



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.

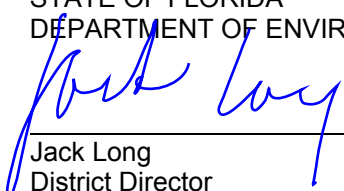
FINAL PERMIT

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

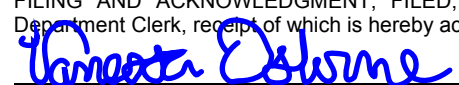
George Heuler, FDEP/TLH
Joe May, UIC
Mike Halpin, FDEP/SCO

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

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

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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- $\frac{5}{8}$ 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