



**Florida Fish
and Wildlife
Conservation
Commission**

Commissioners

Rodney Barreto
Chair
Miami

Kathy Barco
Vice-Chair
Jacksonville

Ronald M. Bergeron
Fort Lauderdale

Richard A. Corbett
Tampa

Dwight Stephenson
Delray Beach

Kenneth W. Wright
Winter Park

Brian S. Yablonski
Tallahassee

Executive Staff

Kenneth D. Haddad
Executive Director

Nick Wiley
Assistant Executive
Director

Karen Ventimiglia
Deputy Chief of Staff

**Office of Planning and
Policy Coordination**
Nancy Linehan
Director

(850) 487-3794
(850) 410-5265 FAX
(850) 410-5272
(850) 922-5679 FAX

*Managing fish and wildlife
resources for their long
term well-being and the
benefit of people.*

620 South Meridian Street
Tallahassee, Florida
32399-1600
Voice: (850) 488-4676

Hearing/speech impaired:
(800) 955-8771 (T)
(800) 955-8770 (V)

MyFWC.com

August 26, 2009

Mr. Mike Halpin, P.E.
Siting Administrator
Department of Environmental Protection
2600 Blair Stone Road, Mail Stop 48
Tallahassee, FL 32399-2400

Re: FPL Riviera Beach Energy Center Project, Palm Beach County

Dear Mr. Halpin:

The Division of Habitat and Species Conservation, Imperiled Species Management Section, of the Florida Fish and Wildlife Conservation Commission (FWC) has coordinated agency review of the referenced application for site certification in accordance with the Florida Electrical Power Plant Siting Act, Sections 403.52- 403.501, Florida Statutes.

The existing Florida Power and Light (FPL) Riviera Beach Plant consists of two nominal 300-megawatt conventional dual-fuel fired steam boilers that will be converted into a modern, highly efficient, lower-emission next generation energy center. The project would use existing plant site boundaries, cooling water intake and discharge infrastructure, and transmission right-of-way. Construction parking and laydown would be staged on FPL-owned land. The existing FPL Riviera Beach Plant property is located on approximately 46 acres of flat, sandy area located mostly within the City of Riviera Beach, but with a small portion of the property located in the City of West Palm Beach in Palm Beach County, Florida. The site is transected by U.S. Highway 1, leaving 7 acres containing the transmission lines on the west side of the highway and 39 acres that are bounded on the west by U.S. Highway 1 and on the east by Lake Worth Lagoon. Both properties are immediately south of the Port of Palm Beach and north of 58th Street. The property is located in portions of Sections 33 and 34, Township 42 South, Range 43 East and portions of Sections 3 and 4, Township 43 South, Range 43 East. In addition, FPL maintains a 5.4 acre sovereignty submerge lands lease from Florida Department of Environmental Protection for the existing once-through cooling water discharge pipeline.

Due to the dependence of numerous manatees on the warm-water habitat provided by the RBEC, we are recommending permit conditions addressing the interim heating system and the temporary warm-water refuge. In addition, we are also recommending that FPL provide for monitoring of environmental and biological indicators that will play a substantial role in determining the status of the interim heating system during the conversion. These monitoring conditions will assist FWC's efforts to monitor the health status of manatees and provide an early warning system for cold stress complications and contingency planning to mitigate the potential loss of significant numbers of manatees if there is a failure in the interim warm-water heating system.

Please refer to the staff report and three attachments enclosed with this letter for more detail regarding the USFWS' position and our agency's recommendations to minimize impacts to the manatee. In their letter to FPL dated June 24, 2008 (attachment A), the USFWS raised concerns and provided their expectations that no "take" of manatees occur

during the plant's conversion. We believe that the recommendations in our report support the USFWS letter and significantly lower the risk of manatee loss due to cold stress during the plant's conversion. We recommend approval of the application if the applicant is to follow the attached agency conditions.

We look forward to working with FPL regarding protection measures, mitigation options, and habitat management for the proposed Riviera Beach Energy Center Project. If you or your staff would like to coordinate further on the issues contained in this report, please contact me at 850-410-5272, or email me at maryann.poole@MyFWC.com, and I will be glad to help make the necessary arrangements. If your staff has any specific questions regarding our comments, I encourage them to contact Carol Knox or Ron Mezich at (850) 922-4330 or by email at Carol.Knox@myfwc.com or Ron.Mezich@myfwc.com.

Sincerely,



Mary Ann Poole
Commenting Program Administrator

map/rm
ENV 2-11-3/3
Riviera Beach Energy Center_2129_082609_coverltr
Enclosures

cc: Cindy Mulkey, DEP, Tallahassee
Emily Norton, FWC, Tallahassee

FWC STAFF REPORT FOR FLORIDA POWER AND LIGHT COMPANY – RIVIERA BEACH ENERGY CENTER (RBEC)

Prepared by Carol Knox and Ron Mezich, Fish and Wildlife Biologists, August 26, 2009

This report summarizes the fish and wildlife resources that could be affected by changes to the existing power plant. It includes general recommendations for addressing these issues during the development. If you have any questions regarding the information in this report, please do not hesitate to contact Carol Knox or Ron Mezich at phone (850) 922-4330 or email at Carol.Knox@myfwc.com or Ron.Mezich@myfwc.com.

PROJECT DESCRIPTION

The existing Florida Power and Light (FPL) Riviera Beach Plant consists of two nominal 300-megawatt conventional dual-fuel fired steam boilers that will be converted into a “modern, highly efficient, lower-emission next-generation energy center” (p. 1-1 of volume 1 of the application submittal). The project will use existing plant site boundaries, cooling water intake and discharge infrastructure, and transmission right-of-way. During the plant conversion an interim warm-water heating system will be used to maintain a warm-water refuge, at its current location, for the Florida manatees that have been using this site for decades. Construction parking and laydown will be staged on FPL-owned land adjacent to the existing Riviera Beach Plant. The existing FPL Riviera Beach Plant property is located on approximately 46 acres of flat, sandy soils located mostly within the City of Riviera Beach, but with a small portion of the property located in the City of West Palm Beach in Palm Beach County, Florida. The site is transected by U.S. Highway 1, leaving 7 acres containing the transmission lines on the west side of the highway and 39 acres that are bounded on the west by U.S. Highway 1 and on the east by Lake Worth Lagoon. Both properties are immediately south of the Port of Palm Beach and north of 58th Street. The property is located in portions of Sections 33 and 34, Township 42 South, Range 43 East and portions of Sections 3 and 4, Township 43 South, Range 43 East. In addition, FPL maintains a 5.4-acre sovereignty submerge lands lease from Florida Department of Environmental Protection (DEP) for the existing once-through cooling water discharge pipeline.

POTENTIALLY AFFECTED RESOURCES

Terrestrial wildlife

This RBEC proposal does not require any permanent increase of the footprints of the associated facilities. The proposed location for these activities contains flat, sandy soils in a mostly urban area. There are several species on the State’s threatened list that occur near this area including the gopher tortoise, Florida scrub-jay, and the eastern indigo snake. The attached survey conditions will address our concerns in regards to those species if they are determined to be present.

West Indian manatee

The manatee is listed by both the State and the U.S. Fish and Wildlife Service (USFWS) as Endangered, and its use of the area surrounding the RBEC is well documented by aerial survey, mortality, and satellite telemetry data. The project site is characterized as a primary warm-water manatee refuge due to the presence of a warm-water effluent from power plant operations.

Between January 1974 and March 2009, 21 manatees have died from watercraft-related causes within a five-mile radius of the project location. In addition to the watercraft-related deaths, there have also been 3 human-other, 2 perinatal, 8 cold-stress, 12 natural (other), and 13 undetermined manatee deaths within the same radius.

Historically speaking, the majority of manatees on the east coast of Florida are believed to have been limited in their distribution during cold winters to the warmer sub-tropical waters south of the St. Sebastian River (Moore 1951). Because of their limited ability to conserve heat, manatees cannot survive exposure to water temperatures below approximately 68° F (20°C) for extended periods of time (Marine Mammal Commission 1988). In north and central Florida, water temperatures in winter periodically drop below 68° F. During these periods, manatees seek out warm-water sources and migrate to southern Florida. The power plants and other industries that discharge large volumes of warm water into Florida's coastal bays and estuaries provide manatees with warm-water refugia (Campbell and Irvine 1981, O'Shea et al. 1985).

The winter distribution of manatees in Palm Beach County is heavily influenced by the presence of the FPL Riviera Beach Power Plant. Winter aerial surveys have documented as many as 479 manatees during a single flight at the Riviera Beach Power Plant (Reynolds 2004). Aside from providing thermal refugia, the plant is situated near extensive foraging habitat within north Lake Worth Lagoon. Manatees will often move from thermal refugia during mild winter periods to nearby seagrass beds to feed (Deutsch et al. 2003). This occurs in Palm Beach County, where large numbers of manatees have been observed during synoptic surveys utilizing seagrass habitat close to the FPL facility. Other areas of the County may also be used during opportunistic foraging excursions. Manatees were relatively abundant within Jupiter Sound, approximately 20 km (12.5 mi) north of the FPL facility. Packard (1981) suggested that some manatees utilizing the power plant discharge may forage within this area during periods of mild weather.

Manatees will often use other minor sites as temporary thermal refugia during the winter (USFWS 2001). These secondary sites are typically deep canals or boat basins where warm water temperatures persist due to thermoclines or other physical conditions. Minor winter aggregations of manatees (at least four animals) occurred on a recurrent basis (at least three years) in three areas of Palm Beach County:

- Jupiter Sound finger canal
- C-18 Canal near Spillway S-46 (Southwest Fork of Loxahatchee River) and
- South Lake, a small dredged basin connected to the Earman River (C-17 Canal)

The conversion of the RBEC would result in the temporary discontinuation of the existing thermal discharge and manatee warm-water refuge; however, the construction of an interim heating system would allow for continuation of a warm-water refuge at its existing location. Due to the dependence of numerous manatees on the warm-water habitat provided by the RBEC, permit conditions addressing the interim heating system, that will be used to maintain the warm-water refuge are being recommended. In addition, the Florida Fish and Wildlife Conservation Commission (FWC) also recommends that FPL provide for monitoring of environmental and biological indicators that will play a substantial role in determining the status of the interim heating system during the conversion. These monitoring conditions will assist FWC's efforts to

monitor the health status of manatees and provide an early warning system for cold stress complications and contingency planning to help mitigate the potential loss of significant numbers of manatees if there is a failure in the interim warm-water heating system.

Conclusion - Manatees

Florida manatees have used the Riviera Beach plant's thermal discharge during the winter months for decades. The thermal discharge from this plant has been consistent and reliable, thereby allowing manatees to become dependent on it. At the time the Manatee Power Plant Protection Plan (MPPPP) was developed for this plant, the FWC, USFWS, and FPL agreed upon a 61°F ambient water trigger temperature based on a negotiation of several factors. This trigger temperature requires the plant to operate at least one unit to create a warm-water refuge for manatees during the winter months when ambient water temperatures reach the trigger temperature. The ambient water temperature that was selected was based on several criteria: 1) Base Load Operation, with the Riviera Beach Plant operating as a base load unit (running consistently and creating a dependable warm-water refuge); 2) economics (potential costs to FPL); and 3) manatee biology (how often and how long would manatees be subjected to temperatures between 68°F and 61°F). Two of these three factors have recently changed and will change even further during the conversion process. The warm water discharge at the Riviera Beach Plant has been less consistent in recent years, and the interim refuge may be even less dependable for manatees if operated at a 61° F trigger temperature. The reduced dependability of the warm-water refuge may increase the frequency of exposure of manatees to cold water and escalate the risk of disease and death due to cold stress since the proposed interim heating system has not been implemented previously.

The USFWS advised the licensee in August 2008 that take of manatees is not authorized during the proposed plant conversion at the RBEC (see Attachment A). As a result FWC has attempted to develop appropriate measures and conditions to prevent take of manatees during reconstruction of the plant, which includes the interim refuge. We have worked as closely as possible with the licensee to develop these conditions.

RECOMMENDATIONS

We recommend the following Conditions of Certification:

A. *West Indian Manatee*

1. Interim Warm-Water Refuge Heating System

- a. The current trigger temperature identified in the Manatee Protection Plan under the Riviera Beach power plant's National Pollutant Discharge Elimination System permit is 61°F. In order to prevent an increased risk of manatee cold stress death during the RBEC conversion construction period, adaptive management protocols for the interim warm-water refuge heating system shall include the following:

- (1) Testing, monitoring, and evaluation of the interim heating system shall take place pursuant to the permit conditions found in the Environmental and Biological Monitoring sections 2 and 3.
- (2) The trigger temperature shall be set at 65° F, during the period that the interim heating system is required. The interim heating system shall be designed such that when ambient water temperatures are below 65° F, as indicated from a selected ambient water temperature station (as agreed to in the Environmental Monitoring Plan), the interim heating system will provide a water temperature at or above 68° F, within the identified warm-water refuge until such time as the ambient water temperature reaches 65° F. The interim heating system shall be maintained and operated to achieve this result, in accordance with best management practices (BMP) established by Licensee, unless otherwise authorized by FWC and USFWS, or unless the safety or reliability of the electric power system would be compromised. Licensee shall develop a BMP manual for the interim heating system that shall include the following components:
 - i. operation and maintenance procedures for the interim heating system;
 - ii. requirement for a log demonstrating that the recommended operating and maintenance procedures and checks are performed;
 - iii. a spare parts list including the location of the spares;
 - iv. a list of qualified operators and repair persons and their contact information;
 - v. a trouble shooting flowchart and repair personnel call out plan;
 - vi. an incident log to track the status of troubleshooting and repair activities until the system is operable;
 - vii. notification requirements to agencies.
- (3) Licensee shall submit its BMP manual to FWC for review and comment by August 15 of the year when the RBEC conversion commences, which is expected to be 2011. Licensee will review, consider, and incorporate if practicable, comments from FWC that are received by September 15 of that year. A copy of the Licensee's BMP manual for the interim heating system shall be maintained at all times at the RBEC site and shall be made available upon request to authorized representatives of FWC and DEP.
- (4) If through the biological monitoring or daily visual assessments of manatee health, or scientific data it is indicated, that the 65°F interim heating system trigger temperature should be; raised or lowered to maintain a sufficient warm-water refuge, then FWC will consult with DEP, USFWS, and FPL to assess the information and develop a new strategy that can be agreed upon by all four parties. Such a new agreed upon strategy would be proposed by FWC in a DEP initiated modification to certification.

- (5) The interim warm-water refuge is described as the area located within the current warm-water refuge created by a portion of the plant's thermal discharge (see attachment B and C).
- (6) The Licensee may request modification of applicable FWC conditions upon issuance by the Department of Environmental Protection, in consultation with the FWC, of Final NPDES permit modification FL0001546 if such requested modifications to the conditions herein have been adopted into the Final NPDES permit.
- (7) Licensee shall provide written notification of the commencement of conversion to DEP and the FWC as soon as possible, but no later than June 15 of the year when the RBEC conversion commences, which is expected to be 2011.

[Sections 403.507 and 403.509, F.S.; Section 379.1025 F.S., Section 379.2291 F.S., Section 379.2431 (2) F.S., Section 20.331 F.S., Section 253.75 F.S., Rules 68A-27 Florida Administrative Code.]

2. Environmental Monitoring

- a. The following monitoring requirements are applicable to the operation of the interim heating system during the conversion of the Riviera Beach Energy Center (RBEC):
 - (1) Evaluation of the interim heating system shall be conducted at RBEC during the winter months (November 15 through March 31) of 2009-2010. The evaluation of the interim heating system is intended to determine its ability to provide a sufficient manatee warm-water refuge (as described in Interim Heating System and Environmental Monitoring conditions V., A., 1. and 2. and the Licensee's Thermal Modeling Study) during the winter months shall take place prior to dismantlement of the current warm-water discharge. Evaluation of the system shall include empirical temperature data that will be collected and compared to the thermal modeling results to evaluate the performance of the interim heating system and the accuracy of the thermal model during cold fronts and varying tidal and wind conditions.
 - i. By June 1, 2010, the initial monitoring tests of the interim warm-water heating system will have been conducted at the Riviera Beach power plant, the Licensee will contact DEP and FWC to provide and discuss the results. At that time, FWC, in consultation with the DEP and USFWS, and the Licensee, will determine what, if any, modifications need to be made to the operation of the interim heating systems and FWC will request that DEP initiate a modification to certification if necessary.
 - (2) By June 15 of the year when the RBEC conversion commences, which is expected to be 2011, the Licensee (Florida Power & Light Company) shall submit to the FWC, Florida Department of Environmental Protection (DEP)

Siting Office, and the USFWS an Environmental Monitoring Plan. The Environmental Monitoring Plan shall include, at a minimum, the following components:

- i. Monitoring of the interim heating system and warm-water refuge during the conversion process (as described in Interim Heating System and Environmental Monitoring conditions V., A., 1. and 2. and the Licensee's Thermal Modeling Study) shall take place during the winter months (November 15 through March 31).
 - ii. Monitoring of the RBEC's interim warm-water refuge during the conversion shall consist of ambient air and water temperatures measured at multiple locations within the interim warm-water refuge. The number and configuration of temperature monitoring stations must be sufficient to provide a three-dimensional view, over time, of the thermal plume.
 - iii. Temperature monitoring stations will be deployed during the conversion phase in the interim refuge. As part of this Environmental Monitoring Plan as described in this Section 2., the Licensee shall include a plan to convey the data from the temperature monitoring stations to the appropriate agencies on a daily basis when the trigger is on and the heaters are running and on a weekly basis when the ambient temperature is greater than 65 degrees.
 - iv. Specific locations for the temperature monitoring station(s), sampling frequencies, station depths data collection methods, and reporting frequencies must be identified and may be subject to further revision depending on receipt of any required permits, licenses and approvals.
 - vi. The Environmental Monitoring Plan, including the proposed monitoring locations, shall be approved prior to implementation. FWC, in consultation with the DEP and USFWS, shall indicate its approval or disapproval of the submitted plan within 90 days of the originally submitted information. In the event that additional information from the licensee is necessary to complete and approve the Plan, FWC, in consultation with the DEP and USFWS, shall make a written request to the licensee for additional information no later than 30 days after receipt of the submitted information. A final plan shall be in place by September 1 of the year when the RBEC conversion commences, which is expected to be 2011.
- (3) The Licensee will prepare an environmental monitoring report that includes all data (made available in electronic form) and statistical analyses collected as a result of the environmental monitoring requirements. This report will be submitted yearly, by August 1 of each year, while the interim warm-water system is in operation during the construction period of the RBEC. Within 180 days of the submittal of the final yearly environmental monitoring report, a summary report of all environmental monitoring shall be completed and submitted to the FWC and DEP Siting Office for review.

- (4) If, in the review of the annual environmental monitoring reports, FWC, in consultation with the DEP and USFWS, determines the need to modify the Environmental Monitoring Plan, FWC will notify the Licensee to discuss the findings. At that time, FWC, in consultation with the DEP and USFWS and the Licensee, will determine what, if any, modifications need to be made to the Environmental Monitoring Plan and FWC will request that DEP initiate modifications to certification if necessary.
- (5) If the Licensee determines the Environmental Monitoring Plan is in need of modifications during the operation of the interim heating system, the Licensee will contact the agencies to discuss the proposed modifications. At that time, FWC, in consultation with the DEP and USFWS and the Licensee, will determine what if any modifications need to be made to the Environmental Monitoring Plan and the FWC will request that DEP initiate a modification to certification if necessary.

[Sections 403.507 and 403.509, F.S.; Section 379.1025 F.S., Section 379.2291 F.S., Section 379.2431 (2) F.S., Section 20.331 F.S., Section 253.75 F.S., Rules 68A-27 Florida Administrative Code.]

3. Biological Monitoring

- a. The following monitoring requirements for manatee distribution and abundance are applicable to the operation of the interim heating system during the conversion of the RBEC:

- (1) By June 15 of the year when the RBEC conversion commences, which is expected to be 2011, the Licensee shall submit to the DEP Siting Office and FWC, a Biological Monitoring Plan. The Biological Monitoring Plan shall include at a minimum the following components:
 - i. Monitor the winter (November 15 through March 31) distribution and abundance of manatees during the time frame that includes the operation of the interim warm-water heating system.
 - ii. Biological monitoring shall be conducted through aerial surveys during the winter months (November 15 through March 31) beginning the first winter of the plant's conversion and continuing through the completion of the RBEC conversion process. However, the FPL will consult with FWC to determine the status of other aerial survey data collection efforts to determine the appropriate start date for these required aerial surveys.
 - iii. Specific aerial survey paths, sampling frequencies, and methodologies for aerial surveys. At a minimum, aerial survey flight paths shall encompass known manatee winter habitat including travel corridors and passive warm-water sites from Hobe Sound (Highway 707 bridge) to Boynton Inlet on a bi-weekly basis while the interim heating system is in operation during the winter months (November 15 through March 31).

- iv. Aerial surveys shall be designed so the data collected will provide an evaluation of manatee abundance and distributional changes within the survey area (see V., A., 3., a.,(1), iii) in a statistically valid manner that is consistent with past aerial survey data.
 - v. The Biological Monitoring Plan shall be reviewed and approved prior to implementation. FWC, in consultation with the DEP and USFWS, shall recommend its approval or disapproval of the submitted plan to DEP within 90 days of the originally submitted information. In the event that additional information from the licensee is necessary to complete and approve the Plan, FWC, in consultation with the DEP and USFWS, shall make a written request to the Licensee for additional information no later than 30 days after receipt of the submitted information. A final plan shall be in place by September 1 of the year when the RBEC conversion commences, which is expected in 2011.
- (2) The Licensee shall provide a manatee observer(s) who has sufficient experience in detecting indicators of cold stress in manatees. The monitoring protocols and individuals acting as manatee observer(s) will require approval from the FWC.
 - (3) The manatee observer will be required to conduct a daily visual assessment of the condition and general distribution of manatees using the interim warm-water refuge during the winter months (November 15 through March 31) during the interim period. The visual assessments shall be conducted for a sufficient length of time to assess most of the manatees present at the plant and accessible to the observer on that day. If an approved observer is not available, licensee shall notify FWC as soon as possible, but no later than 48 hours, to coordinate actions necessary to resume the observation program.
 - (4) The Licensee shall provide one moveable land-based observation platform located along the interim warm-water refuge. These will be used by the manatee observer(s) for conducting assessments of cold stress symptoms and by FWC or USFWS staff monitoring manatee use of the interim refuge through photo identification.
 - (5) The Licensee will prepare a biological monitoring report that includes all data (made available in written and electronic form) and statistical analyses completed as a result of the requirements set forth in the Biological Monitoring Plan. This report will be submitted yearly, by August 1 of each year, when the interim warm-water system is in operation during the construction period. Within 180 days of submittal of the final yearly biological monitoring report a summary of all biological monitoring reports shall be completed and submitted to the FWC and DEP Siting Office for review.

- (6) If, in the review of the biological monitoring reports, FWC, in consultation with DEP and USFWS, determines the need to modify the Biological Monitoring Plan, FWC will notify the Licensee to discuss the findings. At that time, FWC, in consultation with the DEP and USFWS, and the Licensee will determine what if any modifications need to be made to the Biological Monitoring Plan and FWC will request that DEP will initiate a modification to certification if necessary.
- (7) If the Licensee determines the Biological Monitoring Plan is in need of modifications during the operation of the interim heating system, the Licensee will contact the agencies to discuss the proposed modifications. At that time, FWC, in consultation with the DEP and USFWS, and the Licensee will determine what, if any modifications need to be made to the Biological Monitoring Plan and the FWC will request that DEP initiate a modification to certification if necessary.
- (8) The Licensee will provide personnel from the FWC, USFWS, USGS Sirenia Project, or a designee of these agencies, access to the RBEC property to conduct manatee monitoring activities. Reasonable notice shall be given to the Licensee by the agencies. Access would be limited to normal weekday business hours (8:00 a.m. - 5:00 p.m.) unless arrangements are made in advance with the Licensee.

[Sections 403.507 and 403.509, F.S.; Section 379.1025 F.S., Section 379.2291 F.S., Section 379.2431 (2) F.S., Section 20.331 F.S., Section 253.75 F.S., Rules 68A-27 Florida Administrative Code.]

4. Contingency Plan

- a. FWC and USFWS' LOA (Letter of Authorization) network responders will be responsible for all efforts related to manatee rescues, rehabilitation activities, and carcass recovery during the RBEC conversion. In order to effectively implement contingency plans during the plant conversion and to address manatee health-related issues due to a malfunction or inability of the interim warm-water heating system to effectively provide a warm-water refuge during the winter months (November 15 through March 31), the following conditions are required:
 - (1) If the observer (pursuant to biological monitoring conditions V., A., 3., a., (1), (2) and (3)) identifies manatees with apparent signs of cold stress disease, digital photographs should be taken of the animal(s) and the FWC shall be called as soon as possible on the day of the observations through the following methods. An FWC biologist can be reached via pager at 800-714-0620 (enter the caller's contact number followed by the code "03". A page will be returned within 30 minutes; if not, resend the page. For immediate

emergency situations FWC's Wildlife Alert number can also be called at 888-404-FWCC.

- (2) The Licensee will notify FWC and USFWS immediately if there is a mechanical failure of the interim heating system, or if, for any other reason the interim heating system is not operating in a manner that will provide warm-water sufficient to keep the warm-water refuge at a temperature of 68° F or greater.
- (3) The Licensee shall provide in-kind services and financial assistance, not to exceed \$100,000 in total value, to FWC for manatee rescue or recovery in the event that there is a failure of the interim heating system resulting from Licensee's failure to comply with Condition V., A., 1., that causes death or identifiable cold stress to manatees in Palm Beach County. This condition would apply during the winter months (November 15 through March 31). The in-kind assistance and funds would only be used to address manatee-related cold stress issues in the area that the interim system affects.
- (4) The Licensee will provide personnel from the FWC, USFWS, USGS-Sirenia Project, or a designee of these agencies, access to the RBEC property to conduct manatee monitoring activities. Reasonable notice shall be given to the licensee by the agencies. Access would be limited to normal weekday business hours (8:00 a.m. - 5:00 p.m.) unless arrangements are made in advance with the Licensee.
- (5) The Licensee will include as part of its safety orientation manatee awareness training for full-time permanent construction personnel at the RBEC site. This training will be designed to educate the construction work force about the legal requirements to avoid manatees and to provide them with contact information if they should spot an injured manatee.
- (6) All visitors to RBEC will be required to comply with FPL's safety and security requirements. Personnel will receive an orientation from FPL or its contractor prior to commencing observations or other activities.

[Sections 403.507 and 403.509, F.S.; Section 379.1025 F.S., Section 379.2291 F.S., Section 379.2431 (2) F.S., Section 20.331 F.S., Rules 68A-27 Florida Administrative Code.]

5. Development of a Long-Term Manatee Strategy

- a. It is expected that at some point in the future the warm-water habitat created by the RBEC will diminish or be terminated in that event the FWC and USFWS believes it is in the best interest of the Licensee, FWC, USFWS, DEP, and the Florida manatee population to begin strategic long-term planning to reduce the adverse affects to the Florida manatee population before this occurs.

- (1) Within two years of the formal approval by FWC and USFWS of a Warm-Water Action Plan (Plan), inclusive of a future-oriented Management Policy for Warm-Water Manatee Habitat, the Licensee shall host and chair a workshop designed to: (a) articulate a strategy for achieving the goals of that Plan, (b) develop a timetable for implementing the strategy, (c) review progress to date in achieving the strategy, and (d) identify impediments and solutions.
- (2) Within one year of the workshop held pursuant to Condition V., A., 5., a., (1), the Licensee shall provide the FWC and USFWS with a formal report of the workshop, including findings, conclusions, and recommendations.
- (3) Over the course of the operating life span of the RBEC the Licensee shall develop an exit strategy for the RBEC that prevents significant losses to the manatee population when the Licensee determines to reduce or eliminate the RBEC's thermal discharge to the extent that a dependable warm-water refuge is no longer present. The Licensee's strategy shall consider FWC and USFWS's statewide Warm-Water Action Plan approved by FWC and USFWS.
- (4) The Licensee shall work closely with the FWC and USFWS to evaluate progress toward achieving the vision and goals of the Warm-Water Action Plan and to develop adaptive changes to the Plan as needed to promote manatee recovery through participation in periodic workshops and/or conferences designed to accomplish such evaluation and adaptive changes.
- (5) The FWC and USFWS must be notified, in writing, within 30 days of any sale, conveyance, or other transfer of the facility.

6. Manatee Construction Conditions For In-Water Work

- a. The Standard Manatee Conditions for In-Water Work (revision 2009) are required for all in-water work in or adjacent to waters accessible to manatees. Blasting or pile hammering activities to break rock shall be prohibited in waters accessible to manatees. If no other alternative exists, a modification of these conservation measures can be requested. An adequate Blast and Protected Species Watch Plan must be submitted to and approved by the Imperiled Species Management Section of the FWC prior to these methodologies being used.
- b. To reduce the possibility of injuring or killing a manatee during construction, in-water work shall not be performed between November 15 and March 31 unless essential to support the RBEC project's schedule. If in-water work during the winter cannot be avoided, the Licensee will contact the agencies to determine alternative conditions that will be implemented to address the proposed activity.
- c. At least one person shall be designated as a manatee observer when in-water work is being performed. That person shall have experience in manatee observation, be

approved by the FWC two weeks before the beginning of construction, and be equipped with polarized sunglasses to aid in observation. The manatee observer must be on site during all in-water construction activities and will advise personnel to cease operation upon sighting a manatee within 50 feet of any in-water construction activity. Movement of a work barge, other associated vessels, or any in-water work shall not be performed after sunset, when the possibility of spotting manatees is negligible. Observers shall maintain a log detailing manatee sightings, work stoppages, and other protected species-related incidents. A report, summarizing all activities noted in the observer logs, the location and name of project, and the dates and times of work shall be submitted within 30 days following project completion, to the FWC's Imperiled Species Management Section at: 620 South Meridian Street, 6A, Tallahassee, Florida 32399-1600, or e-mailed at fcmpmail@myfwc.com.

- d. To reduce the risk of entrapment and drowning of manatees, grating shall be installed over any existing or proposed pipes or culverts greater than 8 inches, but smaller than 8 feet in diameter that are submerged or partially submerged and reasonably accessible to manatees. Bars or grates no more than 8 inches apart shall be placed on the accessible end(s) during all phases of the construction process and as a final design element to restrict manatee access.

[Sections 403.507 and 403.509, F.S.; Section 379.1025 F.S., Section 379.2291 F.S., Section 379.2431 (2) F.S., Section 20.331 F.S., Rules 68A-27 Florida Administrative Code.]

7. Manatee Viewing Center

Once a public viewing venue is established at the manatee embayment, the licensee shall ensure that staff or trained volunteers are always present with the public to prevent manatee disturbance or harassment.

[Sections 403.507 and 403.509, F.S.; Section 379.1025 F.S., Section 379.2291 F.S., Section 379.2431 (2) F.S., Section 20.331 F.S., Rules 68A-27 Florida Administrative Code.]

8. Force Majeure

If there is an act of God, terrorism, or war that prevents Licensee from providing the requisite warm water conditions, Licensee will notify FWC expeditiously and coordinate efforts to resume compliance with the certification conditions.

B. *Terrestrial Wildlife*

1. Listed Species Survey

- a. Before land clearing and construction activities within the certified facility occur, the Licensee shall conduct an assessment for listed species which will note all

habitat, occurrence or evidence of listed species. Listed species to be included in this survey shall include those listed as endangered, threatened or of special concern by Florida Fish and Wildlife Conservation Commission or those listed as endangered or threatened by U.S. Fish and Wildlife Service.

- (1) This survey shall be conducted in accordance with USFWS/FFWCC guidelines and methodologies by a person or firm that is knowledgeable and experienced in conducting flora and fauna surveys for listed species.
- (2) This survey shall identify any wading bird colonies within the project that may be affected.
- (3) This survey shall identify locations of breeding locations, nests, and burrows for listed wildlife species. Nests and burrows may be recorded with GPS coordinates, identified on an aerial photograph, and submitted with the final listed species report. Although nests and burrows may be recorded individually with GPS, the FWC prefers that a protection radius surrounding nest sites and burrows be included, rather than individual nests and burrows, and be physically marked so that clearing and construction will avoid impacting them.
- (4) This survey shall include an estimate of the acreage and percent cover of each existing vegetation community (Florida Land Use, Cover and Forms Classification System, or FLUCFCS, at the third degree of detail) including a wildlife-based habitat classification scheme such as the Comprehensive Wildlife Conservation Strategy (FWC 2005), Descriptions of Vegetation and Land Cover Types (FWC 2004), or Natural Communities Guide (FNAI 1990) of each community that is contained within the certified facility prior to land clearing and construction activities using GIS.

2. Listed Species Locations

- a. Where any suitable habitat and evidence is found of the presence of listed species within the certified facility, the Licensee will report those locations to, and confer with, the appropriate regulatory agencies for possible additional pre-clearing surveys and to identify potential mitigation, or avoidance recommendations. If pre-clearing surveys are required, they shall be timed to be reasonably compatible with the construction schedule, considering the in-service date specified in the Public Service Commission's need determination. The Licensee will not construct in areas where evidence of listed species was identified during the initial survey until the particular listed species issues have been resolved.

- (1) *Listed Wildlife Species*: If listed wildlife species are found, their presence shall be reported to the DEP Siting Coordination Office, the appropriate DEP District Office(s), the FFWCC's Office of Planning and Policy Coordination, the appropriate WMD, the appropriate local government(s) and the U.S. Fish and Wildlife Service.
- (2) *Listed Vegetation Species*: If listed vegetation species are found on public land or water, their presence shall be reported to the DEP Siting Coordination Office and the Florida Department of Agriculture and

Consumer Services. Listed wildlife species and listed vegetation species on public land or water shall not be disturbed, if feasible.

- (3) *Species Management Plan*: If avoidance is not feasible, the Licensee shall consult with DEP, FWC, and, if necessary, the U.S. Fish and Wildlife Service for listed wildlife species, and with the Florida Department of Agriculture and Consumer Services for listed vegetation species on public land or water, to determine the steps appropriate for the species involved which are to be taken to avoid, minimize, mitigate, or otherwise appropriately address impacts within each agency's respective jurisdiction. For wildlife species, these steps shall be memorialized in a Wildlife Management Plan and submitted to DEP, FWC, and the appropriate local government.

[Article IV, Sec. 9, Fla. Const.; Chapter 68A-27, F.A.C.]

REFERENCES

- Campbell, H.W., and A.B. Irvine. 1981. Manatee mortality during the unusually cold winter of 1976-1977. Pages 86-91 in R.L. Brownell, Jr. and K. Ralls, eds. The West Indian manatee in Florida. Proceedings of a workshop held in Orlando, Florida, 27-29 March 1978. Florida Department of Natural Resources, Tallahassee, Florida, USA.
- Deutsch, C. J., J. P. Reid, R. K. Bonde, D. E. Easton H. I. Kochman and T. J. O'Shea. 2003. Seasonal movements, migratory behavior, and site fidelity of West Indian manatees along the Atlantic coast of the United States. Wildlife Monographs, 151: 1-77.
- Marine Mammal Commission. 1988. Preliminary Assessment of Habitat Protection Needs for West Indian Manatees on the East Coast of Florida and Georgia. Rept. of the Marine Mammal Commission in Consultation with its Committee of Scientific Advisors on Marine Mammals. pp.1-107.
- Moore, J.C. 1951b. The Range of the Florida Manatee. The Quarterly Journal of the Florida Academy of Sciences. Volume 14, No. 1. pp.1-18.
- O'Shea, T. J., C.A. Beck, R.K. Bonde, H.I., Kochman, and D.K. Odell. 1985. An analysis of manatee mortality patterns in Florida, 1976-1981. Journal of Wildlife Management 49:1-11.
- Packard, J. M. 1981. Abundance, distribution and feeding habits of manatees (*Trichechus manatus*) wintering between St. Lucie and Palm Beach Inlets, Florida. Report prepared for USFWS Contract No. 14-16-004-80-105. pp 142.
- Reynolds, J.E., III. 2004. Distribution and Abundance of Florida Manatees (*Trichechus manatus latirostris*) Around Selected Power Plants Following Winter Cold Fronts. 2002-

2003. Final Report Prepared For FP&L Company, Juno Beach, FL. Order Number 4500004663: 48 pp.

United States Fish and Wildlife Service 2001. Florida Manatee Recovery Plan, (*Trichechus manatus latirostris*), Third Revision. Atlanta, Georgia. 144 pp. + appendices.



IN REPLY REFER TO:

United States Department of the Interior

FISH AND WILDLIFE SERVICE

6620 Southpoint Drive, South
Suite 310
Jacksonville, Florida 32216-0912

June 24, 2008

Randall LaBauve, Director
Environmental Services
Florida Power and Light Company
700 Universe Boulevard
Juno Beach, Florida 33408

Dear Mr. LaBauve:

The U. S. Fish and Wildlife Service (Service) appreciates Florida Power and Light Company's (FP&L) efforts to notify us, the Florida Fish and Wildlife Conservation Commission (FWC), and others about plans to repower the Canaveral and Riviera Beach power plants and company concerns regarding manatees known to use these sites.

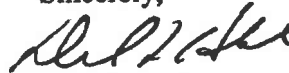
Repowering efforts will involve closing the plants for extended periods of time during demolition and construction activities, a process that will ultimately extend the plant's operational lifespan, as well as the associated warm water discharges. The shutdowns will include temporarily eliminating the warm water discharges from each site during the winter when they are typically used by hundreds of manatees.

At present, there are no authorizations in place under either the Marine Mammal Protection Act of 1972 or the Endangered Species Act of 1973 for the incidental take of manatees and their critical habitat. Wintering habitat is the most important biological factor limiting manatee populations and is integral to the recovery of the species. Therefore, it is critical that you minimize impacts and take steps to avoid the loss of any manatees during your transition process, as well as insure that there is no loss of manatee wintering habitat in both the near and long term.

For planning purposes, we recommend that your plan designs include identifying baseline information about the extent of warm water habitat currently used by manatees at both plants. This could include measuring the areas of warm water habitat, discharge temperatures, discharge volumes, and other parameters. The same or similar quantities of habitat will need to be provided at or in close enough proximity to these sites, such that manatees are able to find and use it with minimal disruption. In addition, any locations should include protections from human disturbance, similar to those which are currently in place. Finally, contingency plans currently under development by FWC, the Service, FP&L and others, should be completed and operational during the transition in the event that manatees do not respond as expected.

FP&L is a valued partner in the conservation and recovery of the manatee and we are confident that you will make every effort to provide for manatees as you move ahead. We look forward to working with you on this important issue, and would appreciate an opportunity to meet with you to discuss this further. Please do not hesitate to contact us if you have any questions or concerns.

Sincerely,

A handwritten signature in black ink, appearing to read "Dave Hankla", written in a cursive style.

Dave Hankla
Field Supervisor

CC: Sam Hamilton, Regional Director, Atlanta, Georgia
Ken Haddad, Director, Florida Fish and Wildlife Conservation Commission,
Tallahassee, FL

LEGEND

Enclosed Temperature (degree F)

58

60

62

64

66

68

70

Discharge

Intake

Point of Discharge - Offshore

NOTES

REFERENCE

1 Imagery, National Image Master, VMS Service.
http://vms.usgs.gov/vms-browser/vms.asp

0 150 300 450 600 750 900 Feet

SCALE

PROJECT

FPL

RIVIERA POWER PLANT

TITLE

Predicted Surface Isotherms
for the Manatee Thermal Refuge



PROJECT No.	DATE	REV.
00000000	00	00
00000000	00	00
00000000	00	00
00000000	00	00
00000000	00	00

FIGURE 10.9-13

