovered for each of the cored intervals is attached. A lithologic description of each of the cores is attached. Pilot hole water samples were collected at 90-foot intervals during pilot hole drilling. The laboratory reports for the pilot hole water samples collected during this reporting period were not available by the end of this reporting period. The data for the pilot hole water samples collected during this reporting period will be included in the next weekly construction summary. The data for the pilot hole water sampled collected during the previous reporting period are included in the attached pilot hole water quality table. Deviation surveys were collected at 60-foot intervals during pilot hole drilling. A deviation survey summary sheet is attached. Lithologic samples were collected at 10-foot intervals during pilot hole drilling until a depth of 2,800 feet bpl was reached, at which point lithologic sample collection began at 5-foot intervals. A description of the lithologic samples collected during this reporting period is

attached. A daily kill material log providing a summary of daily kill material and kill volume is attached.

There was no casing installation, cementing, packer testing, or exploratory well development during this reporting period. There were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will complete pilot hole drilling to a depth of 3,500 feet bpl, perform geophysical logging of the pilot hole and begin packer testing of the pilot hole.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on September 8, 2011. The most recent set of pad monitoring well sample results available is for samples collected on September 1, 2011. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.

David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
Pad Monitor Well Water Quality Data Summary Sheets
Core Summary
Rock Core Lithologic Descriptions (Core # 9-10)
Deviation Survey Summary
Lithologic Description
Pilot Hole Water Quality
Daily Kill Material Log

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458

Phone: 561-891-0763

Fax: 561-623-5469

September 16, 2011

MHCDEP-11-0420

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
Weekly Construction Summary #19**

Dear Mr. May:

This is the nineteenth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, September 8, 2011 and ended at 7:00 AM, Thursday, September 15, 2011. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor drilled a pilot hole over the interval from 2,652 feet below pad level (bpl) to 3,205 feet and cored the intervals from 2,652 feet bpl to 2,666 feet bpl and 2,666 feet bpl to 2,679 feet bpl.

During this reporting period, the drilling contractor drilled a pilot hole over the interval from 3,205 feet bpl to 3,219 feet bpl. Most of the reporting period was spent dredging over the interval from 3,205 to 3,211 feet bpl. The dredge material consists primarily of limestone gravel with some dolomite gravel. The dredge zone appears to begin at a depth of approximately 3,202 feet bpl, however, most of the material appears to be coming from a depth of 3,205 feet bpl.

The laboratory data for the pilot hole water samples collected during the previous reporting period are included in the attached pilot hole water quality table. Lithologic samples were collected at 5-foot intervals during pilot hole drilling. A description of the lithologic samples collected during this reporting period is attached. A daily kill material log providing a summary of daily kill material and kill volume is attached.

There was no casing installation, cementing, packer testing, or exploratory well development during this reporting period. There were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will complete pilot hole drilling to a depth of 3,500 feet bpl, perform geophysical logging of the pilot hole and begin packer testing of the pilot hole.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on September 15, 2011. The most recent set of pad monitoring well sample results available is for samples collected on September 8, 2011. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.

David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
Pad Monitor Well Water Quality Data Summary Sheets
Lithologic Description
Pilot Hole Water Quality
Daily Kill Material Log

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberland/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458

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Fax: 561-623-5469

September 23, 2011

MHCDEP-11-0434

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
Weekly Construction Summary #20**

Dear Mr. May:

This is the twentieth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, September 15, 2011 and ended at 7:00 AM, Thursday, September 22, 2011. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor drilled a pilot hole over the interval from 3,205 feet to 3,219 feet below pad level (bpl) and dredged the pilot hole over the interval from 3,205 to 3,211 feet bpl.

During this reporting period, the drilling contractor drilled a pilot hole over the interval from 3,219 feet bpl to 3,227 feet bpl. Most of the reporting period was spent dredging over the interval primarily from approximately 3,205 to 3,220 feet bpl. The dredge material consists primarily of limestone gravel with some dolomite gravel. The dredge zone appears to begin at a depth of approximately 3,205 feet bpl.

Lithologic samples were collected at 5-foot intervals during pilot hole drilling. A description of the lithologic samples collected during this reporting period is attached. A daily kill material log providing a summary of daily kill material and kill volume is also attached.

There was no casing installation, pilot hole water sample collection, cementing, packer testing, or exploratory well development during this reporting period. There were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will complete pilot hole drilling to a depth of 3,500 feet bpl, perform geophysical logging of the pilot hole and begin packer testing of the pilot hole unless dredging of the pilot hole continues.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on September 22, 2011. The most recent set of pad monitoring well sample results available is for samples collected on September 16, 2011. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
Pad Monitor Well Water Quality Data Summary Sheets
Lithologic Description
Daily Kill Material Log

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458

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September 30, 2011

MHCDEP-11-0448

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
Weekly Construction Summary #21**

Dear Mr. May:

This is the twenty-first weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, September 22, 2011 and ended at 7:00 AM, Thursday, September 29, 2011. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor drilled a pilot hole over the interval from 3,219 feet to 3,227 feet below pad level (bpl) and dredged the pilot hole over the interval from 3,205 to 3,220 feet bpl.

During this reporting period, the drilling contractor drilled a pilot hole over the interval from 3,227 feet bpl to 3,228 feet bpl. Most of the reporting period was spent dredging over the interval primarily from approximately 3,211 to 3,222 feet bpl. The dredge material consists primarily of limestone gravel with some dolomite gravel.

There were no lithologic or pilot hole water samples collected during this reporting period since the pilot hole advanced only one foot. Salt was used to kill the well once during the reporting period. A daily kill material log providing a summary of daily kill material and kill quantity is also attached.

There was no casing installation, cementing, packer testing, or exploratory well development during this reporting period. There were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will complete pilot hole drilling to a depth of 3,500 feet bpl, perform geophysical logging of the pilot hole and begin packer testing of the pilot hole unless dredging of the pilot hole continues.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on September 29, 2011. The most recent set of pad monitoring well sample results available are for samples collected on September 23, 2011. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
Pad Monitor Well Water Quality Data Summary Sheets
Daily Kill Material Log

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458

Phone: 561-891-0763

Fax: 561-623-5469

October 7, 2011

MHCDEP-11-0459

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
Weekly Construction Summary #22**

Dear Mr. May:

This is the twenty-second weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, September 29, 2011 and ended at 7:00 AM, Thursday, October 6, 2011. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor drilled a pilot hole over the interval from 3,227 feet bpl to 3,228 feet below pad level (bpl) and dredged the pilot hole over the interval from 3,211 to 3,222 feet bpl.

During this reporting period, the drilling contractor drilled a pilot hole over the interval from 3,228 feet bpl to 3,233 feet bpl. Most of the reporting period was spent dredging over the interval primarily from approximately 3,217 to 3,230 feet bpl. The dredge material consists primarily of limestone gravel with some dolomite gravel.

Lithologic samples were collected at 5-foot intervals during pilot hole drilling. A description of the lithologic samples collected during this reporting period is attached. There was no casing installation, cementing, packer testing, or exploratory well development and no well kill material was used during this reporting period. There were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will complete pilot hole drilling to a depth of 3,500 feet bpl, perform geophysical logging of the pilot hole and begin packer testing of the pilot hole unless dredging of the pilot hole continues.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on September 29, 2011. The most recent set of pad monitoring well sample results available are for samples collected on September 23, 2011. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



10/7/11

David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
Pad Monitor Well Water Quality Data Summary Sheets
Lithologic Description

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458

Phone: 561-891-0763

Fax: 561-623-5469

October 14, 2011

MHCDEP-11-0469

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
Weekly Construction Summary #23**

Dear Mr. May:

This is the twenty-third weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, October 6, 2011 and ended at 7:00 AM, Thursday, October 13, 2011. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor drilled a pilot hole over the interval from 3,228 feet bpl to 3,233 feet below pad level (bpl) and dredged the pilot hole over the interval from 3,217 to 3,230 feet bpl.

During this reporting period, the drilling contractor dredged the interval from 3,217 feet bpl to 3,230 feet bpl. Most of the reporting period was spent dredging over the interval primarily from approximately 3,225 to 3,230 feet bpl. The dredge material consists primarily of limestone gravel with some dolomite gravel and sand. Salt was used to kill the well three times during the reporting period. A daily kill material log providing a summary of daily kill material and kill quantity is also attached.

There was no casing installation, cementing, packer testing, or exploratory well development and no lithologic samples were collected during this reporting period since the pilot hole was not advanced. There were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will complete pilot hole drilling to a depth of 3,500 feet bpl, perform geophysical logging of the pilot hole and begin packer testing of the pilot hole unless dredging of the pilot hole continues.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on October 13, 2011. The most recent set of pad monitoring well sample results available are for samples collected on October 6, 2011. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



10/14/11

David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
Pad Monitor Well Water Quality Data Summary Sheets
Daily Kill Material Log

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

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Phone: 561-891-0763

Fax: 561-623-5469

October 21, 2011

MHCDEP-11-0476

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
Weekly Construction Summary #24**

Dear Mr. May:

This is the twenty-fourth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, October 13, 2011 and ended at 7:00 AM, Thursday, October 20, 2011. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor dredged the interval from 3,217 feet bpl to 3,230 feet below pad level (bpl). Most of the dredging took place over the interval from approximately 3,225 to 3,230 feet bpl.

During this reporting period, the drilling contractor drilled a pilot hole over the interval from 3,233 feet bpl to 3,234 feet bpl. Most of the reporting period was spent dredging over the interval primarily from approximately 3,222 to 3,232 feet bpl. The dredge material consists primarily of limestone gravel with some dolomite gravel and sand.

There was no casing installation, cementing, packer testing, or exploratory well development and no lithologic samples were collected during this reporting period since the pilot hole was advanced only one foot. There were no construction related issues and no kill material was used to kill the well during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will complete pilot hole drilling to a depth of 3,500 feet bpl, perform geophysical logging of the pilot hole and begin packer testing of the pilot hole unless dredging of the pilot hole continues.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on October 20, 2011. The most recent set of pad monitoring well sample results available are for samples collected on October 13, 2011. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
Pad Monitor Well Water Quality Data Summary Sheets

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458

Phone: 561-891-0763

Fax: 561-623-5469

October 28, 2011

MHCDEP-11-0493

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
Weekly Construction Summary #25**

Dear Mr. May:

This is the twenty-fifth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, October 20, 2011 and ended at 7:00 AM, Thursday, October 27, 2011. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor drilled a pilot hole over the interval from 3,233 feet below pad level (bpl) to 3,234 feet bpl. Most of the reporting period was spent dredging over the interval primarily from approximately 3,222 to 3,232 feet bpl.

During this reporting period, the drilling contractor drilled a pilot hole over the interval from 3,234 feet bpl to 3,265 feet bpl. Most of the reporting period was spent dredging over the interval primarily from approximately 3,233 to 3,241 feet bpl. The dredge material consists primarily of lime sand with some dolomite and limestone gravel. Lithologic samples were collected at 5-foot intervals during pilot hole drilling. A description of the lithologic samples collected during this reporting period is attached. A daily kill material log providing a summary of daily kill material and kill volume is attached.

There was no casing installation, cementing, packer testing, exploratory well development, or construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will complete pilot hole drilling to a depth of 3,500 feet bpl, perform geophysical logging of the pilot hole and begin packer testing of the pilot hole unless dredging of the pilot hole continues.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on October 27, 2011. The most recent set of pad monitoring well sample results available are for samples collected on October 20, 2011. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



10/28/11
David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
Pad Monitor Well Water Quality Data Summary Sheets
Lithologic Description
Daily Kill Material Log

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

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Jupiter, Florida 33458

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Fax: 561-623-5469

November 4, 2011

MHCDEP-11-0497

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
Weekly Construction Summary #26**

Dear Mr. May:

This is the twenty-sixth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, October 27, 2011 and ended at 7:00 AM, Thursday, November 3, 2011. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor drilled a pilot hole over the interval from 3,234 feet below pad level (bpl) to 3,265 feet bpl. Most of the reporting period was spent dredging over the interval primarily from approximately 3,233 to 3,241 feet bpl.

The drilling contractor spent the first half of the reporting period dredging the interval from 3,244 feet bpl to 3,262 feet bpl. The lower portion of the borehole subsequently filled in to a depth of 3,211 feet bpl, after which the drilling contractor dredged the interval from 3,211 feet bpl to 3,228 feet bpl. The dredge material consists primarily of limestone sand. Salt was used to kill the well one time during the reporting period. A daily kill material log providing a summary of daily kill material and kill quantity is also attached.

There was no casing installation, cementing, packer testing or exploratory well development and no lithologic samples were collected during this reporting period since the pilot hole was not advanced. There were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will complete pilot hole drilling to a depth of 3,500 feet bpl, perform geophysical logging of the pilot hole and begin packer testing of the pilot hole unless dredging of the pilot hole continues.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on November 3, 2011. The most recent set of pad monitoring well sample results available are for samples collected on October 27, 2011. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
Pad Monitor Well Water Quality Data Summary Sheets
Daily Kill Material Log

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

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November 11, 2011

MHCDEP-11-0511

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
Weekly Construction Summary #27**

Dear Mr. May:

This is the twenty-seventh weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, November 3, 2011 and ended at 7:00 AM, Thursday, November 10, 2011. There was no construction activity at the site between 5:00 PM, Monday, November 7, 2011 and 7:00 AM Wednesday, November 9, 2011 to allow the drilling contractor to conduct safety training. No drilling contractor daily reports were prepared for the period when no construction activity was taking place. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor dredged the interval from 3,211 feet below pad level (bpl) to 3,262 feet bpl. The interval from 3,211 feet bpl to 3,228 feet bpl was being dredged at the end of the reporting period.

During this reporting period, the drilling contractor dredged the interval from 3,218 feet bpl to 3,234 feet bpl. Most of the reporting period was spent dredging over the interval primarily from approximately 3,220 to 3,227 feet bpl. The dredge material consists primarily of limestone sand. Salt was used to kill the well once during the reporting period. A daily kill material log providing a summary of daily kill material and kill quantity is also attached. Laboratory results for a pilot hole water sample collected on October 23, 2011 were received during this reporting period. A table providing a summary of the pilot hole water quality laboratory data is attached.

There was no casing installation, cementing, packer testing or exploratory well development and no lithologic samples were collected during this reporting period since the pilot hole was not advanced. There were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will complete pilot hole drilling to a depth of 3,500 feet bpl, perform geophysical logging of the pilot hole and begin packer testing of the pilot hole unless dredging of the pilot hole continues.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on November 10, 2011. The most recent set of pad monitoring well sample results available are for samples collected on November 3, 2011. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
Pad Monitor Well Water Quality Data Summary Sheets
Daily Kill Material Log
Pilot Hole Water Quality Summary

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

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Phone: 561-891-0763

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November 18, 2011

MHCDEP-11-0517

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
Weekly Construction Summary #28**

Dear Mr. May:

This is the twenty-eighth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, November 10, 2011 and ended at 7:00 AM, Thursday, November 17, 2011. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor dredged the interval from 3,218 feet below pad level (bpl) to 3,234 feet bpl. Most of the reporting period was spent dredging over the interval primarily from approximately 3,220 to 3,227 feet bpl.

During this reporting period, the drilling contractor dredged the interval from 3,216 feet bpl to 3,237 feet bpl. Most of the reporting period was spent dredging over the interval primarily from approximately 3,222 to 3,234 feet bpl. The dredge material consists primarily of limestone sand.

There was no casing installation, cementing, packer testing or exploratory well development and no lithologic samples were collected during this reporting period since the pilot hole was not advanced. There were no construction related issues and no kill material was used to kill the well during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will complete pilot hole drilling to a depth of 3,500 feet bpl, perform geophysical logging of the pilot hole and begin packer testing of the pilot hole unless dredging of the pilot hole continues.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on November 17, 2011. The most recent set of pad monitoring well sample results

available are for samples collected on November 10, 2011. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.

David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
Pad Monitor Well Water Quality Data Summary Sheets

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

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November 28, 2011

MHCDEP-11-0540

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
Weekly Construction Summary #29**

Dear Mr. May:

This is the twenty-ninth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, November 17, 2011 and ended at 7:00 AM, Thursday, November 24, 2011. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor dredged the interval from 3,216 feet below pad level (bpl) to 3,237 feet bpl. Most of the reporting period was spent dredging over the interval primarily from approximately 3,222 to 3,234 feet bpl.

During this reporting period, the drilling contractor dredged the interval from 3,214 feet bpl to 3,242 feet bpl. Most of the reporting period was spent dredging over the interval primarily from approximately 3,228 to 3,234 feet bpl. The dredge material consists primarily of limestone sand. Salt was used to kill the well one time during the reporting period. A daily kill material log providing a summary of daily kill material and kill quantity is also attached.

There was no casing installation, cementing, packer testing or exploratory well development and no lithologic samples were collected during this reporting period since the pilot hole was not advanced. There were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will complete pilot hole drilling to a depth of 3,500 feet bpl, perform geophysical logging of the pilot hole and begin packer testing of the pilot hole unless dredging of the pilot hole continues.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on November 25, 2011. The most recent set of pad monitoring well sample results available are for samples collected on November 17, 2011. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
Pad Monitor Well Water Quality Data Summary Sheets
Daily Kill Material Log

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

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December 2, 2011

MHCDEP-11-0544

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
Weekly Construction Summary #30**

Dear Mr. May:

This is the thirtieth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, November 24, 2011 and ended at 7:00 AM, Thursday, December 1, 2011. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor dredged the interval from 3,214 feet below pad level (bpl) to 3,242 feet bpl. Most of the reporting period was spent dredging over the interval primarily from approximately 3,228 to 3,234 feet bpl.

During the first half of this reporting period, the drilling contractor dredged the interval from 3,226 feet bpl to 3,234 feet bpl. The second half of the reporting period was spent preparing for and performing geophysical logging of the pilot hole. Geophysical logs performed include caliper, gamma ray, spontaneous potential, dual-induction, borehole compensated sonic, fluid conductivity, temperature, flowmeter, and video. Copies of the geophysical logs, with the exception of the video log, are attached to the electronic copy of this weekly construction summary. Prints of the geophysical logs and a DVD of the video log are not yet available and will be included with the next weekly construction summary. Salt was used to kill the well one time during the reporting period. A daily kill material log providing a summary of daily kill material and kill quantity is also attached.

There was no casing installation, cementing, packer testing or exploratory well development and no lithologic samples were collected during this reporting period since the pilot hole was not advanced. There were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will begin packer testing of the pilot hole.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on November 25, 2011. The most recent set of pad monitoring well sample results available are for samples collected on November 25, 2011. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
Pad Monitor Well Water Quality Data Summary Sheets
Daily Kill Material Log
Geophysical Logs

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Habermeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

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December 9, 2011

MHCDEP-11-0547

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
Weekly Construction Summary #31**

Dear Mr. May:

This is the thirty-first weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, December 1, 2011 and ended at 7:00 AM, Thursday, December 8, 2011. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor dredged the interval from 3,226 feet below pad level (bpl) to 3,234 feet bpl and performed geophysical logging of the pilot hole. Prints of the geophysical logs and a DVD of the video survey are attached.

During this reporting period, the drilling contractor performed a straddle packer test over the interval from 1,930 to 1,952 feet bpl and an off-bottom single packer test over the interval from 3,020 feet bpl to the base of the pilot hole at 3,232 feet bpl. Straddle packer tests over the intervals from 2,989 to 3,011 feet bpl and 2,984 to 3,006 feet bpl were terminated due to test interval productivity during conditioning of the test zone. The attached table provides a summary of the packer testing data. Water samples were collected at the end of the pumping portion of packer tests from 1,930 feet to 1,952 feet and from the single packer test performed below 3,020 feet bpl. The packer test water sample laboratory analytical reports are not yet available and will be included in the next weekly construction report. Salt was used to kill the well one time during the reporting period. A daily kill material log providing a summary of daily kill material and kill quantity is also attached. At the end of the reporting period, the drilling contractor was reaming the upper portion of the pilot hole in preparation for performing additional packer tests using large diameter packers. The large diameter packers are needed to perform packer testing in larger diameter portions of

the pilot hole that could not be packer tested with the smaller straddle packers used for the first test. A deviation survey was performed at a depth of 1,590 feet bpl while reaming the pilot hole. A deviation survey summary is attached.

There was no casing installation, cementing, geophysical logging or exploratory well development and no lithologic samples were collected during this reporting period. There were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will complete reaming in preparation for packer testing.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on December 8, 2011. The most recent set of pad monitoring well sample results available are for samples collected on December 1, 2011. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
Pad Monitor Well Water Quality Data Summary Sheets
Packer Test Summary Table
Deviation Survey Summary Sheet
Daily Kill Material Log
Geophysical Logs

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberland/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458

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Fax: 561-623-5469

December 16, 2011

MHCDEP-11-0556

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
Weekly Construction Summary #32**

Dear Mr. May:

This is the thirty-second weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, December 8, 2011 and ended at 7:00 AM, Thursday, December 15, 2011. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor performed a straddle packer test over the interval from 1,930 to 1,952 feet below pad level (bpl) and an open-ended bottom single packer test over the interval from 3,020 feet bpl to the base of the pilot hole at 3,232 feet bpl. The drilling contractor then began reaming the upper portion of the pilot hole in preparation for performing additional packer tests using large diameter packers. Reaming had reached a depth of 1,636 feet bpl by the end of the previous reporting period.

During this reporting period, the drilling contractor reamed the interval from 1,636 to 1,960 feet bpl using a 32-inch diameter bit. The reaming was performed in preparation for performing additional packer tests using large diameter packers. The large diameter packers are needed to perform packer testing in larger diameter portions of the pilot hole that could not be packer tested with the smaller straddle packers used for the previous tests. Deviation surveys were performed at 60-foot intervals during reaming. A deviation survey summary is attached. Packer test water sample laboratory reports for packer tests performed during the previous reporting period have been received from the laboratory and are attached. A daily kill material log providing a summary of daily kill material and kill quantity is also attached. At the end of the reporting period, the drilling contractor was cleaning out the borehole with a 12 ¼-inch diameter drill bit to a depth of 2,000 feet bpl in preparation for performing a packer test over the interval from 1,970 to 1,992 feet bpl.

There was no casing installation, cementing, geophysical logging or exploratory well development and no lithologic samples were collected during this reporting period. There were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will complete reaming in preparation for additional packer testing.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on December 15, 2011. The most recent set of pad monitoring well sample results available are for samples collected on December 8, 2011. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.

David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
Pad Monitor Well Water Quality Data Summary Sheets
Deviation Survey Summary Sheet
Daily Kill Material Log
Packer Test Water Sample Laboratory Reports

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458

Phone: 561-891-0763

Fax: 561-623-5469

December 22, 2011

MHCDEP-11-0576

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
Weekly Construction Summary #33**

Dear Mr. May:

This is the thirty-third weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, December 15, 2011 and ended at 7:00 AM, Wednesday, December 21, 2011. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor reamed the interval from 1,636 to 1,960 feet below pad level (bpl) using a 32-inch diameter bit and had begun to clean out the interval from 1,960 to 2,000 feet bpl with a 12 ¼-inch diameter drill bit in preparation for performing a packer test over the interval from 1,970 to 1,992 feet bpl.

During this reporting period, the drilling contractor set inflatable straddle packers in preparation for performing a packer test over the interval from 1,970 to 1,992 feet bpl. The test interval was conditioned until one drill-string volume of water was removed from the testing interval. Conditioning of the test interval was then stopped to allow the water level in the test interval recover in preparation for performing the pumping portion of the packer test. Flow was approximately one gallon per minute at the completion of test interval conditioning. During the test interval recovery period, one of the straddle packers lost pressure. The test was terminated and the packers were removed from the well. While bringing the packers to surface, a ruptured hose was identified as the source of the pressure loss. The hose was repaired and the packers were re-installed to test the packer test interval of 1,970 to 1,992 feet bpl. Conditioning of the test interval had started at the end of the reporting period. The well was killed with salt once during the reporting period. A daily kill material log providing a summary of daily kill material and kill quantity is attached.

There was no casing installation, cementing, geophysical logging or exploratory well development and no lithologic samples were collected during this reporting period. There were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will perform a packer test over the interval from 1,970 to 1,992 feet bpl and then ream the hole with a 28-inch diameter drill bit to a depth of approximately 2,270 feet bpl. Packer testing will then be performed on selected intervals between 1,900 and 2,270 feet bpl. Reaming of the hole with a 28-inch diameter drill bit will then continue to a depth of approximately 2,900 feet bpl. Packer testing will then be performed on selected intervals between 1,900 and 2,900 feet bpl.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled today, December 22, 2011. The most recent set of pad monitoring well sample results available are for samples collected on December 15, 2011. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.

David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
Pad Monitor Well Water Quality Data Summary Sheets
Daily Kill Material Log

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458

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December 30, 2011

MHCDEP-11-0577

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
Weekly Construction Summary #34**

Dear Mr. May:

This is the thirty-fourth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Wednesday, December 21, 2011 and ended at 7:00 AM, Thursday, December 29, 2011. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor had installed straddle packers to allow packer testing of the interval from 1,970 to 1,992 feet below pad level (bpl). While the water level in the test interval was recovering after conditioning, one of the packers lost pressure and the test was terminated. The source of the pressure loss was repaired and the packers were reinstalled over the interval from 1,970 to 1,992 feet bpl. The test interval was undergoing conditioning at the end of the reporting period.

During this reporting period, the drilling contractor completed conditioning the 1,970 to 1,992 feet bpl packer testing interval, allowed the water level in the test interval to recover over the holiday break. Following the holiday break, the interval from 1,970 to 1,992 feet bpl underwent packer testing. The attached table provides a summary of the packer testing data. A water sample was collected at the end of the pumping portion of packer test. The packer test water sample laboratory analytical reports are not yet available and will be included in the next weekly construction report.

There was no casing installation, cementing, geophysical logging or exploratory well development and no lithologic samples were collected during this reporting period. The well was not killed and there were no construction related issues during this reporting period.

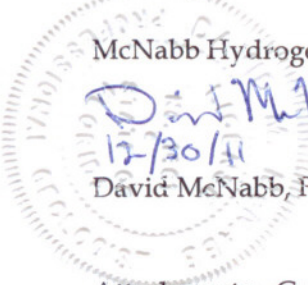
During the next reporting period, it is anticipated that the drilling contractor will ream the hole with a 28-inch diameter drill bit to a depth of approximately 2,270 feet bpl. Packer testing will then be performed on selected intervals between 1,900 and 2,270 feet bpl. Reaming of the hole with a 28-inch diameter drill bit will then continue to a depth of approximately 2,900 feet bpl. Packer testing will then be performed on selected intervals between 1,900 and 2,900 feet bpl.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled today, December 29, 2011. The most recent set of pad monitoring well sample results available are for samples collected on December 22, 2011. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



12/30/11
David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
Pad Monitor Well Water Quality Data Summary Sheets
Packer Test Summary Table

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458

Phone: 561-891-0763

Fax: 561-623-5469

January 6, 2012

MHCDEP-12-0001

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
Weekly Construction Summary #35**

Dear Mr. May:

This is the thirty-fifth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, December 29, 2011 and ended at 7:00 AM, Thursday, January 5, 2012. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor had performed a straddle packer test over the interval from 1,970 to 1,992 feet below pad level (bpl). After completing the straddle packer test, the drilling contractor began to ream the pilot hole using a 28-inch diameter reaming bit. The interval from 1,960 to 1,982 feet bpl had been reamed by the end of the previous reporting period.

During this reporting period, the drilling contractor reamed the interval from 1,982 to 2,255 feet bpl using a 28-inch diameter drill bit in preparation for straddle packer testing intervals between 1,900 and 2,270 feet bpl. Deviation surveys were conducted at 60-foot intervals during reaming. A copy of the deviation survey summary sheet is attached. The water sample laboratory analytical results for the straddle packer test performed on the interval from 1,970 to 1,992 feet bpl during the previous reporting period are summarized in the attached Straddle Packer Test Summary Table. The chloride result for the straddle packer test is based on sample re-analysis. Laboratory reports for the original results and results of the reanalysis are included.

There was no casing installation, cementing, geophysical logging or exploratory well development and no lithologic samples were collected during this reporting period. The well was not killed and there were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will complete reaming the hole with a 28-inch diameter drill bit to a depth of approximately 2,270 feet bpl. Straddle packer testing will then be performed on selected intervals between 1,900 and 2,270 feet bpl. Reaming of the hole with a 28-inch diameter drill bit will then continue to a depth of approximately 2,900 feet bpl. Straddle packer testing will then be performed on selected intervals between 1,900 and 2,900 feet bpl.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on January 5, 2012. The most recent set of pad monitoring well sample results available are for samples collected on December 29, 2011. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.

David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
Pad Monitor Well Water Quality Data Summary Sheets
Deviation Survey Summary Table
Straddle Packer Test Summary Table
Straddle Packer Test Water Sample Laboratory Report

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458

Phone: 561-891-0763

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January 13, 2012

MHCDEP-12-0009

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
Weekly Construction Summary #36**

Dear Mr. May:

This is the thirty-sixth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, January 5, 2012 and ended at 7:00 AM, Thursday, January 12, 2012. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor reamed the interval from 1,982 to 2,255 feet below pad level (bpl) using a 28-inch diameter drill bit in preparation for straddle packer testing intervals between 1,900 and 2,270 feet bpl.

During this reporting period, the drilling contractor reamed the interval from 2,255 to 2,270 feet bpl using a 28-inch diameter drill bit. The borehole then underwent caliper and gamma ray logging. The interval from 2,058 to 2,080 feet bpl then underwent straddle packer testing. A water sample was collected at the end of the pumping portion of straddle packer test. The straddle packer test water sample laboratory analytical reports are not yet available and will be included in the next weekly construction report. The attached table provides a summary of the packer testing data. Following completion of the straddle packer test over the interval from 2,058 to 2,080 feet bpl, the straddle packers were moved to allow straddle packer testing of the interval from 2,183 to 2,205 feet bpl. The straddle packer test was terminated due to test interval productivity during conditioning of the test zone. The straddle packers were then removed from the well and the drilling contractor resumed reaming the hole using a 28-inch diameter drill bit. The interval from 2,270 to 2,519 feet bpl had been reamed by the end of the reporting period. Deviation surveys were conducted at 60-foot intervals during reaming. A copy of the deviation survey summary sheet is attached. The well was killed with salt during the reporting period. A daily kill material

with salt during the reporting period. A daily kill material log providing a summary of daily kill material and kill quantity is attached. An electronic copy of the geophysical logs performed during this reporting period is attached. Hard copies of the log prints are not yet available and will be included with next week's construction summary.

There was no casing installation, cementing, or exploratory well development and no lithologic samples were collected during this reporting period. There were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will complete reaming the hole with a 28-inch diameter drill bit to a depth of approximately 2,900 feet bpl. Straddle packer testing will then be performed on selected intervals between 1,900 and 2,900 feet bpl.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on January 12, 2012. The most recent set of pad monitoring well sample results available are for samples collected on January 5, 2012. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.

David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
Pad Monitor Well Water Quality Data Summary Sheets
Packer Test Summary Table
Deviation Survey Summary Table
Daily Kill Material Log
Geophysical Logs

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

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January 20, 2012

MHCDEP-12-0028

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
Weekly Construction Summary #37**

Dear Mr. May:

This is the thirty-seventh weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, January 12, 2012 and ended at 7:00 AM, Thursday, January 19, 2012. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor reamed the interval from 2,255 to 2,270 feet below pad level (bpl) using a 28-inch diameter drill bit, performed caliper and gamma ray logging of the reamed interval. A straddle packer test was then performed on the interval from 2,058 to 2,080 feet bpl. The straddle packers were then moved to test the interval from 2,183 to 2,205 feet bpl, however, the interval was not tested due to test interval productivity during conditioning of the test interval. The straddle packers were then removed from the well and the interval from 2,270 to 2,519 feet bpl was reamed using a 28-inch diameter drill bit.

During this reporting period, the drilling contractor reamed the interval from 2,519 to 2,900 feet bpl using a 28-inch diameter drill bit. The borehole then underwent caliper and gamma ray logging. Straddle packers were installed to test the intervals from 2,552 to 2,574 feet bpl, 2,634 to 2,656 feet bpl, 2,844 to 2,866 feet bpl, and 2,480 to 2,502 feet bpl. In each case, the packers failed to isolate the test interval with the exception of the 2,844 to 2,866 feet bpl test interval, which was productive during test interval conditioning, therefore, the test on this interval was terminated.

The interval from 2,058 to 2,080 feet bpl underwent straddle packer testing during the last reporting period. The water sample laboratory analytical report for the water sample collected from this test interval is attached. The attached table provides a summary of the all packer testing data collected to date. Deviation surveys were conducted at 60-foot intervals during reaming. A copy of the deviation survey summary sheet is attached. The well was killed with salt during the reporting period. A daily kill material log providing a summary of daily kill material and kill quantity is attached. An electronic copy of the geophysical logs performed during this reporting period is attached. Hard copies of the log prints are not yet available and will be included with next week's construction summary. Hard copies of the log prints from the previous reporting period are attached.

There was no casing installation, cementing, or exploratory well development and no lithologic samples were collected during this reporting period. There were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will perform straddle packer testing on selected intervals between 1,900 and 2,900 feet bpl.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on January 12, 2012. The most recent set of pad monitoring well sample results available are for samples collected on January 5, 2012. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.

David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
Pad Monitor Well Water Quality Data Summary Sheets
Deviation Survey Summary Table
Packer Test Laboratory Report
Packer Test Summary Table
Daily Kill Material Log
Geophysical Logs

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

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January 27, 2012

MHCDEP-12-0044

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
Weekly Construction Summary #38**

Dear Mr. May:

This is the thirty-eighth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, January 19, 2012 and ended at 7:00 AM, Thursday, January 26, 2012. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor reamed the interval from 2,519 to 2,900 feet below pad level (bpl) using a 28-inch diameter drill bit. The borehole then underwent caliper and gamma ray logging. Straddle packers were installed to test the intervals from 2,552 to 2,574 feet bpl, 2,634 to 2,656 feet bpl, 2,844 to 2,866 feet bpl, and 2,480 to 2,502 feet bpl. In each case, the packers failed to isolate the test interval. In each case, the packers failed to isolate the test interval with the exception of the 2,844 to 2,866 feet bpl test interval, which was productive during test interval conditioning, therefore, the test on this interval was terminated.

During this reporting period, the drilling contractor tested the sleeved straddle packers inside the 34-inch diameter casing to determine if the sleeved packers were performing properly. The test demonstrated that the upper packer was not expanding properly and was not isolating the test interval. The sleeved straddle packers were then removed from the well and shipped to the manufacturer to be enlarged from a 24-inch diameter to a 27-inch diameter. The additional packer sleeve diameter is anticipated to allow isolation of straddle packer test intervals. The drilling contractor reamed the interval from 1,960 to 2,100 feet bpl using a 32-inch diameter bit while waiting for the modified packer sleeves to arrive on site. A wiper pass was made to a depth of 2,900 feet bpl with a 28-inch diameter bit prior to conducting caliper and gamma ray logging of the interval from the base of the

34-inch diameter casing to 2,900 feet bpl. The packer sleeves had arrived on site and were successfully tested at surface to demonstrate they properly inflate. The drilling contractor was preparing for straddle packer testing at the end of the reporting period.

Deviation surveys were conducted at 60-foot intervals during reaming. A copy of the deviation survey summary sheet is attached. The well was killed with salt during the reporting period. A daily kill material log providing a summary of daily kill material and kill quantity is attached. An electronic copy of the geophysical logs performed during this reporting period is attached. Hard copies of the log prints are not yet available and will be included with next week's construction summary.

There was no casing installation, cementing, or exploratory well development and no lithologic samples were collected during this reporting period. There were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will perform straddle packer testing on selected intervals between 1,900 and 2,900 feet bpl.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on January 19, 2012. The most recent set of pad monitoring well sample results available are for samples collected on January 12, 2012. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.

David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
Pad Monitor Well Water Quality Data Summary Sheets
Deviation Survey Summary Table
Daily Kill Material Log
Geophysical Logs

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

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February 3, 2012

MHCDEP-12-0057

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
Weekly Construction Summary #39**

Dear Mr. May:

This is the thirty-ninth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, January 26, 2012 and ended at 7:00 AM, Thursday, February 2, 2012. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period it was demonstrated that the straddle packers were not isolating the test interval during straddle packer testing. The packer sleeves were shipped to the manufacturer to be enlarged from a 24-inch diameter to a 27-inch diameter to increase the ability of the packers to isolate the test interval. The drilling contractor reamed the interval from 1,960 to 2,100 feet below pad level (bpl) using a 32-inch diameter bit while waiting for the modified packer sleeves to arrive on site. A wiper pass was made to a depth of 2,900 feet bpl with a 28-inch diameter bit prior to conducting caliper and gamma ray logging of the interval from the base of the 34-inch diameter casing to 2,900 feet bpl. The packer sleeves arrived on site and were successfully tested inside 34-inch diameter casing at surface to demonstrate they properly inflate. The drilling contractor was preparing for straddle packer testing at the end of the reporting period.

During this reporting period, straddle packers were set to test the intervals from 2,220 to 2,242 feet bpl, 2,400 to 2,422 feet bpl, 2,478 to 2,500 feet bpl, 2,552 to 2,574 feet bpl, and 2,693 to 2,715 feet bpl. Straddle packers testing was successfully completed on the intervals from 2,220 to 2,242 feet bpl and 2,478 to 2,500 feet bpl. It appears that the packers failed to isolate the other test intervals. Water samples were collected at the completion of the two packer tests. A packer testing summary table is attached. After completing packer testing, the

drilling contractor began reaming the hole from 2,100 feet bpl using a 32-inch diameter bit. Reaming had reached a depth of 2,678 feet bpl by the end of the reporting period.

Deviation surveys were conducted at 60-foot intervals during reaming. A copy of the deviation survey summary sheet is attached. The well was killed with salt during the reporting period. A daily kill material log providing a summary of daily kill material and kill quantity is attached. Hard copies of the log prints from last week's geophysical logging are attached.

There was no casing installation, cementing, or exploratory well development and no lithologic samples were collected during this reporting period. There were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor complete reaming the hole with the 32-inch diameter bit to a depth of 2,978 feet bpl. A 12¼-inch diameter bit will then be used to clean out the borehole to a depth of 3,230 feet bpl in preparation for conducting a formation test over the interval from approximately 3,010 to 3,230 feet bpl.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on February 2, 2012. The most recent set of pad monitoring well sample results available are for samples collected on January 26, 2012. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.

David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
Pad Monitor Well Water Quality Data Summary Sheets
Packer Testing Summary Table
Deviation Survey Summary Table
Daily Kill Material Log
Geophysical Logs

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

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February 10, 2012

MHCDEP-12-0059

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
Weekly Construction Summary #40**

Dear Mr. May:

This is the fortieth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, February 2, 2012 and ended at 7:00 AM, Thursday, February 9, 2012. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period straddle packers were set to test the intervals from 2,220 to 2,242 feet bpl, 2,400 to 2,422 feet bpl, 2,478 to 2,500 feet bpl, 2,552 to 2,574 feet bpl, and 2,693 to 2,715 feet bpl. Straddle packers testing was successfully completed on the intervals from 2,220 to 2,242 feet bpl and 2,478 to 2,500 feet bpl. Straddle packer testing of the other intervals did not occur due to the straddle packers not isolating the test interval of the test interval being too productive. After completing straddle packer testing, the drilling contractor began reaming the hole from 2,100 feet bpl using a 32-inch diameter bit. Reaming had reached a depth of 2,678 feet bpl by the end of the reporting period.

During this reporting period, the drilling contractor reamed the interval from 2,678 to 2,978 feet bpl with a 32-inch diameter drill bit. The drilling contractor then cleaned out the borehole from 2,978 to 3,230 feet bpl with a 12¼-inch diameter bit.

Deviation surveys were conducted at 60-foot intervals during reaming. A copy of the deviation survey summary sheet is attached. The well was killed with salt during the reporting period. A daily kill material log providing a summary of daily kill material and kill quantity is attached. A laboratory report for water samples collected at the end of packer tests performed during the previous reporting period is attached. A packer test summary table is also attached. It should be noted that the laboratory report inaccurately

indicates the packer tests water samples that were analyzed were from packer tests #16 and #18. The straddle packer tests for which water samples were collected and analyzed were packer tests #17 and #19.

There was no casing installation, cementing, or exploratory well development and no lithologic samples were collected during this reporting period. There were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will perform caliper and video logging of the open hole interval and perform a formation test on the interval from approximately 3,010 and 3,230 feet bpl.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on February 9, 2012. The most recent set of pad monitoring well sample results available are for samples collected on February 2, 2012. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.

David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
Pad Monitor Well Water Quality Data Summary Sheets
Deviation Survey Summary Table
Daily Kill Material Log
Packer Test Laboratory Report
Packer Testing Summary Table

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberland/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

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February 17, 2012

MHCDEP-12-0064

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
Weekly Construction Summary #41**

Dear Mr. May:

This is the forty-first weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, February 9, 2012 and ended at 7:00 AM, Thursday, February 16, 2012. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor reamed the interval from 2,678 to 2,978 feet below pad level (bpl) with a 32-inch diameter drill bit. The drilling contractor then cleaned out the borehole from 2,978 to 3,230 feet bpl with a 12¼-inch diameter bit in preparation for performing a formation test over the interval from 3,010 to 3,230 feet bpl.

During this reporting period, the drilling contractor performed caliper, gamma ray and video logging of the open hole interval, set up for and performed a formation test over the interval from 3,010 to 3,230 feet bpl. Attached Figure 1 through Figure 4 provides graphs of the formation test pressure and pumping data. The drilling contractor reamed the interval from 2,978 to 2,980 feet bpl with a 24-inch diameter drill bit and was in the process of tripping into the well with a 22-inch diameter reaming bit at the end of the reporting period. Copies of the caliper and gamma ray logs and video logs are attached to the hard copy of this weekly construction summary. Copies of the caliper and gamma ray logs are attached to the electronic copy of this weekly construction summary. The well was killed with salt during the reporting period. A daily kill material log providing a summary of daily kill material and kill quantity is attached.

There was no casing installation, cementing, or exploratory well development and no lithologic samples were collected during this reporting period. There were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will ream the interval from 2,980 to 3,230 feet bpl with a 22-inch diameter reaming bit and install the 24-inch diameter final casing upon approval of the final casing seat recommendation. The 24-inch diameter final casing will then be cemented in place after installation.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on February 16, 2012. The most recent set of pad monitoring well sample results available are for samples collected on February 10, 2012. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.

David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
Pad Monitor Well Water Quality Data Summary Sheets
Daily Kill Material Log
Formation Test Figures 1 through 4
Geophysical Logs

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberland/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

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Jupiter, Florida 33458

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February 24, 2012

MHCDEP-12-0073

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
Weekly Construction Summary #42**

Dear Mr. May:

This is the forty-second weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, February 16, 2012 and ended at 7:00 AM, Thursday, February 23, 2012. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor performed caliper, gamma ray and video logging of the open hole interval, set up for and performed a formation test over the interval from 3,010 to 3,230 feet bpl. The drilling contractor then reamed the interval from 2,978 to 2,980 feet bpl with a 24-inch diameter drill bit and was in the process of tripping into the well with a 22-inch diameter reaming bit at the end of the reporting period.

During this reporting period, the drilling contractor reamed the interval from 2,980 to 3,230 feet bpl with a 22-inch diameter reaming bit. The drilling contractor then shut down while the final casing setting depth recommendation was prepared and submitted to the Florida Department of Environmental Protection Technical Advisory Committee. A caliper/gamma ray log was performed on the reamed borehole while awaiting approval of the casing setting depth recommendation. A copy of the caliper/gamma ray log is attached. Approval of the final casing setting depth recommendation was received from the Florida Department of Environmental Protection at the end of the reporting period.

There was no casing installation, cementing, or exploratory well development and no lithologic samples were collected during this reporting period. There were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will install the 24-inch diameter final casing. The 24-inch diameter final casing will then be cemented in place after installation.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on February 23, 2012. The most recent set of pad monitoring well sample results available are for samples collected on February 16, 2012. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
Pad Monitor Well Water Quality Data Summary Sheets
Deviation Survey Summary
Geophysical Log

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

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March 2, 2012

MHCDEP-12-0079

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
Weekly Construction Summary #43**

Dear Mr. May:

This is the forty-third weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, February 23, 2012 and ended at 7:00 AM, Thursday, March 1, 2012. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor reamed the interval from 2,980 to 3,230 feet bpl with a 22-inch diameter reaming bit. The drilling contractor then shut down while the final casing setting depth recommendation was prepared and submitted to the Florida Department of Environmental Protection Technical Advisory Committee. A caliper/gamma ray log was performed on the reamed borehole and discussed with the Florida Department of Environmental Protection while awaiting approval of the casing setting depth recommendation. This caliper/gamma ray log was subsequently submitted to the Florida Department of Environmental Protection Technical Advisory Committee with the Weekly Construction Summary #42. Approval of the final casing setting depth recommendation was received from the Florida Department of Environmental Protection at the end of the reporting period.

During this reporting period, the drilling contractor began installation of the 24-inch diameter final casing. A total of 78 casing joints had been installed by the end of the reporting period. Casing installation is taking place on day shifts only due to availability of certified welders. A table summarizing the 24-inch diameter casing installation to date is attached. The well was killed with salt during the reporting period. Addition of salt to kill the well during the night shift is recorded in the next day's consultant daily construction log. A daily kill material log providing a summary of daily kill material and kill quantity is attached.

There was no cementing, geophysical logging, packer testing or exploratory well development and no lithologic samples were collected during this reporting period. There were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will complete installation and cementing of the 24-inch diameter final casing.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on March 1, 2012. The most recent set of pad monitoring well sample results available are for samples collected on February 23, 2012. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
Pad Monitor Well Water Quality Data Summary Sheets
Final Casing Installation Summary Sheet
Daily Kill Material Log

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458

Phone: 561-891-0763

Fax: 561-623-5469

March 9, 2012

MHCDEP-12-0085

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-UC4**

Dear Mr. May:

This is the forty-fourth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, March 1, 2012 and ended at 7:00 AM, Thursday, March 8, 2012. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor began installation of the 24-inch diameter final casing. A total of 78 casing joints had been installed by the end of the reporting period.

During this reporting period the drilling contractor completed installation of the 24-inch diameter final casing. The final casing was installed to a depth of 2,985 feet below pad level (bpl). The final casing was then cemented in place in ten cement stages after establishing a bridge plug at the base of casing using three cement spots. A total of 2,132 barrels of cement were used to cement the final casing to surface. A temperature log was performed after each cement stage and a cement bond log was performed on the final casing. A copy of the final casing installation summary table and the geophysical logs are attached.

There was no packer testing or exploratory well development and no lithologic samples were collected during this reporting period. There were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will perform a video survey and pressure test on the final casing and install the fiberglass reinforced pipe (FRP) injection tubing.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently

sampled on March 8, 2012. The most recent set of pad monitoring well sample results available are for samples collected on March 1, 2012. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
Pad Monitor Well Water Quality Data Summary Sheets
Final Casing Installation Summary Sheet
Final Casing Cementing Summary Sheet
Geophysical Logs

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

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March 16, 2012

MHCDEP-12-0092

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
Weekly Construction Summary #45**

Dear Mr. May:

This is the forty-fifth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, March 8, 2012 and ended at 7:00 AM, Thursday, March 15, 2012. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor completed installation of the 24-inch diameter final casing to a depth of 2,985 feet below pad level (bpl). The final casing was then cemented in place using a total of 2,132 barrels of cement.

During this reporting period the drilling contractor performed a color video survey of the final casing and conducted a successful pressure test on the final casing. The pressure test was performed with a starting pressure of 155.0 psi. The pressure at the end of the completion of the 60 minute test period was 156.0 psi. This is an acceptable result because it is within the 5% acceptability range. A copy of the final casing pressure test summary sheet is attached. During the color video of the final casing, material was observed to have settled onto the injection liner packer receptacle. The drilling contractor lowered a tremie line to near the location of the packer receptacle and jetted the material from the packer receptacle prior to beginning installation of the fiberglass reinforced pipe (FRP) injection liner. A total of 14 joints of 102 joints of injection liner had been installed by the end of the reporting period. The well was killed with salt during the reporting period. A copy of the FRP installation summary sheet and daily kill material log sheet are attached. A copy of the color video survey of the final casing is not yet available and will be provided with the next weekly construction summary.

There was no cementing, packer testing or exploratory well development and no lithologic samples were collected during this reporting period. There were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will complete installation of the FRP tubing, perform a video survey and temperature log and collect a background water sample from the open hole interval of EW-1. The contractor will also begin moving the drill rig to the dual-zone monitor well (DZMW-1) location in preparation for constructing DZMW-1.

In addition, sampling of the pad monitor wells began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The pad monitor wells were most recently sampled on March 15, 2012. The most recent set of pad monitoring well sample results available are for samples collected on March 8, 2012. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. Copies of the pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
Pad Monitor Well Water Quality Data Summary Sheets
Final Casing Pressure Test Summary Sheet
FRP Installation Summary Sheet
Daily Kill Material Log

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

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March 23, 2012

MHCDEP-12-0108

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
Weekly Construction Summary #46**

Dear Mr. May:

This is the forty-sixth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, March 15, 2012 and ended at 7:00 AM, Thursday, March 22, 2012. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached. The drilling contractor spent part of the reporting period demobilizing from the EW-1 location and mobilizing to the dual-zone monitor well (DZMW-1) location. Consultant and drilling contractor daily construction logs were not prepared during the relocation.

During the previous reporting period the drilling contractor performed a color video survey of the final casing and conducted a successful pressure test on the final casing. During the color video of the final casing, material was observed to have settled onto the injection liner packer receptacle. The drilling contractor lowered a tremie line to near the location of the packer receptacle and jetted the material from the packer receptacle prior to beginning installation of the fiberglass reinforced pipe (FRP) injection liner. A total of 14 joints of 102 joints of injection liner had been installed by the end of the reporting period.

During this reporting period the drilling contractor completed installation of the FRP injection liner to a depth of 2,975 feet below pad level (bpl). A copy of the FRP liner installation summary sheet is attached. A volume of approximately 25,000 gallons of 1% Baracor 100 solution was pumped into the annulus between the FRP liner and the final casing just prior to seating the FRP liner into the packer near the base of the final casing. The drilling contractor then sealed the wellhead and performed preliminary annular pressure test. This annular pressure test did not meet the specification. Therefore the drilling contractor unsealed the wellhead, picked up the FRP liner and then re-seated the

liner into the packer. The wellhead was sealed and a second preliminary annular pressure test was conducted. The results of this annular pressure test met the specification. The drilling contractor then began installation of the EW-1 wellhead. The pad monitor wells at the dual-zone monitor well location were installed, developed and sampled. The DZMW-1 pad monitor wells sampling results will be provided to the Department prior to beginning drilling operations at DZMW-1. The drilling contractor began to demobilize from the EW-1 location and mobilize to the DZMW-1 location by the end of the reporting period.

There was no cementing, packer testing or EW-1 and DZMW-1 well development and no lithologic samples were collected during this reporting period. There were no construction related issues during this reporting period.

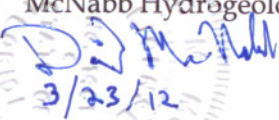
During the next reporting period, it is anticipated that the drilling contractor will complete moving the drill rig to the DZMW-1 location and begin drilling DZMW-1.

In addition, sampling of the pad monitor wells around EW-1 began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The EW-1 pad monitor wells were most recently sampled on March 22, 2012. The most recent set of EW-1 pad monitoring well sample results available are for samples collected on March 16, 2012. Sampling of the pad monitor wells around EW-1 will continue until drilling and testing of EW-1 has been completed. The pad monitor wells around DZMW-1 were sampled on March 20, 2012 to obtain background results prior to beginning drilling operations at DZMW-1. The results of the DZMW-1 pad monitor wells sampling will be provided to the Department prior to beginning drilling operations at DZMW-1. Copies of the EW-1 pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



3/23/12

David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
EW-1 Pad Monitor Well Water Quality Data Summary Sheets
FRP Installation Summary Sheet

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Habermeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

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March 30, 2012

MHCDEP-12-0124

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
Weekly Construction Summary #47**

Dear Mr. May:

This is the forty-seventh weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, March 22, 2012 and ended at 7:00 AM, Thursday, March 29, 2012. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached. In addition to construction activities for Exploratory Well EW-1, this report also includes construction activities for dual zone monitoring well (DZMW-1)

During the previous reporting period the drilling contractor completed installation of the EW-1 FRP injection liner to a depth of 2,975 feet below pad level (bpl). A volume of approximately 25,000 gallons of 1% Baracor 100 solution was pumped into the annulus between the FRP liner and the final casing just prior to seating the FRP liner into the packer near the base of the final casing. The drilling contractor then sealed the wellhead and performed a preliminary annular pressure test. This annular pressure test did not meet the specification. The drilling contractor unsealed the wellhead, lifted the FRP liner and then re-seated the liner into the packer. The wellhead was sealed and a second preliminary annular pressure test was conducted. The results of this preliminary annular pressure test met the specification. The drilling contractor then began installation of the EW-1 wellhead. The pad monitor wells at the dual-zone monitor well location were installed, developed and sampled. The drilling contractor began to demobilize from the EW-1 location and mobilize to the DZMW-1 location by the end of the reporting period.

During this reporting period the drilling contractor completed demobilizing from EW-1 and mobilizing to and setting up at the dual-zone monitor well DZMW-1 location. The drilling contractor then began pilot hole drilling. Pilot hole drilling had reached a depth of 67 feet

below pad level (bpl) by the end of the reporting period. A preliminary annular pressure test was performed on EW-1 on March 28, 2012, however, the results of the preliminary annular pressure test did not meet the specification. Subsequent preliminary and final annual pressure tests will be delayed

There was no casing installation, cementing, packer testing or EW-1 and DZMW-1 well development during this reporting period. There were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will complete pilot hole drilling to a depth of 250 feet bpl, perform geophysical logs, ream the pilot hole to a depth of approximately 225 feet bpl and install the 34-inch diameter casing.

In addition, sampling of the pad monitor wells around EW-1 began on April 21, 2011 and has been taking place on a weekly basis since the initial sampling. The EW-1 pad monitor wells were most recently sampled on March 29, 2012. The most recent set of EW-1 pad monitoring well sample results available are for samples collected on March 22, 2012. Sampling of the pad monitor wells around EW-1 will continue until testing of EW-1 has been completed. Sampling of the pad monitoring wells around DZMW-1 began on March 20, 2012. The DZMW-1 pad monitor wells were most recently sampled on March 29, 2012. The most recent set of DZMW-1 pad monitoring well sample results available are for samples collected on March 20, 2012. Copies of the EW-1 and DZMW-1 pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.

David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
EW-1 Pad Monitor Well Water Quality Data Summary Sheets
DZMW-1 Pad Monitor Well Water Quality Data Summary Sheets

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458

Phone: 561-891-0763

Fax: 561-623-5469

April 6, 2012

MHCDEP-12-0132

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
Weekly Construction Summary #48**

Dear Mr. May:

This is the forty-eighth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, March 29, 2012 and ended at 7:00 AM, Thursday, April 5, 2012. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached. In addition to construction activities for dual-zone monitoring well DZMW-1, this report also includes construction activities for exploratory well EW-1.

During the previous reporting period the drilling contractor completed mobilizing and setting up at DZMW-1 location and began pilot hole drilling. Pilot hole drilling had reached a depth of 67 feet below pad level (bpl) by the end of the reporting period. A preliminary annular pressure test was performed on EW-1 on March 28, 2012, however, the results of the preliminary annular pressure test did not meet the specification.

During this reporting period the drilling contractor completed pilot hole drilling on DZMW-1 to a depth of 250 feet bpl. Caliper and gamma ray logging were then performed on the pilot hole before reaming the pilot hole with a 42-inch diameter bit to a depth of 258 feet bpl. The reamed hole then underwent caliper and gamma ray logging. The 34-inch diameter casing was then installed to a depth of 255 feet bpl and cemented to land surface in one cement stage using 158 barrels of neat cement. A copy of each of the geophysical logs performed during the reporting period is attached. A copy of the 34-inch diameter casing installation summary and cementing summary sheets are attached.

The annulus of EW-1 was pressurized and monitored several times during the week. While pressure monitoring results have improved, the results do not meet the specification.

There was no packer testing for EW-1 and DZMW-1 well development during this reporting period. Drill cutting samples were collected at 10-foot intervals during pilot hole drilling at DZMW-1. A copy of the DZMW-1 lithologic log is attached. Deviation surveys were performed at 90-foot intervals during pilot hole and reaming activities. A copy of the deviation survey summary sheet is attached. There were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will drill a pilot hole from the base of the 34-inch diameter casing to a depth of approximately 1,110 feet bpl for DZMW-1. The pilot hole will then undergo geophysical logging.

In addition, sampling of the pad monitor wells around EW-1 and DZMW-1 began on April 21, 2011 and March 20, 2012, respectively, and has been taking place on a weekly basis since the initial samplings. The EW-1 and DZMW-1 pad monitor wells were most recently sampled on April 5, 2012. The most recent set of EW-1 and DZMW-1 pad monitoring well sample results available are for samples collected on March 29, 2012. Copies of the EW-1 and DZMW-1 pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



4/6/12
David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
EW-1 Pad Monitor Well Water Quality Data Summary Sheets
DZMW-1 Pad Monitor Well Water Quality Data Summary Sheets
DZMW-1 Lithologic Log
Deviation Survey Summary Sheet
DZMW 34-Inch Casing Installation Summary Sheet
DZMW 34-Inch Casing Cementing Summary sheet
Geophysical Logs

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

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April 13, 2012

MHCDEP-12-0144

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
Weekly Construction Summary #49**

Dear Mr. May:

This is the forty-ninth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, April 5, 2012 and ended at 7:00 AM, Thursday, April 12, 2012. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached. In addition to construction activities for dual-zone monitoring well DZMW-1, this report also includes construction activities for exploratory well EW-1.

During the previous reporting period the drilling contractor completed pilot hole drilling on DZMW-1 to a depth of 250 feet below pad level (bpl). Caliper and gamma ray logging were then performed on the pilot hole before reaming the pilot hole with a 42-inch diameter bit to a depth of 258 feet bpl. The reamed hole then underwent caliper and gamma ray logging. The 34-inch diameter casing was then installed to a depth of 255 feet bpl and cemented to land surface in one cement stage using 158 barrels of neat cement. The annulus of EW-1 was pressurized and monitored several times during the week.

During this reporting period the drilling contractor drilled out the cement plug at the base of the DZMW-1 34-inch diameter casing and then began pilot hole drilling using a 12.25-inch diameter drill bit. Pilot hole drilling reached a depth of 920 feet bpl by the end of the reporting period. The kelly hose developed a hole and had to be replaced. This prevented the drilling contractor from pilot hole drilling for approximately three days while the kelly hose was being replaced.

Purging of EW-1 in preparation for sampling the Boulder Zone took place. Water samples were collected at approximately one-hour intervals and field analyzed for turbidity, specific conductance, temperature and pH. A background water sample was collected after purging

a volume of approximately 324,000 gallons. A copy of the EW-1 background water sampling purge sheet is attached. A final video survey of the well was also performed. A copy of the video survey is not yet available and will be included with the next weekly construction summary. The annulus of EW-1 was pressurized and monitored several times during the week, however, the results do not meet the specification.

There was no packer testing for EW-1 and DZMW-1 during this reporting period. Drill cutting samples were collected at 10-foot intervals during pilot hole drilling at DZMW-1. A copy of the DZMW-1 lithologic log is attached. Deviation surveys were performed at 90-foot intervals during pilot hole and reaming activities. A copy of the deviation survey summary sheet is attached. There were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will complete pilot hole drilling to a depth of approximately 1,110 feet bpl for DZMW-1. The pilot hole will then undergo geophysical logging before the drilling contractor begins reaming the pilot hole with a 32.5-inch diameter bit.

In addition, sampling of the pad monitor wells around EW-1 and DZMW-1 began on April 21, 2011 and March 20, 2012, respectively, and has been taking place on a weekly basis since the initial samplings. The EW-1 and DZMW-1 pad monitor wells were most recently sampled on April 12, 2012. The most recent set of EW-1 pad monitoring well sample results available are for samples collected on April 5, 2012. The most recent set of DZMW-1 pad monitoring well sample results available are for samples collected on April 6, 2012. Copies of the EW-1 and DZMW-1 pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.

David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
EW-1 Pad Monitor Well Water Quality Data Summary Sheets
DZMW-1 Pad Monitor Well Water Quality Data Summary Sheets
DZMW-1 Lithologic Log
DZMW-1 Deviation Survey Summary Sheet
EW-1 Background Water Sampling Purge Sheet

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

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April 20, 2012

MHCDEP-12-0151

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
Weekly Construction Summary #50**

Dear Mr. May:

This is the fiftieth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, April 12, 2012 and ended at 7:00 AM, Thursday, April 19, 2012. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached. In addition to construction activities for dual-zone monitoring well DZMW-1, this report also includes construction activities for exploratory well EW-1.

During the previous reporting period the drilling contractor drilled out the cement plug at the base of the DZMW-1 34-inch diameter casing and then began pilot hole drilling using a 12.25- inch diameter drill bit. Pilot hole drilling reached a depth of 920 feet below pad level (bpl) by the end of the reporting period. Annular pressure monitoring of EW-1 also took place.

During this reporting period the drilling contractor completed DZMW-1 pilot hole drilling to a depth of 1,110 feet bpl, performed caliper, gamma ray, spontaneous potential, and dual-induction geophysical logs, and began reaming the pilot hole. Reaming of the pilot hole had reached a depth of 625 feet bpl by the end of the reporting period. Deviation surveys were conducted at 90-foot intervals during pilot hole drilling and reaming. A copy of the DZMW-1 deviation survey summary sheet is attached.

The annulus of EW-1 was pressurized and monitored several times during the week, however, the results do not meet the specification. The FRP injection tubing was placed under compression in an effort to improve the seal at the packer at the base of the injection tubing.

A copy of the video survey performed on EW-1 during the previous reporting period is attached.

There was no packer testing, casing installation or cementing at EW-1 and DZMW-1 during this reporting period. Drill cutting samples were collected at 10-foot intervals during pilot hole drilling at DZMW-1. A copy of the DZMW-1 lithologic log is attached. There were no construction related issues during this reporting period.


During the next reporting period, it is anticipated that the drilling contractor will complete reaming the pilot hole to a depth of approximately 1,105 feet bpl for DZMW-1. The reamed hole will then undergo geophysical logging prior to installation of the 24-inch diameter casing to a depth of 1,100 feet bpl. The casing will then be cemented in place. It is also anticipated that additional pressure monitoring will take place at EW-1.

In addition, sampling of the pad monitor wells around EW-1 and DZMW-1 began on April 21, 2011 and March 20, 2012, respectively, and has been taking place on a weekly basis since the initial samplings. The EW-1 pad monitor wells were most recently sampled on April 19, 2012. The DZMW-1 pad monitor wells were most recently sampled on April 20, 2012. The most recent set of EW-1 pad monitoring well sample results available are for samples collected on April 12, 2012. The most recent set of DZMW-1 pad monitoring well sample results available are for samples collected on April 13, 2012. Copies of the EW-1 and DZMW-1 pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
EW-1 Pad Monitor Well Water Quality Data Summary Sheets
DZMW-1 Pad Monitor Well Water Quality Data Summary Sheets
DZMW-1 Lithologic Log
DZMW-1 Deviation Survey Summary Sheet
DZMW-1 Geophysical Logs
EW-1 Video Survey

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458

Phone: 561-891-0763

Fax: 561-623-5469

April 27, 2012

MHCDEP-12-0162

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
Weekly Construction Summary #51**

Dear Mr. May:

This is the fifty-first weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, April 19, 2012 and ended at 7:00 AM, Thursday, April 26, 2012. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor completed DZMW-1 pilot hole drilling to a depth of 1,110 feet below pad level (bpl), performed caliper, gamma ray, spontaneous potential, and dual-induction geophysical logs, and began reaming the pilot hole. Reaming of the pilot hole had reached a depth of 625 feet bpl by the end of the reporting period. Annular pressure monitoring of EW-1 also took place.

During this reporting period the drilling contractor completed DZMW-1 reaming the pilot hole with a 32 ½-inch diameter bit to a depth of 1,105 feet bpl. They then began conditioning the borehole in preparation for performing deviation surveys over the interval from 630 feet bpl to 1,060 feet bpl and performing caliper and gamma ray logging in preparation for installation of the 24-inch diameter casing to a depth of approximately 1,100 feet bpl.

There was no work on exploratory well EW-1 during this reporting period. There was no packer testing, casing installation or cementing at EW-1 and DZMW-1 during this reporting period. There were no construction related issues during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will complete conditioning the ream hole of DZMW-1. The drilling contractor will then run deviations survey on the reamed hole over the interval from 630 feet bpl to 1,080 feet bpl, perform caliper and gamma ray logging and install the 24-inch diameter casing to a depth of

approximately 1,100 feet bpl. The casing will then be cemented in place. It is also anticipated that work to eliminate the source of the annular pressure loss will take place at EW-1.

In addition, sampling of the pad monitor wells around EW-1 and DZMW-1 began on April 21, 2011 and March 20, 2012, respectively, and has been taking place on a weekly basis since the initial samplings. The EW-1 pad monitor wells were most recently sampled on April 26, 2012. The DZMW-1 pad monitor wells were most recently sampled on April 27, 2012. The most recent set of EW-1 pad monitoring well sample results available are for samples collected on April 19, 2012. The most recent set of DZMW-1 pad monitoring well sample results available are for samples collected on April 20, 2012. Copies of the EW-1 and DZMW-1 pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
EW-1 Pad Monitor Well Water Quality Data Summary Sheets
DZMW-1 Pad Monitor Well Water Quality Data Summary Sheets

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

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May 4, 2012

MHCDEP-12-0167

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
Weekly Construction Summary #52**

Dear Mr. May:

This is the fifty-second weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, April 26, 2012 and ended at 7:00 AM, Thursday, May 3, 2012. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor completed DZMW-1 reaming the pilot hole with a 32½-inch diameter bit to a depth of 1,105 feet blow pad level (bpl). They then began conditioning the borehole in preparation for performing deviation surveys over the interval from 630 feet bpl to 1,060 feet bpl and performing caliper and gamma ray logging in preparation for installation of the 24-inch diameter casing to a depth of approximately 1,100 feet bpl. There was no work on exploratory well EW-1 during the previous reporting period.

During this reporting period the drilling contractor conditioned the DZMW-1 reamed hole using a 32½-inch diameter bit, performed deviation surveys on the reamed hole over the interval from 630 feet bpl to 1,060 feet bpl, performed caliper and gamma ray logging and attempted to install of the 24-inch casing. While attempting to install the 24-inch diameter casing, an obstruction in the reamed hole was encountered at a depth of 325 feet bpl. The portion of the 24-inch diameter casing that had been installed was then removed from the hole and the drilling contractor began conditioning the reamed hole using a 32½-inch diameter bit. A copy of the DZMW-1 deviation survey summary sheet and the geophysical logs are attached.

The compression of the EW-1 Fiberglass Reinforced Pipe (FRP) injection tubing was reduced from 22-inches to 12-inches during this reporting period. The annulus of EW-1 was then pressurized and monitored, however, the results do not meet the specification.

There was no packer testing or cementing at EW-1 and DZMW-1 during this reporting period. There were no construction related issues during this reporting period with the exception of the unsuccessful 24-inch diameter casing installation at DZMW-1. This is being addressed by further conditioning of the reamed borehole prior to installing the 24-inch diameter casing.

During the next reporting period, it is anticipated that the drilling contractor will complete conditioning the ream hole of DZMW-1. The drilling contractor will then perform caliper and gamma ray logging and install the 24-inch diameter casing to a depth of approximately 1,102 feet bpl. The casing will then be cemented in place. It is also anticipated that work to eliminate the source of the annular pressure loss will take place at EW-1.

In addition, sampling of the pad monitor wells around EW-1 and DZMW-1 began on April 21, 2011 and March 20, 2012, respectively, and has been taking place on a weekly basis since the initial samplings. The EW-1 pad monitor wells were most recently sampled on May 3, 2012. The DZMW-1 pad monitor wells were most recently sampled on May 4, 2012. The most recent set of EW-1 pad monitoring well sample results available are for samples collected on April 26, 2012. The most recent set of DZMW-1 pad monitoring well sample results available are for samples collected on April 27, 2012. Copies of the EW-1 and DZMW-1 pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



5/4/12

David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
EW-1 Pad Monitor Well Water Quality Data Summary Sheets
DZMW-1 Pad Monitor Well Water Quality Data Summary Sheets
DZMW-1 Deviation Survey Summary Sheet
DZMW-1 Geophysical Logs

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

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May 11, 2012

MHCDEP-12-0185

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
Weekly Construction Summary #53**

Dear Mr. May:

This is the fifty-third weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, May 3, 2012 and ended at 7:00 AM, Thursday, May 10, 2012. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached. In addition to construction activities for dual-zone monitoring well DZMW-1, this report also includes construction activities for exploratory well EW-1.

During the previous reporting period the drilling contractor conditioned the DZMW-1 reamed hole using a 32½-inch diameter bit, performed deviation surveys on the reamed hole over the interval from 630 feet bpl to 1,060 feet bpl, performed caliper and gamma ray logging and attempted to install the 24-inch casing. While attempting to install the 24-inch diameter casing, an obstruction in the reamed hole was encountered at a depth of 325 feet bpl. The portion of the 24-inch diameter casing that had been installed was then removed from the hole and the drilling contractor began conditioning the reamed hole using a 32½-inch diameter bit. Additionally, the compression of the EW-1 Fiberglass Reinforced Pipe (FRP) injection tubing was reduced from 22-inches to 12-inches during this reporting period. The annulus of EW-1 was then pressurized and monitored, however, the results did not meet the specification.

During this reporting period the drilling contractor re-conditioned the DZMW-1 reamed hole using a 32½-inch diameter bit, performed caliper and gamma ray logging and installed the 24-inch casing to a depth of 1,102 feet bpl. The 24-inch diameter casing was cemented to land surface in two cementing stages. A temperature log was performed following the first cement stage. A copy of the geophysical logs, the 24-inch diameter casing installation

summary sheet, and the 24-inch diameter casing cementing summary sheet are attached. After completing cementing of the casing, the drilling contractor switched from the mud rotary drilling method to the reverse-air drilling method, displaced the drilling mud in the 24-inch diameter casing, drilled through the cement plug at the base of the 24-inch diameter casing and began pilot hole drilling using a 12¼-inch diameter bit. Pilot hole drilling had reached a depth of 1,176 feet bpl by the end of the reporting period. A description of drill cuttings for the interval drilled during this reporting period is attached. DZMW-1 was killed with barite during the reporting period. A daily kill material log sheet is attached.

A crane was used to unseat the EW-1 Fiberglass Reinforced Pipe (FRP) injection tubing from the packer, rotate the injection tubing and then re-seat the injection tubing back into the packer. This was done several times, with annular pressure monitoring after each time the injection tubing was re-seated. Annular pressure monitoring showed that the results do not meet the specification.

There was no packer testing, well development or construction related issues at EW-1 and DZMW-1 during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will complete the pilot hole of DZMW-1 to a depth of 1,900 feet bpl. The drilling contractor will then perform geophysical logging of the pilot hole and begin straddle packer testing. It is also anticipated that work to eliminate the source of the annular pressure loss may take place at EW-1 during this reporting period.

In addition, sampling of the pad monitor wells around EW-1 and DZMW-1 began on April 21, 2011 and March 20, 2012, respectively, and has been taking place on a weekly basis since the initial samplings. The EW-1 pad monitor wells were most recently sampled on May 10, 2012. The DZMW-1 pad monitor wells were most recently sampled on May 11, 2012. The most recent set of EW-1 pad monitoring well sample results available are for samples collected on May 3, 2012. The most recent set of DZMW-1 pad monitoring well sample results available are for samples collected on May 4, 2012. Copies of the EW-1 and DZMW-1 pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.

David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
EW-1 Pad Monitor Well Water Quality Data Summary Sheets
DZMW-1 Pad Monitor Well Water Quality Data Summary Sheets
DZMW-1 Lithologic Log
DZMW-1 24-Inch Diameter Casing Installation Summary Sheet
DZMW-1 24-Inch Diameter Casing Cement Summary
DZMW-1 Daily Kill Material Log
DZMW-1 Geophysical Logs

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

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May 18, 2012

MHCDEP-12-0192

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
Weekly Construction Summary #54**

Dear Mr. May:

This is the fifty-fourth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, May 10, 2012 and ended at 7:00 AM, Thursday, May 17, 2012. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor re-conditioned the DZMW-1 reamed hole using a 32½-inch diameter bit, performed caliper and gamma ray logging and installed and cemented the 24-inch casing to a depth of 1,102 feet bpl. The drilling contractor then set up for reverse-air drilling and began drilling pilot hole below the base of the 24-inch diameter casing. Pilot hole drilling had reached a depth of 1,176 feet bpl by the end of the reporting period.

Work performed on EW-1 during the previous reporting period included re-seating the Fiberglass Reinforced Pipe (FRP) injection tubing into the packer in an effort to improve the seal at the packer. Annular pressure monitoring showed that the results do not meet the specification.

During this reporting period the drilling contractor completed pilot hole drilling to a depth of 1,905 feet bpl and conditioned the pilot hole in preparation for geophysical logging. Drill cutting samples were collected at 10-foot intervals during pilot hole drilling. Deviation surveys were performed at 90-foot intervals above a depth of 1,700 feet bpl and at 60-foot intervals below a depth of 1,900 feet bpl. Pilot hole water samples were collected at a 90-foot intervals or less during pilot hole drilling. A description of drill cuttings for the interval drilled during this reporting period is attached. A copy of the deviation survey summary sheet is attached. DZMW-1 was killed with barite during the reporting period. A daily kill

material log sheet is attached. Laboratory results for the pilot hole water samples are not available yet and will be included in the next weekly construction summary. There were no activities at EW-1 during this reporting period.

There was no packer testing, casing installation, cementing, well development or construction related issues at EW-1 and DZMW-1 during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will perform geophysical logging of the DZMW-1 pilot hole and perform straddle packer testing on selected intervals. It is anticipated that the drilling contractor will remove the Fiberglass Reinforced Pipe (FRP) injection liner from EW-1 during the next reporting period.

In addition, sampling of the pad monitor wells around EW-1 and DZMW-1 began on April 21, 2011 and March 20, 2012, respectively, and has been taking place on a weekly basis since the initial samplings. The EW-1 pad monitor wells were most recently sampled on May 17, 2012. The DZMW-1 pad monitor wells were most recently sampled on May 18, 2012. The most recent set of EW-1 pad monitoring well sample results available are for samples collected on May 10, 2012. The most recent set of DZMW-1 pad monitoring well sample results available are for samples collected on May 11, 2012. Copies of the EW-1 and DZMW-1 pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
EW-1 Pad Monitor Well Water Quality Data Summary Sheets
DZMW-1 Pad Monitor Well Water Quality Data Summary Sheets
DZMW-1 Lithologic Log
DZMW-1 Deviation Survey Summary Sheet
DZMW-1 Daily Kill Material Log

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

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Phone: 561-891-0763

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May 25, 2012

MHCDEP-12-0212

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
Weekly Construction Summary #55**

Dear Mr. May:

This is the fifty-fifth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, May 17, 2012 and ended at 7:00 AM, Thursday, May 24, 2012. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor drilled the DZMW-1 pilot hole over the interval from 1,176 feet below pad level (bpl) to 1,905 feet bpl and conditioned the pilot hole in preparation for geophysical logging. There were no activities at EW-1 during the previous reporting period.

During this reporting period the drilling contractor completed conditioning the pilot hole, performed geophysical logging, performed an off-bottom single packer test over the interval from 1,860 to 1,905 feet bpl, and performed a straddle packer test over the interval from 1,288 to 1,317 feet bpl. 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. Copies of the geophysical logs are attached. A water sample was collected at the end of the pumping portion of each packer test. The laboratory reports for the packer test water samples are attached. DZMW-1 was killed with barite during the reporting period. A daily kill material log sheet is attached. Laboratory results for the pilot hole water samples collected during the previous reporting period are attached. There were no activities at EW-1 during this reporting period.

There was no casing installation, cementing, well development or construction related issues at EW-1 and DZMW-1 during this reporting period.

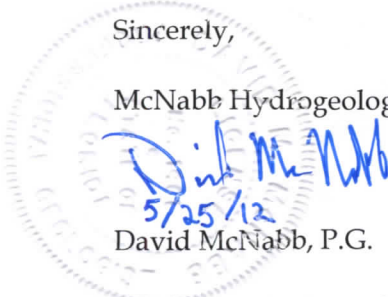
During the next reporting period, it is anticipated that the drilling contractor will backplug the DZMW-1 pilot hole with gravel (through proposed monitor zones) and cement. They will then begin reaming the backplugged hole. It is anticipated that the drilling contractor will refine their plan for establishing a tight seal at the packer in the base of EW-1 during the next reporting period.

In addition, sampling of the pad monitor wells around EW-1 and DZMW-1 began on April 21, 2011 and March 20, 2012, respectively, and has been taking place on a weekly basis since the initial samplings. The EW-1 pad monitor wells were most recently sampled on May 24, 2012. The DZMW-1 pad monitor wells were most recently sampled on May 25, 2012. The most recent set of EW-1 pad monitoring well sample results available are for samples collected on May 17, 2012. The most recent set of DZMW-1 pad monitoring well sample results available are for samples collected on May 18, 2012. Copies of the EW-1 and DZMW-1 pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



5/25/12

David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
EW-1 Pad Monitor Well Water Quality Data Summary Sheets
DZMW-1 Pad Monitor Well Water Quality Data Summary Sheets
DZMW-1 Packer Test Sample Laboratory Reports
DZMW-1 Pilot Hole Water Sample Laboratory Reports
DZMW-1 Daily Kill Material Log
DZMW-1 Geophysical Logs

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberland/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

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June 1, 2012

MHCDEP-12-0225

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
Weekly Construction Summary #56**

Dear Mr. May:

This is the fifty-sixth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, May 24, 2012 and ended at 7:00 AM, Thursday, May 31, 2012. There were no construction activities at the site this reporting period, therefore, the drilling contractor did not prepare daily reports for this reporting period. Consultant daily reports were prepared for this reporting period. Copies of the consultant daily construction logs are attached.

During the previous reporting period the drilling contractor performed geophysical logging, performed an off-bottom single packer test over the interval from 1,860 to 1,905 feet below pad level (bpl), and performed a straddle packer test over the interval from 1,288 to 1,317 feet bpl. There were no activities at EW-1 during the previous reporting period.

There were no drilling activities during this reporting period. The drilling contractor awaited selection of recommended monitoring zones for DZMW-1. There were no activities at EW-1 during this reporting period.

There was no casing installation, cementing, well development or construction related issues at EW-1 and DZMW-1 during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will backplug the DZMW-1 pilot hole with gravel (through proposed monitor zones) and cement between the proposed monitor zones and above the upper monitor zone. They will then begin reaming the backplugged hole. In addition, sampling of the pad monitor wells around EW-1 and DZMW-1 began on April 21, 2011 and March 20, 2012, respectively, and has been taking place on a weekly basis since the initial samplings. The EW-1 pad monitor wells were most recently sampled on May 31, 2012. The DZMW-1 pad monitor wells were most

recently sampled on June 1, 2012. The most recent set of EW-1 pad monitoring well sample results available are for samples collected on May 24, 2012. The most recent set of DZMW-1 pad monitoring well sample results available are for samples collected on May 25, 2012. Copies of the EW-1 and DZMW-1 pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.

David McNabb, P.G.

Attachments: Consultant Daily Construction Log
EW-1 Pad Monitor Well Water Quality Data Summary Sheets
DZMW-1 Pad Monitor Well Water Quality Data Summary Sheets

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458

Phone: 561-891-0763

Fax: 561-623-5469

June 8, 2012

MHCDEP-12-0229

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
Weekly Construction Summary #57**

Dear Mr. May:

This is the fifty-seventh weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, May 31, 2012 and ended at 7:00 AM, Thursday, June 7, 2012. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

There were no construction activities at DZMW-1 or EW-1 during the previous reporting period.

During this reporting period the drilling contractor used the 12¼-inch diameter drill bit to remove barite kill material that had settled to the bottom of the hole. The drilling contractor then backfilled the pilot hole over the interval from 1,854 to 1,905 feet below pad level (bpl) using 66 five-gallon buckets of gravel. They then backplugged the interval from 1,504 to 1,854 feet bpl in three cement stages using a total of 146 barrels of 12% bentonite blend cement. The drilling contractor then backfilled the interval from 1,443 to 1,504 feet bpl using 208 five-gallon buckets of gravel. The drilling contractor then resumed backplugging the pilot hole with cement and was waiting on the fourth cement stage of 140 barrels of 12% bentonite blend cement to set at the end of the reporting period. The well was killed with barite during the reporting period. A pilot hole backplug summary sheet and daily kill material log is attached. There were no activities at EW-1 during the previous reporting period.

There was no casing installation, cementing, packer testing, well development or construction related issues at EW-1 and DZMW-1 during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will complete backplugging the DZMW-1 pilot hole with cement and then begin reaming the backplugged

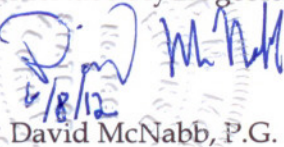
hole. It is also anticipated that the drilling contractor will pump a mixture of bentonite and lost circulation material into the base of the annulus of EW-1 in accordance with the previously submitted plan to seal the EW-1 packer.

In addition, sampling of the pad monitor wells around EW-1 and DZMW-1 began on April 21, 2011 and March 20, 2012, respectively, and has been taking place on a weekly basis since the initial samplings. The EW-1 pad monitor wells were most recently sampled on June 7, 2012. The DZMW-1 pad monitor wells were most recently sampled on June 8, 2012. The most recent set of EW-1 pad monitoring well sample results available are for samples collected on May 31, 2012. The most recent set of DZMW-1 pad monitoring well sample results available are for samples collected on June 1, 2012. Copies of the EW-1 and DZMW-1 pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



6/8/12
David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
EW-1 Pad Monitor Well Water Quality Data Summary Sheets
DZMW-1 Pad Monitor Well Water Quality Data Summary Sheets
DZMW-1 Pilot Hole Backplug Summary Sheet
DZMW-1 Daily Kill Material Log

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

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June 15, 2012

MHCDEP-12-0235

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
Weekly Construction Summary #58**

Dear Mr. May:

This is the fifty-eighth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, June 7, 2012 and ended at 7:00 AM, Thursday, June 14, 2012. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor backfilled the pilot hole over the interval from 1,854 to 1,905 feet below pad level (bpl) with gravel, backplugged the interval from 1,504 to 1,854 feet bpl with 12% bentonite blend cement, backfilled the interval from 1,443 to 1,504 feet bpl with gravel and then pumped a cement stage from a depth of 1,443 feet bpl. They were waiting on the cement to set in preparation for tagging the top of cement at the end of the reporting period. There were no activities at EW-1 during the previous reporting period.

During this reporting period the drilling contractor completed backplugging the DZMW-1 pilot hole to a depth of 1,153 feet bpl. The drilling contractor then used a 22-inch diameter drill bit to ream the interval from 1,105 to 1,453 feet bpl. They then attempted to perform caliper and gamma ray logging of the reamed hole, but found that kill material had fallen to the base of the hole. The drilling contractor then cleaned out the borehole, performed caliper and gamma ray logging and began installing the 16-inch diameter casing to a depth of approximately 1,450 feet bpl. Installation of the 16-inch diameter casing was not completed prior to the end of the reporting period. A copy of the 16-inch diameter casing installation summary sheet for the portion of casing installed during this reporting period is attached. Deviation surveys were performed on the reamed hole at 60-foot intervals. A copy of the deviation survey summary sheet, pilot hole backplug summary sheet and the geophysical logs performed during this reporting period is attached.

At EW-1, the compression of the Fiberglass Reinforced Pipe (RFP) injection tubing was released. Subsequent pressure monitoring of the EW-1 annulus indicated that the source of the pressure loss in the annulus has been eliminated.

There was no packer testing, well development or construction related issues at EW-1 and DZMW-1 during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will complete installing and cementing the 16-inch diameter casing to a depth of approximately 1,450 feet bpl and begin drilling a hole below the base of the 16-inch diameter casing in preparation for installing the final casing of DZMW-1. At EW-1 it is anticipated that the annulus will undergo preliminary and final pressure testing.

In addition, sampling of the pad monitor wells around EW-1 and DZMW-1 began on April 21, 2011 and March 20, 2012, respectively, and has been taking place on a weekly basis since the initial samplings. The EW-1 pad monitor wells were most recently sampled on June 14, 2012. The DZMW-1 pad monitor wells were most recently sampled on June 15, 2012. The most recent set of EW-1 pad monitoring well sample results available are for samples collected on June 8, 2012. The most recent set of DZMW-1 pad monitoring well sample results available are for samples collected on June 8, 2012. Copies of the EW-1 and DZMW-1 pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
EW-1 Pad Monitor Well Water Quality Data Summary Sheets
DZMW-1 Pad Monitor Well Water Quality Data Summary Sheets
DZMW-1 Pilot Hole Backplug Summary Sheet
DZMW-1 Deviation Survey Summary Sheet
DZMW-1 16-Inch Diameter Casing Installation Summary Sheet
DZMW-1 Daily Kill Material Log
DZMW-1 Geophysical Logs

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458

Phone: 561-891-0763

Fax: 561-623-5469

June 22, 2012

MHCDEP-12-0243

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
Weekly Construction Summary #59**

Dear Mr. May:

This is the fifty-ninth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, June 14, 2012 and ended at 7:00 AM, Thursday, June 21, 2012. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor completed backplugging the DZMW-1 pilot hole to a depth of 1,153 feet below pad level (bpl). The drilling contractor then used a 22-inch diameter drill bit to ream the interval from 1,105 to 1,453 feet bpl. They then performed caliper and gamma ray logs on the reamed hole and began installing the 16-inch diameter casing to a depth of approximately 1,450 feet bpl. Installation of the 16-inch diameter casing was not completed prior to the end of the previous reporting period.

During this reporting period the drilling contractor completed installing the 16-inch diameter casing to a depth of 1,450 feet bpl and cemented the casing in place in three stages using a total of 443 barrels of cement. Temperature logs were performed after each cement stage as required. The drilling contractor then reamed the interval from 1,450 to 1,850 feet bpl using a 14¾-inch diameter bit before changing to a 12¾-inch diameter bit and drilling the interval from 1,850 to 1,905 feet. Deviation surveys were performed at 60-foot intervals. The borehole then underwent caliper and gamma ray logging. The well was killed with barite during the reporting period. Copies of the 16-inch casing installation summary and cementing summary sheets, deviation survey summary sheet, daily kill material log and geophysical logs are attached.

Preliminary annular pressure monitoring took place at EW-1. Pressure monitoring results indicate the annulus now meets pressure testing specifications. A preliminary annular pressure test was underway at the end of the reporting period.

There was no packer testing, well development or construction related issues at EW-1 and DZMW-1 during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will install and cement the 6 $\frac{5}{8}$ -inch diameter final casing of DZMW-1 to a depth of approximately 1,860 feet bpl. The final casing will then undergo pressure testing. At EW-1 it is anticipated that the preliminary annular pressure test will be completed and final pressure testing will take place in the presence of a Florida Department of Environmental Protection witness.

In addition, sampling of the pad monitor wells around EW-1 and DZMW-1 began on April 21, 2011 and March 20, 2012, respectively, and has been taking place on a weekly basis since the initial samplings. The EW-1 pad monitor wells were most recently sampled on June 21, 2012. The DZMW-1 pad monitor wells were most recently sampled on June 22, 2012. The most recent set of EW-1 pad monitoring well sample results available are for samples collected on June 14, 2012. The most recent set of DZMW-1 pad monitoring well sample results available are for samples collected on June 15, 2012. Copies of the EW-1 and DZMW-1 pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.

David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
EW-1 Pad Monitor Well Water Quality Data Summary Sheets
DZMW-1 Pad Monitor Well Water Quality Data Summary Sheets
DZMW-1 16-Inch Diameter Casing Installation Summary Sheet
DZMW-1 16-Inch Diameter Casing Cementing Summary Sheet
DZMW-1 Deviation Survey Summary Sheet
DZMW-1 Daily Kill Material Log
DZMW-1 Geophysical Logs

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458

Phone: 561-891-0763

Fax: 561-623-5469

June 29, 2012

MHCDEP-12-0256

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
Weekly Construction Summary #60**

Dear Mr. May:

This is the sixtieth weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, June 21, 2012 and ended at 7:00 AM, Thursday, June 28, 2012. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor completed installing the 16-inch diameter casing to a depth of 1,450 feet below pad level (bpl) and cemented the casing in place in three stages using a total of 443 barrels of cement. The drilling contractor then reamed the interval from 1,450 to 1,850 feet bpl using a 14¼-inch diameter bit before changing to a 12¼-inch diameter bit and drilling the interval from 1,850 to 1,905 feet.

During this reporting period the drilling contractor installed the 6½-inch diameter casing of DZMW-1 to a depth of 1,860 feet bpl and cemented the casing over the interval from 1,860 to 1,490 feet bpl in three stages using a total of 114.5 barrels of neat cement. Temperature logs were performed after each cement stage as required. The 6½-inch diameter casing then underwent cement bond logging and was then successfully pressure tested. Copies of the 6½-inch diameter casing installation summary sheet, casing cementing summary sheet, and pressure test summary sheet are attached. Copies of the composite cement top temperature log and cement bond log are attached. The well was killed with barite during the reporting period. A copy of the daily kill material log is attached.

Successful preliminary and final annular pressure monitoring took place at EW-1. The final annular pressure test was performed in the presence of a Florida Department of Environmental Protection (FDEP) witness. A copy of the EW-1 annular pressure test

summary sheet is attached. The drilling contractor began moving equipment off site during the reporting period in preparation for demobilization from the site.

There was no packer testing, well development or construction related issues at EW-1 and DZMW-1 during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will continue moving equipment off site, develop both monitoring zones of DZMW-1 and collect monitoring zones background water samples for laboratory analysis.

In addition, sampling of the pad monitor wells around EW-1 and DZMW-1 began on April 21, 2011 and March 20, 2012, respectively, and has been taking place on a weekly basis since the initial samplings. The EW-1 pad monitor wells were most recently sampled on June 28, 2012. The DZMW-1 pad monitor wells were most recently sampled on June 29, 2012. The most recent set of EW-1 pad monitoring well sample results available are for samples collected on June 21, 2012. The most recent set of DZMW-1 pad monitoring well sample results available are for samples collected on June 22, 2012. Copies of the EW-1 and DZMW-1 pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
EW-1 Pad Monitor Well Water Quality Data Summary Sheets
DZMW-1 Pad Monitor Well Water Quality Data Summary Sheets
DZMW-1 6%-Inch Diameter Casing Installation Summary Sheet
DZMW-1 6%-Inch Diameter Casing Cementing Summary Sheet
DZMW-1 6%-Inch Diameter Casing Pressure Test Summary Sheet
DZMW-1 Daily Kill Material Log
DZMW-1 Geophysical Logs
EW-1 Annular Pressure Test Summary Sheet

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458

Phone: 561-891-0763

Fax: 561-623-5469

July 6, 2012

MHCDEP-12-0267

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
Weekly Construction Summary #61**

Dear Mr. May:

This is the sixty-first weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, June 28, 2012 and ended at 7:00 AM, Thursday, July 5, 2012. Consultant and drilling contractor daily reports were prepared for this reporting period. Copies of the consultant and drilling contractor daily construction logs are attached.

During the previous reporting period the drilling contractor installed the 6½-inch diameter casing of DZMW-1 to a depth of 1,860 feet below pad level (bpl) and cemented the casing over the interval from 1,860 to 1,490 feet bpl in three stages using a total of 114.5 barrels of neat cement. The 6½-inch diameter casing then underwent cement bond logging and was then successfully pressure tested. Successful preliminary and final annular pressure testing took place at EW-1. The final annular pressure test was performed in the presence of a Florida Department of Environmental Protection (FDEP) witness.

During this reporting period the drilling contractor installed the DZMW-1 wellhead, performed development of the upper and lower monitor zones and continued demobilizing from the site. Water samples were collected for laboratory analysis from the upper monitor zone after the zone was fully developed. Development of the lower monitor zone was not yet completed by the end of the reporting period.

There was no packer testing, casing installation, cementing or construction related issues at EW-1 and DZMW-1 during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will continue development of the lower monitor zone, collected background water samples for laboratory analysis from the lower monitor zone, perform a video log of the completed well and continue demobilization from the site.

In addition, sampling of the pad monitor wells around EW-1 and DZMW-1 began on April 21, 2011 and March 20, 2012, respectively, and has been taking place on a weekly basis since the initial samplings. The most recent sampling of the EW-1 pad monitor wells was on July 5, 2012. The DZMW-1 pad monitor wells were most recently sampled on July 6, 2012. The most recent set of EW-1 pad monitoring well sample results are for samples collected on June 28, 2012. The most recent set of DZMW-1 pad monitoring well sample results available are for samples collected on June 29, 2012. Copies of the EW-1 and DZMW-1 pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



David McNabb, P.G.

Attachments: Consultant Daily Construction Log
Layne Christensen Company-Drilling Shift Report
EW-1 Pad Monitor Well Water Quality Data Summary Sheets
DZMW-1 Pad Monitor Well Water Quality Data Summary Sheets

Cc: George Heuler/FDEP-Tallahassee
Emily Richardson/SFWMD
Matthew Raffenberg/FPL
David Holtz/HCE

Joe Haberfeld/FDEP-Tallahassee
Ron Reese/USGS
David Paul/FGS

WEEKLY CONSTRUCTION SUMMARY



McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458

Phone: 561-891-0763

Fax: 561-623-5469

July 13, 2012

MHCDEP-12-0276

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
Weekly Construction Summary #62**

Dear Mr. May:

This is the sixty-second weekly construction summary for the above referenced project. The reporting period for this weekly construction summary began at 7:00 AM, Thursday, July 5, 2012 and ended at 7:00 AM, Thursday, July 12, 2012. Drilling contractor daily reports were not prepared this week since there was no construction or testing activities at the site. Consultant daily reports were prepared for this reporting period. Copies of the consultant daily construction logs are attached.

During the previous reporting period the drilling contractor installed the DZMW-1 wellhead, performed development of the upper and lower monitor zones and continued demobilizing from the site. Background water samples were collected for laboratory analysis from the upper monitor zone after the zone was fully developed. Development of the lower monitor zone was not yet completed by the end of the reporting period.

During this reporting period the drilling contractor continued to demobilize from the site and performed development of the lower monitor zone of DZMW-1 in preparation for background water sampling. Re-development of the upper monitor zone of DZMW-1 also began in preparation for re-sampling the upper monitor zone. Re-sampling of the upper zone for all parameters will take place to confirm a positive result for total coliform in the original upper monitor zone background sample. Tables providing a summary of the lower monitor zone development and the upper monitor zone re-development are attached.

There was no packer testing, casing installation, cementing or construction related issues at EW-1 and DZMW-1 during this reporting period.

During the next reporting period, it is anticipated that the drilling contractor will complete development of the lower monitor zone, complete re-development of the upper monitor

zone, collect background water samples for laboratory analysis from the upper and lower monitor zones, perform a video log of the completed well and complete demobilization from the site.

In addition, sampling of the pad monitor wells around EW-1 and DZMW-1 began on April 21, 2011 and March 20, 2012, respectively, and has been taking place on a weekly basis since the initial samplings. The final sampling of the EW-1 pad monitor wells was on July 5, 2012. The DZMW-1 pad monitor wells were most recently sampled on July 13, 2012. The most recent set of DZMW-1 pad monitoring well sample results available are for samples collected on July 6, 2012. Copies of the EW-1 and DZMW-1 pad monitor well water quality data summary sheets are attached.

Should you have any questions regarding the above weekly construction summary, please contact David McNabb at (561) 891-0763.

Sincerely,

McNabb Hydrogeologic Consulting, Inc.



7/13/12
David McNabb, P.G.

Attachments: Consultant Daily Construction Log
EW-1 Pad Monitor Well Water Quality Data Summary Sheets
DZMW-1 Pad Monitor Well Water Quality Data Summary Sheets
DZMW-1 Lower Monitor Zone Development Summary Sheet
DZMW-1 Upper Monitor Zone Re-Development Summary Sheet

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 D

FDEP Approvals

Subject: RE: FPL Turkey Point Units 6 & 7 exploratory well pre-construction submittals

From: May, Joseph (Joseph.May@dep.state.fl.us)

To: david@mcnabbhydroconsult.com;

Cc: Joe.Haberfeld@dep.state.fl.us; sanderso@sfwmd.gov; rsreese@usgs.gov; Matthew.Raffenberg@fpl.com;

Date: Monday, May 2, 2011 9:19 AM

Dave,

Thanks and good luck with the drilling operations, proceed at will.

Joe

<><><><><>

Joseph May, PG

UIC Program Manager

SED / FDEP

The Department of Environmental Protection values your feedback as a customer. DEP Secretary Herschel T. Vinyard Jr. is committed to continuously assessing and improving the level and quality of services provided to you. Please take a few minutes to comment on the quality of service you received. Simply click on [this link to the DEP Customer Survey](#). Thank you in advance for completing the survey.

From: David McNabb [mailto:david@mcnabbhydroconsult.com]
Sent: Wednesday, April 27, 2011 10:56 AM
To: May, Joseph
Cc: Haberfeld, Joe; Steve Anderson; Ron Reese; Matthew Raffenberg
Subject: FPL Turkey Point Units 6 & 7 exploratory well pre-construction submittals

Joe,

Please see the attached pre-construction submittals for the FPL Turkey Point Units 6 & 7 exploratory well construction project. Each of the items that are required to be submitted prior to beginning drilling operations at the exploratory well are provided. We plan to begin drilling the exploratory well on May 4, 2011 provided we have received the required approval from the Department to begin drilling.

Thanks,

David McNabb, P.G.
McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458
561-891-0763

Subject: RE: Turkey Point EW-1 intermediate casing seat recommendation

From: May, Joseph (Joseph.May@dep.state.fl.us)

To: david@mcnabbhydroconsult.com;

Cc: Joe.Haberfeld@dep.state.fl.us; George.Heuler@dep.state.fl.us; sanderso@sfwmd.gov; rsreese@usgs.gov; Matthew.Raffenberg@fpl.com; David.Paul@dep.state.fl.us; david.holtz@holtzconsulting.com;

Date: Friday, July 22, 2011 10:42 AM

Hello,

The Department accepts FPL's recommendation for the intermediate casing to be landed at 1535 feet below pad level.

As always, good luck with the well construction operations,

Joe May

<><><><><><><><>

Joseph R. May, PG

Program Manager / UIC

561-681-6691

561-682-6745 (Vanessa Osborne)

The Department of Environmental Protection values your feedback as a customer. DEP Secretary Herschel T. Vinyard Jr. is committed to continuously assessing and improving the level and quality of services provided to you. Please take a few minutes to comment on the quality of service you received. Simply click on [this link to the DEP Customer Survey](#). Thank you in advance for completing the survey.

From: David McNabb [mailto:david@mcnabbhydroconsult.com]

Sent: Wednesday, July 20, 2011 5:35 PM

To: May, Joseph

Cc: Haberfeld, Joe; Heuler, George; Steve Anderson; Ron Reese; Matthew Raffenberg; Paul, David; David Holtz

Subject: Turkey Point EW-1 intermediate casing seat recommendation

Joe,

Please see the attached intermediate casing seat recommendation for FPL Turkey Point EW-1. I will give you a call tomorrow morning to see when it would be good to drop off the recommendation and see if you have a few minutes to go through it.

Thanks,

David McNabb, P.G.
McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458
561-891-0763

Subject: RE: FPL Turkey Point EW-1 formation testing and borehole televiewer

From: May, Joseph (Joseph.May@dep.state.fl.us)

To: david@mcnabbhydroconsult.com;

Cc: Matthew.Raffenberg@fpl.com;

Date: Sunday, February 5, 2012 3:18 PM

Dave,

What you'd stated is acceptable to the Department.

Let's hope the water in the well has sufficient clarity for the video to render the use of the borehole televiewer moot.

Thanks and good luck,

Joe

Please take a few minutes to share your comments on the service you received from the department by clicking on this link [DEP Customer Survey](#).

From: David McNabb [mailto:david@mcnabbhydroconsult.com]
Sent: Friday, February 03, 2012 1:14 PM
To: May, Joseph
Cc: Matthew Raffenberg
Subject: FPL Turkey Point EW-1 formation testing and borehole televiewer

Joe,

Marister Ruiz and I had previously discussed with you via phone a proposed plan for performing a formation test to determine if the EW-1 borehole has penetrated the Bolder Zone. We propose performing the formation test using water produced from open hole interval of EW-1. The proposed testing procedure is below. We anticipate being ready to perform the formation test on or about February 9, 2012. Please let us know if this is acceptable with the Department and contact us with any questions or comments you may have regarding the performance of the formation test.

1. A total of 160,000 gallons of formation water will be used for the test.
2. A single, open-ended packer will be installed to a depth of approximately 3,010 feet bpl.
3. The formation test will be conducted at a rate of 1,200 to 1,600 gpm.
4. At least two hours of pressure recovery data will be collected after shutting off the pump.

The results of the formation test will be included in a weekly construction summary and the final report for the construction and testing of EW-1.

A borehole televiwer log was specified to be conducted on the pilot hole for this borehole. The caliper log showed that most of the hole has a larger diameter than the capabilities of the borehole televiwer (22-inch for the field of investigation). We propose to perform a video of the borehole instead of the televiwer in order to obtain information about the borehole. The borehole video will be performed prior to running the formation test. If the video submitted to the Department is found acceptable we will not perform the borehole televiwer.

Thanks,

David McNabb, P.G.
McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458
561-891-0763

Subject: RE: Turkey Point EW-1

From: May, Joseph (Joseph.May@dep.state.fl.us)

To: david@mcnabbhydroconsult.com;

Cc: Marister.Ruiz@fpl.com;

Date: Tuesday, December 27, 2011 9:26 AM

Understood and your understanding is correct.

Good luck.

Please take a few minutes to share your comments on the service you received from the department by clicking on this link. [DEP Customer Survey](#).

From: David McNabb [mailto:david@mcnabbhydroconsult.com]
Sent: Thursday, December 22, 2011 10:58 AM
To: May, Joseph
Cc: Marister Ruiz
Subject: Turkey Point EW-1

Joe,

This email is a follow up to our phone conversation on 12/12/11 on the Turkey Point exploratory well (EW-1). The caliper log that was performed on pilot hole below the 34-inch diameter intermediate casing shows that a portion of the borehole below the 34-inch diameter casing (base of casing located at 1,535 feet) is washed out to a larger diameter than the pilot hole drill bit. An electronic copy of the caliper log was provided to the Department as an attachment to Weekly Construction Summary #30. As discussed in Weekly Construction Summary #31, reaming of the upper portion of the pilot hole is required to allow installation of large diameter packers in preparation for conducting packer tests in large diameter portions of the borehole. The well construction and testing specifications submitted to the FDEP in support of the EW-1 construction permit

application indicated that the pilot hole below the 34-inch diameter intermediate casing would be backplugged with cement prior to being reamed in preparation for installation of the final casing. However, as indicated above, a portion of the borehole below the 34-inch diameter casing is washed out and has a larger diameter. The large diameter hole provides assurance that the drill bit will follow the pilot hole during the reaming process with minimum probability of deviation making the need to backplug the pilot hole with cement unnecessary. In order to confirm that the reaming bit did follow the pilot hole, a video survey of the reamed hole will be performed prior to installing the final casing of EW-1. Our understanding from the phone conversation is that this is an acceptable approach, please let us know if this is not correct.

Thanks,

David McNabb, P.G.
McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458
561-891-0763

Subject: RE: Turkey Point EW-1 Final Casing Seat Recommendation

From: May, Joseph (Joseph.May@dep.state.fl.us)

To: david@mcnabbhydroconsult.com; George.Heuler@dep.state.fl.us;

Cc: Joe.Haberfeld@dep.state.fl.us; rsreese@usgs.gov; David.Paul@dep.state.fl.us; Matthew.Raffenberg@fpl.com; david.holtz@holtzconsulting.com; ehopkins@sfwmd.gov;

Date: Wednesday, February 22, 2012 3:43 PM

Dave,

DEP accepts the final casing being landed at 2985 feet below pad level.

I'll have a formal later drafted saying the same and referring to this email as the informal, though official, approval.

Good luck,

Joe

Please take a few minutes to share your comments on the service you received from the department by clicking on this link. [DEP Customer Survey](#).

From: David McNabb [mailto:david@mcnabbhydroconsult.com]
Sent: Wednesday, February 22, 2012 3:08 PM
To: May, Joseph; Heuler, George
Cc: Haberfeld, Joe; Ron Reese; Paul, David; Matthew Raffenberg; David Holtz; ehopkins@sfwmd.gov
Subject: Turkey Point EW-1 Final Casing Seat Recommendation

Joe and George,

A caliper/gamma ray log of the reamed hole at FPL Turkey Point EW-1 was performed on 2/21/12, see attached. We would like to set the 24-inch diameter final casing to a depth of 2,985 feet below pad level (bpl) rather than the 2,980 feet bpl that was indicated in the final casing seat recommendation submitted on 2/21/12 based on the most recent caliper log.

Please let us know if the revised depth is acceptable.

Thanks,

David McNabb, P.G.
McNabb Hydrogeologic Consulting, Inc.

601 Heritage Drive, Suite 110

Jupiter, Florida 33458
561-891-0763

Appendix E
Daily Kill Material Log

**Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Daily Kill Material Log**

Date	Depth (feet bpl)	Kill Used	Approximate Volume (gallons)	Approximate Quantity (pounds)
7/7/2011	1655	Bentonite /Barite	569	
7/8/2011	1655	Bentonite /Barite	6,064	
7/9/2011	1655	Bentonite /Barite	2,085	
7/10/2011	1655	Bentonite /Barite	1,137	
7/11/2011	1655	Bentonite /Barite	9,475	
7/12/2011	1655	Bentonite /Barite	759	
7/13/2011	1655	Bentonite /Barite	4,548	
7/15/2011	1655	Bentonite /Barite	1,925	
7/16/2011	1655	Bentonite /Barite	2,200	
7/17/2011	1655	Bentonite /Barite	284	
7/18/2011	1655	Bentonite /Barite	275	
7/19/2011	1655	Bentonite /Barite	275	
7/31/2011	1542	Bentonite /Barite	18,950	
8/1/2011	1542	Bentonite /Barite	4,548	
8/2/2011	1542	Bentonite /Barite	284	
8/5/2011	1542	Bentonite /Barite	4,548	
8/6/2011	1542	Bentonite /Barite	2,274	
8/10/2011	1542	Bentonite /Barite	6,443	
8/10/2011	1542	Salt		2,000
8/13/2011	1722	Bentonite /Barite	6,250	
8/14/2011	1722	Bentonite /Barite	379	
8/17/2011	2026	Salt		2,000
8/18/2011	2026	Bentonite /Barite	379	2,000
8/19/2011	2110	Bentonite/Barite and Salt	570	2,000
8/20/2011	2110	Bentonite /Barite and Salt	189	4,000
8/21/2011	2288	Salt		6,000
8/22/2011	2288	Salt		4,000
8/24/2011	2396	Bentonite /Barite and Salt	379	2,000
8/25/2011	2396	Salt		4,000
8/26/2011	2576	Bentonite /Barite and Salt	379	2,000
8/28/2011	2580	Bentonite /Barite and Salt	379	6,000
8/30/2011	2638	Salt		4,000
8/31/2011	2638	Bentonite /Barite/Salt	569	2,000
9/1/2011	2652	Bentonite /Barite	379	
9/2/2011	2666	Salt		2,000
9/3/2011	2666	Bentonite /Barite	569	
9/10/2011	3214	Salt		6,000
9/11/2011	3210	Salt		4,000
9/19/2011	3227	Salt		4,000
9/22/2011	3228	Salt		4,000

**Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Daily Kill Material Log**

Date	Depth (feet bpl)	Kill Used	Approximate Volume (gallons)	Approximate Quantity (pounds)
10/9/2011	3220	Salt		6,000
10/10/2011	3220	Salt		6,000
10/12/2011	3227	Salt		4,000
10/23/2011	3234	Salt		6,000
10/29/2011	3211	Salt		6,000
11/7/2011	3223	Salt		6,000
11/19/2011	3232	Salt		4,000
11/28/2011	3232	Salt		4,000
12/6/2011	3232	Salt		6,000
12/14/2011	1960	Salt		8,000
12/15/2011	1960	Salt		8,000
1/5/2012	2270	Salt		8,000
1/9/2012	2270	Salt		2,000
1/15/2012	2900	Salt		6,000
1/16/2012	2900	Salt		4,000
1/22/2012	2900	Salt		8,000
1/24/2012	2900	Salt		6,000
1/26/2012	2900	Salt		4,000
2/6/2012	2978	Salt		4,000
2/7/2012	2978	Salt		2,000
2/10/2012	3230	Salt		4,000
2/11/2012	3230	Salt		4,000
2/15/2012	3230	Salt		4,000
2/23/2012	3230	Salt		4,000
2/24/2012	3230	Salt		250
2/25/2012	3230	Salt		2,050
2/26/2012	3230	Salt		2,000
3/9/2012	3230	Salt		100
3/12/2012	3230	Salt		1,500
3/13/2012	3230	Salt		2000

feet bpl = feet below pad level

Appendix F

Deviation Survey Summary Sheet



Florida Power & Light Company
Turkey Point Units 6 & 7
Exploratory Well EW-1
Deviation Survey Summary



Pilot Hole			42-Inch Reamed Hole			32-Inch Reamed Hole		
Date	Depth (feet bpl)	Inclination (degrees)	Date	Depth (feet bpl)	Inclination (degrees)	Date	Depth (feet bpl)	Inclination (degrees)
5/13/2011	90	0.2	5/20/2011	90	0.5	1/21/2012	1,950	0.2
5/14/2011	180	0.4	5/24/2011	180	0.4	1/22/2012	2,010	0.5
6/3/2011	270	0.5	6/6/2011	270	0.0	1/22/2012	2,070	0.3
5/29/2011	345	0.3	6/8/2011	360	0.1	1/31/2012	2,130	0.5
5/29/2011	435	0.4	6/9/2011	450	0.2	1/31/2012	2,190	0.5
5/30/2011	524	0.4	6/10/2011	540	0.3	1/31/2012	2,250	0.3
5/30/2011	614	0.0	6/12/2011	630	0.5	2/1/2012	2,310	0.3
5/31/2011	704	0.2	6/14/2011	720	0.4	2/1/2012	2,370	0.2
5/31/2011	794	0.3	6/15/2011	810	0.4	2/1/2012	2,430	0.4
5/31/2011	884	0.3	6/16/2011	900	0.3	2/1/2012	2,490	0.4
6/1/2011	974	0.5	6/18/2011	990	0.4	2/1/2012	2,550	0.1
6/1/2011	1,064	0.5	7/23/2011	1,080	0.1	2/1/2012	2,610	0.4
7/1/2011	1,154	0.6	7/25/2011	1,170	0.4	2/2/2012	2,670	0.2
7/1/2011	1,244	0.3	7/26/2011	1,260	0.5	2/2/2012	2,730	0.0
7/1/2011	1,334	0.4	7/27/2011	1,350	0.2	2/2/2012	2,790	0.0
7/2/2011	1,424	0.4	7/29/2011	1,440	0.3	2/4/2012	2,850	0.3
7/2/2011	1,514	0.5	8/10/2011	1,530	0.5	2/6/2012	2,910	0.1
7/3/2011	1,604	0.5	28-Inch Reamed Hole			2/7/2012	2,970	0.3
8/13/2011	1,664	0.1				2/17/2012	3,030	0.3
8/15/2011	1,724	0.0	12/7/2011	1,590	0.5	2/17/2012	3,090	0.4
8/15/2011	1,784	0.1	12/8/2011	1,650	0.5	2/17/2012	3,150	0.5
8/16/2011	1,844	0.4	12/9/2011	1,710	0.5	2/17/2012	3,210	0.5
8/16/2011	1,904	0.4	12/10/2011	1,770	0.5			
8/17/2011	1,964	0.1	12/11/2011	1,830	0.5			
8/19/2011	2,024	0.3	12/13/2011	1,890	0.3			
8/19/2011	2,084	0.5	12/29/2011	1,950	0.5			
8/20/2011	2,144	0.2	1/2/2012	2,010	0.4			
8/20/2011	2,204	0.0	1/2/2012	2,070	0.3			
8/22/2011	2,264	0.0	1/3/2012	2,130	0.5			
8/25/2011	2,324	0.1	1/4/2012	2,190	0.4			
8/25/2011	2,384	0.1	1/5/2012	2,250	0.3			
8/26/2011	2,444	0.2	1/10/2012	2,310	0.0			
8/26/2011	2,504	0.0	1/11/2012	2,370	0.3			
8/29/2011	2,564	0.4	1/11/2012	2,430	0.1			
8/31/2011	2,624	0.3	1/12/2012	2,490	0.3			
9/4/2011	2,684	0.4	1/12/2012	2,550	0.4			
9/4/2011	2,744	0.4	1/13/2012	2,610	0.4			
9/4/2011	2,804	0.3	1/13/2012	2,670	0.3			
9/5/2011	2,864	0.4	1/13/2012	2,730	0.3			
9/5/2011	2,924	0.3	1/14/2012	2,790	0.4			
9/5/2011	2,984	0.4	1/14/2012	2,850	0.3			
9/6/2011	3,044	0.1						
9/6/2011	3,104	0.5						
9/7/2011	3,164	0.4						

bpl = below pad level

Appendix G
Cementing and Casing
Summary Sheet

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

Summary of Casing Setting Depths and Cement Quantities

Casing	Casing Material	Outside Diameter (inches)	Inside Diameter (inches)	Casing Thickness (inches)	Casing Depth (feet bpl)	Date	Cement Stage	Type of Cement	Quantity of Cement (bbl)	Base of the Cemented Interval (feet bpl)	Theoretical Fill (feet)	Actual Fill (feet)	Percent Fill	Remarks
Pit Pipe	Steel	64.00	63.25	0.375	33	4/15/2011	#1	neat	66	33	33	33	100%	Tremie grout from 31 feet.
Conductor Casing	Steel	54.00	53.25	0.375	255	5/26/2011	#1	neat/12%	104/102	260	260	260	100%	Pressure grout from bottom of casing
Surface Casing	Steel	44.00	43.25	0.375	1,090	6/22/2011	#1	neat/4%	91/154	1,095	305	428	140%	Pressure grout from bottom of casing
						6/23/2011	#2	4%	134	667	167	402	241%	Tremied from 665 feet bpl
						6/24/2011	#3	4%	195	265	227	243	107%	Tremied from 260 feet bpl
						6/24/2011	#4	4%	24	22	27	22	81%	Tremied from 18 feet bpl
Pilot Hole (1,655) Backplug		12.25				7/22/2011	#1	12%	107	1,655	565	561	99%	Tremied from the base of the pilot hole
Intermediate Casing	Steel	34.00	33.25	0.375	1,535	8/5/2011	#1	neat	326	1,542	90	75	83%	Pressure grout from bottom of casing
						8/6/2011	#2	neat	335	1,467	127	210	165%	Tremied from 1,465 feet bpl
						8/6/2011	#3	4%	228	1,257	200	241	121%	Tremied from 1,252 feet bpl
						8/7/2011	#4	12%	174	1,016	250	255	102%	Tremied from 1,013 feet bpl
						8/7/2011	#5	12%	174	761	250	272	109%	Tremied from 756 feet bpl
						8/8/2011	#6	12%	86	489	120	137	114%	Tremied from 485 feet bpl
						8/8/2011	#7	12%	235	352	339	352	104%	Tremied from 350 feet bpl
Final Casing	Steel	24.00	23.00	0.500	2,985	3/2/2012	spot #1	neat	2	2,982	1	1	100%	Tremied from top of the cement basket at 2,982 feet bpl.
						3/2/2012	spot #2	neat	5	2,981	9	8	89%	Tremied from 2,981 feet bpl
						3/2/2012	spot #3	neat	8	2,973	13	14	108%	Tremied from 2,973 feet bpl
						3/2/2012	#1	neat	184	2,959	200	183	92%	Tremied from 2,959 feet bpl
						3/3/2012	#2	4%	115	2,776	200	161	81%	Tremied from 2,776 feet bpl
						3/3/2012	#3	4%	191	2,615	331	265	80%	Tremied from 2,615 feet bpl
						3/4/2012	#4	4%	195	2,350	350	241	69%	Tremied from 2,350 feet bpl
						3/4/2012	#5	4%	200	2,109	350	255	73%	Tremied from 2,109 feet bpl
						3/4/2012	#6	4%	250	1,854	400	269	67%	Tremied from 1,854 feet bpl
						3/5/2012	#7	4%	191	1,585	350	164	47%	Tremied from 1,585 feet bpl
						3/5/2012	#8	12%	309	1,421	600	550	92%	Tremied from 1,421 feet bpl
						3/6/2012	#9	12%	319	871	621	558	90%	Tremied from 871 feet bpl
						3/7/2012	#10	12%	163	313	313	313	100%	Tremied from 313 feet bpl
								Total Neat	1,121					
								Total 4%	1,877					
								Total 12%	1,669					
								Total	4,667					

bpl = below pad level

bbl = barrel

1 barrel = 42 gallons/5.61 cubic feet

Appendix H
Casing Mill Certificates
and FRP Cut Sheet



沧州市螺旋钢管有限责任公司

Cangzhou Spiral Steel Pipe Co., Ltd

钢管质量证明书

MILL TEST CERTIFICATE

特种设备制造许可证
(压力管道)
编号:TS2710387-2014

客户 Customer: Layne Christensen Company

合同编号 Contract No.: 88567

证书编号 Certificate No.: TS2710387-2014

品名 Product name: Spiral steel pipe

钢级 Steel Grade: Gr.B PSLI

到站 Destination: Layne Christensen

Pipes No.	炉号 Heat Numbers	规格(Size)			数量Quantity			化 学 成 分 Chemical Composition (%)					焊接接头物理性能 physical properties of welding joints			管体物理性能 physical properties of pipes				无损检测 NDT		尺寸 及外观 size & appearance	
		直径	厚度	长度	支数	总长度	总重量	C	Mn	Si	P	S	σ_b Mpa	正弯	反弯	σ_s Mpa	σ_b Mpa	δ (%)	冷弯	UT	RT		Hydrostatic (10s) Mpa
														face-bend	back-bend				cold-				
														180°	180°				180°				
1	11P02636	24	0.375	39	24	936	40.224	0.15	0.60	0.21	0.026	0.019	440	pass	pass	275	440	32	pass	pass	pass	4.6	pass
2	11P02636	24	0.375	39	47	1833	112.142	0.15	0.60	0.21	0.026	0.019	440	pass	pass	275	440	32	pass	pass	pass	3.2	pass
3	11P02636	24	0.375	39	24	936	74.304	0.15	0.60	0.21	0.026	0.019	440	pass	pass	275	440	32	pass	pass	pass	2.5	pass
4	11P02636	24	0.375	39	6	234	22.830	0.15	0.60	0.21	0.026	0.019	440	pass	pass	275	440	32	pass	pass	pass	2.0	pass
以下空白																							
6																							
7																							
8																							
9																							
10																							
Total					101	3939	249.500																

兹证明本表所列产品,均依材料规格制造及试验,并符合规格之要求。

The Spiral steel pipes are tested according to API 5L Gr.B and ASTM A139 Gr.B. This is to certify that in accordance with the relevant specifications and contracts.

The Spiral steel pipes manufactured were tested and qualified by our Quality Control Department.

检验员: 尹桂花

INSPECTOR:

许可证号:

LICENCE: 5L-0640

日期 Date: Apr-7-2011

STANDARD CERTIFIED TEST REPORT

SKYLINE STEEL PIPE, LLC

IUKA, MS

Customer

Name

SKYLINE STEEL LLC (MO)
514 EARTH CITY EXPRESSWAY
SUITE 355

Date

5/2/2011

Address

Customer Order #

BM462

City, State

EARTH CITY, MO 63045

Skyline Sale Order #

IUK 2448

Zip

Specification ASTM 139 Grade B DSAW Spiralweld Steel Pipe

"Melted & Manufactured in U.S.A."

HEAT NO.	SIZE/OD	WALL THICKNESS	MIN. HYDRO TEST PRES. PSI	MECHANICAL PROPERTIES			CHEMICAL ANALYSIS (%)			
				Yield Strength KSI Point	Tensile Strength KSI	Elong. In 2" (%)	C	Mn	P	S
S03827	54"	0.375	N/A	52.0	66.0	39.3	0.05	0.98	0.011	0.005
S10931	54"	0.375	N/A	59.9	81.8	31.6	0.22	0.77	0.013	0.002

The undersigned hereby certifies that the above materials have been manufactured, inspected and tested in accordance with the methods prescribed in the applicable specifications and results of such test shown above. In determining properties or characteristics for which no methods of inspection and testing are prescribed by said specifications, the standard mill inspection and testing practices of this Corporation have been applied, unless specified otherwise in the results of such inspection and tests shown above. The undersigned believes that said materials conform to said specifications. *** Manufactured in the U.S.A.***

Subscribed and sworn to before me

This 2nd day of May,


Notary PublicMarty Hall
Skyline Steel Pipe, LLC - MS

10May11 14:47

TEST CERTIFICATE

No: IUK 6200

Sold By:

SKYLINE STEEL PIPE, LLC

5 CR 486

IUKA, MS 38852

Tel: 662-423-2101 Fax: 662-423-2130

F/O No RM497

Rel 92F

S/O No IUK 2458-001

B/L No IUK 10337-001 Shp 09May11

Inv No Inv

Sold To: (1360)

SKYLINE STEEL LLC (MO) PIPE

514 EARTH CITY EXPRESSWAY

SUITE 355

EARTH CITY, MO 63045

Ship To: (000)

ALPHA PIPE

WILL CAL

IUKA MS

**REPLACEMENT FROM IUK2448 /BM492

Tel: 314-266-4649 Fax: 314-739-5616

CERTIFICATE of ANALYSIS and TESTS

Cert. No: IUK 6200

10May11

Part No

54" OD SPIRALWELD PIPE 139 GRADE B Byard

.375 WALL X 40' WAIVE HYDRO

Pcs Wgt

1 8,591

Heat Number

Tag No

S03827

10177AX

Pcs Wgt

1 8,591

Heat Number

*** Chemical Analysis ***

S03827 C=<.05> Mn=<.98> P=<.011> S=<.005> Si=<.210> TEN=<66,000>
YLD=<52,000> ELONG=<39.3>

The undersigned hereby certifies that the above materials have been inspected and tested in accordance with the methods prescribed in the applicable specifications and results of such test shown above. In determining properties of characteristics for which no methods of inspection and testing are prescribed by said specifications the standard mill inspection and testing practices of this company have been applied. Unless specified otherwise in the results of such inspection and tests shown above, the undersigned believes that said materials conform to said specifications.

Melted and Manufactured in the U.S.A.

Mary Hall

Name & Title

Subscribed and sworn to before me

This 9th day of May 2011

Karen Strickland
Notary Public



10May11 14:47

TEST CERTIFICATE

No: IUK 6201

Sold By:

SKYLINE STEEL PIPE, LLC

5 CR 486

IUKA, MS 38852

Tel: 662-423-2101 Fax: 662-423-2130

F/O No BM497

Rel 92P

S/O No IUK 2458-002

B/L No IUK 10337-002 Shp 09May11

Inv No Inv

Sold To: (1360)

SKYLINE STEEL LLC (MO) PIPE

514 EARTH CITY EXPRESSWAY

SUITE 355

EARTH CITY, MO 63045

Ship To: (000)

ALPHA PIPE

WILL CAL

IUKA MS

**REPLACEMENT FROM IUK2448 /BM492

Tel: 314-266-4649 Fax: 314-739-5616

CERTIFICATE of ANALYSIS and TESTS

Cert. No: IUK 6201

10May11

Part No

54" OD SPIRALWELD PIPE 139 GRADE B Byard

.375 WALL X 20' WAIVE HYDRO

Fcs Wgt
1 4,295

Heat Number

Tag No

503827

10177AY

Fcs Wgt
1 4,295

Heat Number

503827

*** Chemical Analysis ***

C=<.05> Mn=<.98> P=<.011> S=<.005> Si=<.210> TEN=<66,000>
YLD=<52,000> ELONG=<39.3>

The undersigned hereby certifies that the above materials have been inspected and tested in accordance with the methods prescribed in the applicable specifications and results of such test shown above. In determining properties of characteristics for which no methods of inspection and testing are prescribed by said specifications the standard mill inspection and testing practices of this company have been applied. Unless specified otherwise in the results of such inspection and tests shown above, the undersigned believes that said materials conform to said specifications.

Melted and Manufactured in the U.S.A.

Mary Hall

Name & Title

Subscribed and sworn to before me

This 9th day of May 2011

Karen Strickland

Notary Public



FPL-005A-231



skylinesteel I

Skyline Steel, LLC
5 County Road 486 - Iuka, MS 38852
Tel (662) 423-2101 Fax (662) 423-2130

Premium
Spiral-Weld
Pipe

No: IUK 10337

Ship Date 09May11 at 12:29 From MFG
Probill
Via AC WRIGHT
FOB SHIPPING PT
Frt COLLECT
Route 0- 0 Manifest
Vhcle Trailer
Slp STOCK
Sold To: (1360)
SKYLINE STEEL LLC (MO) PIPE
514 EARTH CITY EXPRESSWAY
SUITE 355
EARTH CITY, MO 63045

Consigned To: (000)
ALPHA PIPE
WILL CAL
IUKA MS
**REPLACEMNT FROM IUK2448 /BM492
Tel: 314-266-4649 Fax: 314-739-5616

B I L L O F L A D I N G - REPRINT

.) Our Order IUK- 2458- 1 Your PO # BM497
Part # Rel # 92P

4" OD SPIRALWELD PIPE 139 GRADE B Byard
375 WALL X 40' WAIVE HYDRO

Heat Number	Tag No	PCS	Wt LBS
S03827	10177AX	1	8591

.) Our Order IUK- 2458- 2 Your PO # BM497
Part # Rel # 92P

4" OD SPIRALWELD PIPE 139 GRADE B Byard
375 WALL X 20' WAIVE HYDRO

Heat Number	Tag No	PCS	Wt LBS
S03827	10177AY	1	4295

Tags	Pcs	Wt LBS
TOTAL: 2	2	12886

Heat Number *** Chemical Analysis ***
827 C=<.05> Mn=<.98> P=<.011> S=<.005> Si=<.210> TEN=<66,000>
YLD=<52,000> ELONG=<39.3>

UAL 7403

Page: 1 Last

RIGHT CHARGES	<input type="checkbox"/> PREPAID <input checked="" type="checkbox"/> COLLECT	Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement: The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.	C.O.D. AMOUNT: \$
Where the rate is dependent on value, shippers are required to state specifically in writing the agreed declared value of the property. The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____		(Signature of Consignor)	C.O.D. FEE: <input type="checkbox"/> PPD <input type="checkbox"/> COLL \$
			TOTAL CHARGES: \$

DELIVERED, subject to the lawfully filed classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, and destined as indicated above, which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under this contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or said property, that every service to be performed by the carrier shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

PER (Signature of Consignor) CARRIER PER DATE

with "X" to designate Hazardous Material as defined in Title 49 of the Code of Federal Regulations.

FPL-005A-232



Skyline Steel

9550 E. State Hwy. 33

Newton, IL 62448

Ph. 618-783-8323 Fax 618-783-3118

Standard Certified Test Report

Customer Skyline Steel (MO)
Name Brad Mehrhoff
Address 514 Earth City Expressway
City, State Earth City, MO
Zip 63045

Date 11-May-11

Page 1 of 1

Customer Order No. - BM494

Job/Customer Name - Alpha Pipe

Skyline Work Order - 5661

All Steel Melted & Manufactured in the U.S.A.

Specification - A139 Grade B, Using A36

IDENTIFICATION		DIMENSIONS		MECHANICAL PROPERTIES			CHEMICAL ANALYSIS (%)				
PIECE NUMBER	STEEL ID NUMBER	SIZE/OD	WALL THICKNESS	Yield Strength PSI	Tensile Strength PSI	Elong. in 2" (%)	C	MN	P	S	SI
→ 135175	C4738	54"	0.375	50,000	67,200	32.70	0.20	0.850	0.011	0.01	0.04
→ 135176	C4738	54"	0.375	50,000	67,200	32.70	0.20	0.850	0.011	0.01	0.04

The undersigned hereby certifies that the above materials have been manufactured, inspected and tested in accordance with the methods prescribed in the applicable specifications and the results of such inspections and tests are shown above. In determining properties or characteristics for which no methods of inspecting or testing are prescribed by said specifications, the standard mill inspection and testing practices of Skyline Steel have been applied. Unless it appears otherwise in the results of such inspection and tests shown above, the undersigned believes that said materials conform to said specifications.

*Elong. In 8"

Eric Pitts - Quality Control Mgr.



Eric W Pitts
CWI 04111401
QC EXP. 11/1/2013



Skyline Steel

9550 E. State Hwy. 33

Newton, IL 62448

Ph. 618-783-8323 Fax 618-783-3118

Standard Certified Test Report

Customer Skyline Steel (MO)
Name Brad Mehrhoff
Address 514 Earth City Expressway
City, State Earth City, MO
Zip 63045

Date 11-May-11

Page 1 of 2

Customer Order No. - BM494

Job/Customer Name - Alpha Pipe

Skyline Work Order - 5651

All Steel Melted & Manufactured in the U.S.A.

Specification - A139 Grade B, Using A36

IDENTIFICATION		DIMENSIONS		MECHANICAL PROPERTIES			CHEMICAL ANALYSIS (%)				
PIECE NUMBER	STEEL ID NUMBER	SIZE/ OD	WALL THICKNESS	Yield Strength PSI	Tensile Strength PSI	Elong. in 2" (%)	C	MN	P	S	SI
135157	C4707	44"	0.375	51,500	72,300	30.70	0.19	0.440	0.015	0.004	0.04
135158	C4707	44"	0.375	51,500	72,300	30.70	0.19	0.440	0.015	0.004	0.04
135159	C4707	44"	0.375	51,500	72,300	30.70	0.19	0.440	0.015	0.004	0.04
	C4714			51,500	72,300	30.70	0.19	0.440	0.015	0.004	0.04
135160	C4714	44"	0.375	51,500	72,300	30.70	0.19	0.440	0.015	0.004	0.04
135161	C4711	44"	0.375	51,500	72,300	30.70	0.19	0.440	0.015	0.004	0.04
135162	C4711	44"	0.375	51,500	72,300	30.70	0.19	0.440	0.015	0.004	0.04
135163	C4711	44"	0.375	51,500	72,300	30.70	0.19	0.440	0.015	0.004	0.04
135164	C4714	44"	0.375	51,500	72,300	30.70	0.19	0.440	0.015	0.004	0.04
135165	C4714	44"	0.375	51,500	72,300	30.70	0.19	0.440	0.015	0.004	0.04
135166	C4709	44"	0.375	51,500	72,300	30.70	0.19	0.440	0.015	0.004	0.04
	C4715			51,500	72,300	30.70	0.19	0.440	0.015	0.004	0.04
135167	C4715	44"	0.375	51,500	72,300	30.70	0.19	0.440	0.015	0.004	0.04

The undersigned hereby certifies that the above materials have been manufactured, inspected and tested in accordance with the methods prescribed in the applicable specifications and the results of such inspections and tests are shown above. In determining properties or characteristics for which no methods of inspecting or testing are prescribed by said specifications, the standard mill inspection and testing practices of Skyline Steel have been applied. Unless it appears otherwise in the results of such inspection and tests shown above, the undersigned believes that said materials conform to said specifications.

*Elong. In 8"


Eric W Pitts
CWI 04111401
QC1 EXP. 11/1/2013
Eric Pitts - Quality Control Mgr.

沧州乾成钢管股份有限公司

地址 Add: Industrial Zone Yanshan Hebei, China

CangZhou Qiancheng Steel-Pipe Co., Ltd

电话 TEL: 86-317-6320096

May 16, 2011

买方 Buyer:

质 检 证

订单号/合同号 PO/CONTRACT NO.:SFT11-263

交货状态:Deliver status: Hot expanding

Mill Test Report

标准:Standard: ASTM A53 (2002)/ASTM A106 (2007), ASME SA53 (2002)/ASME

货物描述 Description of goods: Newly produced prime quality seamless steel pipes

SA 106 (2004), Gr. B, NACE MR01-75 section 3.1 - 3.2.2.1 (2002), API 5L(2007) PSL1 B

序号 NO	批号 LOTS NO	炉号 Heat NO	规格 specification			制造 方法 Making method	熔炼号 Smelting NO	支数 (PCS)	重量 (MT)	拉伸试验 Tensile test			
			规格 SIZE (inch)	壁厚 W.T (inch)	长度 Length (FT)					外径 O. D. (mm)	标 距 长 度 gauge length (mm)	屈服强度 Y.S. PSI	延伸率 E.L%
1	2144	803534	24"	0.500"	21FT	Solid	803534	17	20.342	609.6	50	36975	35
2	2001	800246	24"	0.375"	Min33FT	Solid	800246	41	60.477	609.6	50	37700	35

TOTAL

58

80.819

序号 NO	抗拉强度 T.S PSI	冲击实验		硬度试验		化学成份 chemical composition									
		Impact Test		Hardness Test											
		横向冲击 Transverse	纵向冲击 longitudinal	硬度值 hardness value	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	AL	V
1	70325	Good	Good	Max22	0.200	0.240	0.520	0.015	0.012	0.030	0.040	0.010	0.060	0.007	0.001
2	71775	Good	Good	Max22	0.220	0.260	0.510	0.009	0.008	0.050	0.090	0.010	0.120	0.003	0.001
压扁 Flatte ning	冷弯 Cold Bending	扩口 Expansion	超声检测 U.T.	涡流检验 E.T.	表面&尺寸 Visual& Dimensions	水压 Hydro Test Pressure	1	935	PSI minimum 10 seconds						
							2	735	PSI minimum 10 seconds						
Good	/	Good	Good	Good	Good										

备注: Remark: We here certify that the elongation tests were taken on around 50mm test strip longitudinally. We herewith confirm that the products covered by this mill test report are free from mercury and lead. We confirm that pipes covered by this report are manufactured, tested and inspected in accordance with the applications and specifications

负责人/Manager:

检验员/Inspector:

FPL-005A-235



CangZhou Qiancheng Steel-Pipe Co., Ltd

Add Industrial Areas Yanshan Courty HeBei Province, China



License Number: 5L-0666

质量证明书 MILL CERTIFICATES

买方 Buyer: Layne Christensen Company

订单号/ PO No: 88567

货物描述 Description of goods: Seamless Steel Pipe

商检编号: 1306CQ103038

标准: Standard: API 5LGR.B

序号 NO	批号 Batch NO.	炉号 Heat NO	规格 specification			制造方法 Making method	钢级 Steel grade	支数 Quantity (pcs)	米数 Quantity (ft)	重量 Weight (mt)	拉伸试验 Tensile test		
			外径 Diameter (inch)	壁厚 Thickness (inch)	长度 Length (ft)						抗拉强度 T.S. Mpa	屈服强度 Y.S. MPa	延伸率 E.L.%
1	3521	890802	16	0.5	39.2	Hot rolling	B	36	1411.2	52	500	310	33
2	3526	896076	24	0.5	34.55	Hot rolling	B	84	2902.2	165	485	325	34
TOTAL								120	4313.4	217			

序号 NO.	冲击实验		化学成份 chemical composition																				
	横向冲击 AK Transverse	纵向冲击 AK longitudinal	C	Si	Mn	P	S	Cr	Ni	Cu	Mo	V	Ti	B	Nb								
1	/	/	0.19	0.23	0.65	0.018	0.015	0.018	0.010	0.004	0.002	0.006	0.007	/	/								
2	/	/	0.21	0.22	0.66	0.017	0.014	0.019	0.010	0.004	0.001	0.005	0.008	/	/								
冷弯 Cold bending	压扁 Flattening	超声检测 U.T.	涡流检验 Eddy Current	表面 尺寸 Dimensional	水压 Hydro test (MPa)	1	Passed	15.3MPa minimum 10seconds															
						1	Passed									11.3MPa minimum 10seconds							
/	QUALIFIED	QUALIFIED	/	QUALIFIED	GOOD																		
/	QUALIFIED	QUALIFIED	/	QUALIFIED	GOOD																		

杭州杭钢钢管有限公司

产品质量证明章

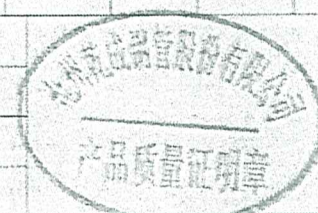
主管/ Governor:

负责人/ Official:

检验员/ Testers: 陈佳

发货员/ Consignor Reporter: 付淑华

日期/ Date: 2011-5-11



RED BOX 1250

FIBERGLASS TUBING, CASING, AND LINERS
AROMATIC AMINE CURED EPOXY RESIN

DIMENSIONAL SPECIFICATIONS

June, 2010

Nominal Size (inches)	Nominal I.D. (inches)	Minimum Drift Dia (inches)	Nominal O.D. (inches)	Nominal Wall (inches)	Pin Upset O.D. (inches)	Max Box OD* (inches)	Nominal Weight		Connection Type API 5B, Table 14*, 7**, 6*** Fourteenth Edition August 96
							(lbs/ft)	(lbs/ft)	
2-3/8	2.00	1.91	2.21	0.10	2.69	3.43	0.7	21	2-3/8" 8Rd EUE Long*IJ
2-7/8	2.47	2.37	2.73	0.13	3.19	3.93	1.0	31	2-7/8" 8Rd EUE Long*IJ
3-1/2	3.00	2.90	3.30	0.15	3.85	4.82	1.5	45	3-1/2" 8Rd EUE Long*IJ
4	3.33	3.24	3.68	0.17	4.35	4.94	2.0	61	4" 8Rd EUE Long* TC
4-1/2	3.98	3.89	4.40	0.21	4.85	5.75	2.6	77	4-1/2" 8Rd EUE Long*IJ
5-1/2	4.42	4.33	4.87	0.23	5.60	7.20	3.4	102	5-1/2" 8Rd Csg Long**IJ
6-5/8	5.43	5.33	5.97	0.27	6.73	8.51	5.1	152	6-5/8" 8Rd Csg Long**IJ
7	6.21	6.11	6.83	0.31	7.10	8.61	6.0	181	7" 8Rd Csg Long**IJ
7-5/8	6.21	6.11	6.83	0.31	7.73	10.03	6.8	205	7-5/8" 8Rd Csg Long**IJ
9-5/8	7.84	7.75	8.63	0.40	9.73	12.66	11.1	332	9-5/8" 8Rd Csg*** IJ
10-3/4	8.85	8.76	9.76	0.45	10.85	13.98	14.1	422	10-3/4" 8Rd Csg***IJ
11-3/4	10.72	10.62	11.70	0.49	11.93	14.00	16.9	507	11-3/4" 8/6Rd Csg***TC
13-3/8	11.97	11.87	13.06	0.55	13.65	15.15	21.8	653	13-3/8" 8/6Rd Csg***TC
16	14.48	14.39	15.80	0.66	16.33	18.52	31.7	950	16" 6Rd Csg TC
18	16.60	16.50	18.11	0.76	18.84	22.00	45.1	1,352	18" 6Rd Csg TC
20	17.98	17.89	19.62	0.82	20.20	23.50	51.1	1,532	20" 6Rd Csg TC
24	23.78	23.69	25.96	1.09	26.69	33.20	98.0	2,939	24" 4Rd Csg L TC
30	29.53	29.43	32.23	1.35	33.00	43.00	162.3	4,869	30" 4Rd Csg L TC

*Depending on the application, smaller maximum box diameters are available.

Thread lengths may exceed API L4

PERFORMANCE AND RATINGS (-60 deg F to +210 deg F **)

30 ft Standard Joint Length

Nominal Size	Internal Pressure Rating (psi)	Mill Test Pressure (psi)	Collapse Rating (psi)	Axial Tension Rating (lbs)	Stretch vs Tension-Over-Pipe-Wt Stretch (ft) = Coeff. x P x L
2-3/8	1,250	1,570	640	10,500	0.467
2-7/8	1,250	1,570	670	16,000	0.295
3-1/2	1,250	1,570	600	22,500	0.221
4	1,250	1,570	640	29,000	0.169
4-1/2	1,250	1,570	640	41,000	0.118
5-1/2	1,250	1,570	600	49,500	0.101
6-5/8	1,250	1,570	590	72,500	0.069
7	1,250	1,570	590	76,500	0.052
7-5/8	1,250	1,570	590	86,500	0.052
9-5/8	1,250	1,570	580	140,500	0.033
10-3/4	1,250	1,570	600	161,500	0.025
11-3/4	1,250	1,570	450	147,000	0.029
13-3/8	1,250	1,570	450	189,500	0.023
16	1,250	1,570	450	217,500	0.016
18	1,250	1,570	450	336,500	0.012
20	1,250	1,570	450	362,000	0.010
24	1,250	1,570	450	683,000	0.006
30	1,250	1,570	450	1,019,500	0.004

Where: P = Tensile Load (1,000 lbs)

L = String Length (1,000 ft)

MECHANICAL & PHYSICAL PROPERTIES

TUBING/CASING BODY PROPERTIES	UNIT	VALUE		TEST METHOD
		2-3/8 - 10-3/4	11-3/4 - 20	
Tensile Strength, Hoop	psi	31,300	31,300	ASTM D1599
Tensile Strength, Axial	psi	30,000	20,000	ASTM D2105
Modulus of Elasticity, Axial	10E+06 psi	3.0	2.0	ASTM D2105
Specific Gravity	---	1.9	1.9	ASTM D792
Density	lbs/in ³	0.07	0.07	ASTM D792
Thermal Conductivity	Btu/hr/ft ² /in/degF	2.4	2.4	ASTM C177
Thermal Expansion Coefficient (Linear)	10E-05in/in/degF	1.1	1.2	ASTM D696
Flow Factor	---	150	150	Hazen Williams

Appendix I
Baracor 100 Material
Safety Data Sheet

MATERIAL SAFETY DATA SHEET

Product Trade Name: **BARACOR™ 100**

Revision Date: 02-Jan-2007

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: BARACOR™ 100
Synonyms: None
Chemical Family: Blend
Application: Corrosion Inhibitor
Manufacturer/Supplier: Baroid Drilling Fluids
a Product Service Line of Halliburton Energy Services, Inc.
P.O. Box 1675
Houston, TX 77251
Telephone: (281) 871-4000
Emergency Telephone: (281) 575-5000
Prepared By: Chemical Compliance
Telephone: 1-580-251-4335

2. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE	CAS Number	PERCENT	ACGIH TLV-TWA	OSHA PEL-TWA
Nitrilotriacetic acid, trisodium salt monohydrate	5064-31-3	1 - 5%	Not applicable	Not applicable
Methanol	67-56-1	10 - 30%	200 ppm	200 ppm (S)

3. HAZARDS IDENTIFICATION

Hazard Overview May cause eye, skin, and respiratory irritation. May cause headache, dizziness, and other central nervous system effects. May be fatal if swallowed. May cause blindness. May be absorbed through the skin. Repeated overexposure may cause liver and kidney effects. Flammable.

4. FIRST AID MEASURES

Inhalation If inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult give oxygen. Get medical attention.

Skin In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Get medical attention. Remove contaminated clothing and launder before reuse.

Eyes In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.

Ingestion	If swallowed, induce vomiting immediately by giving two glasses of water and sticking fingers down throat; never give anything to an unconscious person. Get medical attention.
-----------	---

Notes to Physician	Not Applicable
--------------------	----------------

5. FIRE FIGHTING MEASURES

Flash Point/Range (F):	92
Flash Point/Range (C):	33
Flash Point Method:	PMCC
Autoignition Temperature (F):	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower (%):	6
Flammability Limits in Air - Upper (%):	36

Fire Extinguishing Media	Water fog, carbon dioxide, foam, dry chemical.
--------------------------	--

Special Exposure Hazards	May be ignited by heat, sparks or flames. Use water spray to cool fire exposed surfaces. Closed containers may explode in fire. Decomposition in fire may produce toxic gases. Runoff to sewer may cause fire or explosion hazard.
--------------------------	--

Special Protective Equipment for Fire-Fighters	Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.
--	--

NFPA Ratings:	Health 2, Flammability 3, Reactivity 0
HMIS Ratings:	Flammability 3, Reactivity 0, Health 2

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures	Use appropriate protective equipment. Wear self-contained breathing apparatus in enclosed areas.
---------------------------------	--

Environmental Precautionary Measures	Prevent from entering sewers, waterways, or low areas.
--------------------------------------	--

Procedure for Cleaning / Absorption	Isolate spill and stop leak where safe. Remove ignition sources and work with non-sparking tools. Contain spill with sand or other inert materials. Scoop up and remove.
-------------------------------------	--

7. HANDLING AND STORAGE

Handling Precautions	Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Wash hands after use. Launder contaminated clothing before reuse. Ground and bond containers when transferring from one container to another.
----------------------	---

Storage Information	Store away from oxidizers. Keep from heat, sparks, and open flames. Keep container closed when not in use. Product has a shelf life of 24 months.
---------------------	---

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls	Use in a well ventilated area. Local exhaust ventilation should be used in areas without good cross ventilation.
----------------------	--

Respiratory Protection	Positive pressure self-contained breathing apparatus if methanol is released.
------------------------	---

Hand Protection	Impervious rubber gloves.
-----------------	---------------------------

Skin Protection	Rubber apron.
-----------------	---------------

Eye Protection Chemical goggles; also wear a face shield if splashing hazard exists.

Other Precautions Eyewash fountains and safety showers must be easily accessible.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Color:	Brown
Odor:	Alcohol
pH:	9-11
Specific Gravity @ 20 C (Water=1):	1.01
Density @ 20 C (lbs./gallon):	8.4
Bulk Density @ 20 C (lbs/ft3):	Not Determined
Boiling Point/Range (F):	212
Boiling Point/Range (C):	100
Freezing Point/Range (F):	-9
Freezing Point/Range (C):	-23
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	> 1
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	1.6
Solubility in Water (g/100ml):	Soluble
Solubility in Solvents (g/100ml):	Not Determined
VOCs (lbs./gallon):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	35
Viscosity, Kinematic @ 20 C (centistrokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	-0.84 (OECD117)
Molecular Weight (g/mole):	Not Determined

10. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	Keep away from heat, sparks and flame.
Incompatibility (Materials to Avoid)	Strong oxidizers.
Hazardous Decomposition Products	Ammonia. Oxides of nitrogen. Carbon monoxide and carbon dioxide.
Additional Guidelines	Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	May cause respiratory irritation. May cause central nervous system depression including headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.
Skin Contact	May cause skin irritation. May be absorbed through the skin and produce effects similar to those caused by inhalation and/or ingestion.
Eye Contact	Causes severe eye irritation May cause eye burns.

Ingestion	May be fatal or cause blindness if swallowed. May produce nervous system effects such as feeling of weakness, unsteady walk, and dilation of blood vessels.
Aggravated Medical Conditions	Skin disorders. Eye ailments.
Chronic Effects/Carcinogenicity	Prolonged or repeated exposure may cause eye, blood, lung, liver, kidney, heart, central nervous system and spleen damage.
Other Information	None known.
Toxicity Tests	
Oral Toxicity:	LD50: 3500 mg/kg (Rat)
Dermal Toxicity:	LD50: > 3000 mg/kg (Rabbit)
Inhalation Toxicity:	Not determined
Primary Irritation Effect:	Not determined
Carcinogenicity	Not determined
Genotoxicity:	Not determined
Reproductive / Developmental Toxicity:	Not determined

12. ECOLOGICAL INFORMATION

Mobility (Water/Soil/Air)	Not determined
Persistence/Degradability	BOD(28 Day): 10% of COD
Bio-accumulation	Not Determined

Ecotoxicological Information

Acute Fish Toxicity:	Not determined
Acute Crustaceans Toxicity:	TLM48: 402.5 mg/l (Daphnia magna)
Acute Algae Toxicity:	Not determined
Chemical Fate Information	Not determined
Other Information	Not applicable

13. DISPOSAL CONSIDERATIONS

Disposal Method	Disposal should be made in accordance with federal, state, and local regulations.
Contaminated Packaging	Follow all applicable national or local regulations.

14. TRANSPORT INFORMATION

Land Transportation

DOT

Flammable Liquid, N.O.S., 3, UN1993, III, (33.3 C)
(Contains Methanol)
NAERG 128

Canadian TDG

Flammable Liquid, N.O.S.(Contains Methanol), 3, UN1993, III, (33.3 C)

ADR

UN1993,Flammable Liquid, N.O.S.(Contains Methanol), 3, III

Air Transportation**ICAO/IATA**

UN1993,Flammable Liquid, N.O.S., 3, III
(Contains Methanol Solution)

Sea Transportation**IMDG**

UN1993,Flammable Liquid, N.O.S.(Contains Methanol), 3, III, (33.3 C)
EmS F-E, S-E

Other Shipping Information

Labels: Flammable Liquid

15. REGULATORY INFORMATION**US Regulations**

US TSCA Inventory All components listed on inventory.

EPA SARA Title III Extremely Hazardous Substances Not applicable

EPA SARA (311,312) Hazard Class Acute Health Hazard
Chronic Health Hazard
Fire Hazard

EPA SARA (313) Chemicals This product contains toxic chemical(s) listed below which is(are) subject to the reporting requirements of Section 313 of Title III of SARA and 40 CFR Part 372:
Methanol//67-56-1

EPA CERCLA/Superfund Reportable Spill Quantity For This Product EPA Reportable Spill Quantity is 2380 Gallons based on Methanol (CAS: 67-56-1).

EPA RCRA Hazardous Waste Classification If product becomes a waste, it does meet the criteria of a hazardous waste as defined by the US EPA, because of:

Ignitability D001

California Proposition 65 The California Proposition 65 regulations apply to this product.

MA Right-to-Know Law One or more components listed.

NJ Right-to-Know Law One or more components listed.

PA Right-to-Know Law One or more components listed.

Canadian Regulations

Canadian DSL Inventory	All components listed on inventory.
WHMIS Hazard Class	B2 Flammable Liquids D1A Very Toxic Materials D2A Very Toxic Materials D2B Toxic Materials

16. OTHER INFORMATION

The following sections have been revised since the last issue of this MSDS

Not applicable

Additional Information For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

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*****END OF MSDS*****