May 15, 2009

MEMORANDUM TO: Ryan A. Whited, Branch Chief
Environmental Projects Branch 2
Division of Site and Environmental Reviews

FROM: Brent H. Clayton, Branch Chief **/RA/**
Environmental Technical Support Branch
Division of Site and Environmental Reviews

SUBJECT: TRIP REPORT – MARCH 30 TO APRIL 3, 2009, READINESS ASSESSMENT (PARTIAL C-2) VISIT FOR A FUTURE COMBINED LICENSE APPLICATION AT THE TURKEY POINT SITE

This report summarizes the staff's March 30 through April 3, 2009, readiness assessment visit related to the environmental portion of a future combined license (COL) application at the Turkey Point site in south Florida's South Miami-Dade County, Florida. Florida Power and Light (FPL) Company selected the Westinghouse Advanced Passive 1000 (AP1000) reactor design for the proposed new nuclear station. FPL has indicated its intent to submit a COL application for this site in June 2009.

The purpose of this visit was to allow the staff to visit potential alternative sites to the Turkey Point site in south Florida. The staff also took the opportunity to meet with local and Federal resource and regulatory agencies to discuss the U.S. Nuclear Regulatory Commission's (NRC) role in the anticipated Turkey Point Units 6 and 7 COL application review. Enclosure 1 provides a list of attendees at the various meetings held during the week. Enclosure 2 is the NRC staff schedule for the period March 30 through April 3, 2009. Enclosure 3 is a copy of the slides used during the NRC's presentation to representatives of the various agencies. Enclosure 4 is a summary of the more significant issues that were discussed at the meetings with Federal and local agencies as well as staff comments on the visits to the alternate sites.

The NRC team did not identify any areas that would indicate FPL would not be able to meet its proposed schedule for submittal of the COL application. The two most significant topics identified by the NRC readiness review team during the visit were issues related to site hydrology and the results of the site selection process. The applicant was aware of and informed the NRC staff of some of the issues described in Enclosure 4.

CONTACT: Michael T. Masnik, DSER/NRO
301-415-1191

A public outreach meeting in the Homestead, Florida area occurred on April 23, 2009, as the final pre-application event.

Project No. 763

Enclosures:
As stated

A public outreach meeting in the Homestead, Florida area occurred on April 23, 2009, as the final pre-application event.

Project No. 763

Enclosures:
As stated

DISTRIBUTION:

PUBLIC1	MMasnik, NRO	AKugler, NRO	RWhited, NRO
RidsNroDserRap1	DMussatti, NRO	RRaione, NRO	CCook, NRO
RidsNroDserRap2	TTerry, NRO		
RidsNroDserRap3	william.sandusky@pnl.gov		
RidsNroDserRenv	eva.hickey@pnl.gov		

ADAMS ACCESSION NUMBER: ML091320137 & PACKAGE NUMBER:

OFFICE	PM:RENV:DSER:NRO	LA:RAP1:DSER:NRO	BC:RENV:DSER:NRO
NAME	MMasnik	GHawkins	HBClayton
DATE	05/13 /09	05/14 /09	05/15 /09

OFFICIAL RECORD COPY

LIST OF ATTENDEES
TURKEY POINT READINESS ASSESSMENT VISIT – GOVERNMENT TO GOVERNMENT MEETING
MORNING MARCH 31, 2009
KROME CENTER, HOMESTEAD, FL

NAME	AFFILIATION
Michael Masnik	Nuclear Regulatory Commission (NRC)
Andrew Kugler	NRC
Harriet Nash	NRC
Tomeka Terry	NRC
William Sandusky	Pacific Northwest National Laboratory (PNNL)
Michelle Niemeyer	PNNL
Charles Kincaid	PNNL
Janelle Downs	PNNL
Patrick Pitts	U.S. Fish and Wildlife Service (USFWS)
John Wrublik	USFWS
Mark Lewis	National Park Service - Biscayne National Park (NPS Biscayne NP)
Elsa Alvear	NPS Biscayne NP
Richard Curry	NPS Biscayne NP
Sarah Belmund	NPS Biscayne NP
Myrna Palfrey	NPS Biscayne NP
Dan Kimball	National Park Service – Everglades National Park (NPS Everglades NP)
Carol Mitchell	NPS Everglades NP
Robert Johnson	NPS Everglades NP
Roy Sonenshein	NPS Everglades NP
Robert Renken	U.S. Geological Service

LIST OF ATTENDEES
TURKEY POINT READINESS ASSESSMENT VISIT – GOVERNMENT TO GOVERNMENT MEETING
AFTERNOON MARCH 31, 2009
SOUTH FLORIDA WATER MANAGEMENT DISTRICT HEADQUARTERS, WEST PALM BEACH, FL

NAME	AFFILIATION
Michael Masnik	Nuclear Regulatory Commission (NRC)
Andrew Kugler	NRC
Harriet Nash	NRC
Tomeka Terry	NRC
William Sandusky	Pacific Northwest National Laboratory (PNNL)
Michelle Niemeyer	PNNL
Charles Kincaid	PNNL
Janelle Downs	PNNL
Craig Grossenbacher	Miami – Dade Department of Environmental Resource Management
Lee Hefty	Miami – Dade Department of Environmental Resource Management
Lois C. Otero	Miami – Dade Department of Environmental Resource Management
Steve Krupa	South Florida Water Management District (SFWMD)
David Rudnick	(SFWMD)
Damon Meiers	(SFWMD)
Melody Hunt	(SFWMD)
John Janzen	(SFWMD)
Ruth Holmes	(SFWMD)

LIST OF PARTICIPANTS
TURKEY POINT ALTERNATE SITE VISITS
APRIL 1 – 2, 2009

NAME	AFFILIATION
Michael Masnik	Nuclear Regulatory Commission (NRC)
Andrew Kugler	NRC
Harriet Nash	NRC
Tomeka Terry	NRC
William Sandusky	Pacific Northwest National Laboratory (PNNL)
Michelle Niemeyer	PNNL
Charles Kincaid	PNNL
Janelle Downs	PNNL
George Madden	Florida Power and Light (FPL)
Mike Bresette	FPL
Rick Orthen	FPL
Steve Franzone	FPL
Steve Scroggs	FPL
Vince Munne	FPL
Janine Bacquie	NextEra Energy

LIST OF ATTENDEES
TURKEY POINT READINESS ASSESSMENT VISIT – GOVERNMENT TO GOVERNMENT MEETING
APRIL 3, 2009
U.S. ARMY CORPS OF ENGINEERS, MIAMI, FL

NAME	AFFILIATION
Michael Masnik	Nuclear Regulatory Commission (NRC)
Andrew Kugler	NRC
Harriet Nash	NRC
Tomeka Terry	NRC
Megan Clouser	U.S. Army Corps of Engineers
Albert Gonzalez	U.S. Army Corps of Engineers

Agenda

Tuesday, March 31, 2009

0730-0800 hrs Travel to Krome Center, Homestead, FL

0800-1100 hrs Meeting with Biscayne National Park, Everglades National Park, U.S. Geological Service, and Fish and Wildlife Services

1100-1200 hrs Lunch

1200-1400 hrs Travel to West Palm Beach, FL

1400-1600 hrs Meeting with South Florida Management District (SFWMD) and Miami-Dade Department of Environmental Resource Management (DERM)

1600 hrs Adjourn

Wednesday, April 1, 2009

0800-0900 hrs Travel to Glades (alternative site)

0900-1030 hrs Visit Glades site

1030-1130 hrs Travel to Okeechobee (alternative site)

1130-1230 hrs Visit Okeechobee site

1230-1300 hrs Lunch

1300-1430 hrs Travel to Martin (alternative site)

1430-1530 hrs Visit Martin site

1530 hrs Adjourn

Thursday, April 2, 2009

0730-0800 hrs Travel to St. Lucie site

0800-1000 hrs Visit St. Lucie site

1100 hrs Adjourn

Friday, April 3, 2009

0715-0800 hrs Travel to, Miami, FL

0800-1100 hrs Meeting with U.S. Army Corps of Engineers (USACE)

1100 Adjourn

Enclosure 3

Nuclear Regulatory Commission Presentation Slides for
Government to Government Meetings Regarding
A Future Combined License Application for
Turkey Point Units 6 and 7
March 31 and April 3, 2009
PLEASE REFER TO ADAMS ML#091320180
PACKAGE ML#091320180

SUMMARY OF ISSUES IDENTIFIED DURING THE U.S. NUCLEAR REGULATORY COMMISSION STAFF READINESS ASSESSMENT VISIT
(C2 VISIT TO ALTERNATE SITES AND GOVERNMENT-TO-GOVERNMENT MEETINGS)
TURKEY POINT

MARCH 31 TO APRIL 3, 2009

This report summarizes the U.S. Nuclear Regulatory Commission (NRC) and Pacific Northwest National Laboratory (PNNL) staffs' pre-application C-2 readiness assessment visit related to the environmental portion of a future combined license (COL) application, to be submitted by Florida Power and Light Company (FPL) for units 6 and 7 at the Turkey Point site. The site is located east of Florida City, Florida and south of Miami, Florida. The purpose was to visit the alternative sites for the proposed site location and participate in several government-to-government meetings related to the anticipated application from FPL. The government-to-government meetings were held on March 31, and April 3, 2009. On the morning of March 31, 2009 in Homestead, Florida the NRC and PNNL representatives met with personnel from the National Park Service (NPS), U.S. Geological Survey (USGS), and U.S. Fish and Wildlife Service (FWS). NPS was represented by staff from both the Biscayne Bay National Park and the Everglades National Park. The March 31, 2009 afternoon meeting, held in West Palm Beach, Florida, was with the South Florida Water Management District (SFWMD) and the Miami-Dade County Department of Environmental Resources Management (DERM). Visits to the alternate sites were conducted on April 1-2, 2009 and consisted of sites identified by FPL as the Glades, Okeechobee #2, Martin, and St. Lucie sites. On April 3, 2009 the NRC staff met with representatives of the U.S. Army Corps of Engineers, Jacksonville District, Miami, Florida office.

A list of participants, by meeting, for all meetings held during the visit is provided in Enclosure 1. The overall agenda for activities is provided as Enclosure 2. Enclosure 3 is a copy of the slides used during the NRC's presentation to the representatives of the various agencies.

A summary of the significant issues or findings are provided below.

Government-to-Government Meetings

1. In the meetings, concern was expressed about groundwater issues. These issues are highly complex because they involve perceived impacts from both the existing plants at Turkey Point (including nuclear Units 3 and 4) and the proposed two new units. The issues are further complicated because of multiple resource agencies and local government entities with overlapping jurisdictional considerations and responsibilities.

2. Concern was expressed over the evaluation of cumulative impacts related to continuing operation of the existing units, the impact of a possible uprate of the existing units, and anticipated impacts from construction and operation of the two new units. The NPS felt construction and operation activities will significantly impair the natural and cultural resources of two parks near the Turkey Point site.

3. Concern was expressed over species diversity and abundance issues related to increased salinity in the western portions of the Biscayne Bay as a result of withdrawal of water from the Biscayne aquifer by the proposed radial wells. The bay functions as an important estuarine nursery for a number of aquatic wildlife species that could be negatively affected by changing salinity concentrations.

4. Staff at SFWMD express concern regarding increased salinities of near-surface and vadose zone waters as well as tidal creek water that could negatively affect vegetation in the region of the discharge canals at the Turkey Point site. These SFWMD ecologists/hydrologists provided aerial photos showing areas of vegetative changes and tidal creek bottoms where mangrove die-offs appear to be occurring.

5. The resources agencies reported the applicant indicated to them that the primary water source may initially be from the radial wells taking water from Biscayne Bay instead of reclaimed water as presented during a March 26, 2009 meeting between FPL and NRC staff, and during the February draft application review meeting. The inconsistency needs to be resolved.

6. Concerns were expressed regarding Emerging Pollutants of Concern (EPOC) resulting from the residue from such compounds as prescription drugs, birth control pills, and complex organics in reclaimed water. EPOC would be contained in the drift from the cooling towers for the proposed units that could impact species in the two national parks near the Turkey Point site. EPOC have been linked to developmental abnormalities in a variety of species including amphibians. The USGS has evaluated EPOC at Miami-Dade County Wastewater Treatment Plant (USGS 2006, Report 2006-5240).

7. Concern was expressed regarding construction impact on crocodiles (Crocodylus acutus) at the Turkey Point site. Designated critical habitat for crocodiles under the Endangered Species Act is found on the Turkey Point site.

8. Concern was expressed regarding accelerated westward movement of the saltwater wedge attributed to the canal system for the existing units at Turkey Point. This would be altered by withdrawals from the groundwater (Biscayne aquifer) that could create potential impairment to park lands and water due to changes in surface water.

9. Concern was expressed regarding the availability of wastewater as a cooling source for the proposed new units. The use of the wastewater from the South Miami-Dade Treatment facility would be in conflict with the goal of the Comprehensive Everglades Restoration Plan (CERP). The goal of CERP is to capture unused fresh water that now flows into the ocean or gulf and redirect it to areas that need it the most. However, wastewater from south Miami, Florida would need to be treated beyond tertiary standards to improve its quality sufficiently to allow discharge into the Everglades.

10. The agencies felt the NRC will need to fully understand the background regarding water reuse, availability, and water budget as well as determine the interactions with the C-111 spreader canal system and the Biscayne Bay Coastal Wetlands projects, both of which are part of CERP.

11. Concern was expressed regarding dewatering of the rock and borrow pit area(s) to provide fill for the site. This could impact adjacent park lands and affect the Biscayne Aquifer. Such activity may be inconsistent with the Biscayne Bay Coastal Wetlands project – see item 10 above.

12. The Miami office of the USACE is interested in cooperating agency status.

13. The agencies felt the NRC policy on climate change needs to be clarified. Several individuals expressed a desire for including a discussion in the environmental impact statement of cumulative impacts due to sea level rise and its impact on the station and the surrounding environmental resources.

14. No significant concern was expressed regarding the proposed deep well injection plan for the liquid discharge from the proposed units at Turkey Point into the Boulder Zone of the Lower Floridan aquifer.

15. NPS noted the land swap of a portion of the present FPL transmission corridor within the Everglades NPS to the area outside the NPS boundary was authorized by the Omnibus Public Lands Management Act of 2009, signed into law on March 30, 2009. NPS expressed concern that construction activities at the park boundary could impact habitat within the park.

16. Any barging of large, heavy loads through the Inter-Coastal waterway could require additional dredging and affect the existing aquatic communities. NPS noted that more than 200 vessels are grounded each year in this waterway that is routed through Biscayne National Park.

Alternative Site Visits

1. All four alternative sites (*Glades, Okeechobee #2, Martin, and St. Lucie*) appear to be viable.

2. The *Glades, Okeechobee #2, and Martin sites* would use water from the upper portion of the Lower Floridan aquifer, but the availability of the water for cooling needs to be confirmed with the state. The only viable alternative for water discharge is the Boulder Zone, which is located deeper in the Lower Floridan aquifer. This also needs to be confirmed with the state.

3. The nearest population center to the Glades site is Ft. Myers, Florida, west of the site. Approximately 73 miles of new transmission lines would be required to connect the site to existing transmission routes. The site is primarily agricultural-based with the principle crop being sugarcane. There are no apparent conflicts with endangered species or critical habitat. It's unknown if the site has current or historical wetland areas. The site is located in a census minority block group.

4. The closest population center to the Okeechobee #2 site is Port St. Lucie, east of the site. A state prison is located near the site. The site is primarily agricultural with some cattle grazing and limited residential structures. There were no apparent conflicts with endangered species or critical habitat areas and no obvious wetlands at the site. To connect the site to the existing transmission routing, approximately 48 miles of new transmission lines would be required. Additionally, a rail spur would be required to connect the site to the existing rail line.

5. On the road between the Glades and Okeechobee #2 sites there are a large number of recreational vehicle parks that cater to seasonal tourists. A Seminole Indian Reservation is also located between the two sites.

6. The Martin site has five operating units (two oil/natural gas, two natural gas, and one combined cycle gas) onsite. Nearby is a coal fired cogeneration facility not owned by FPL. There is an adjacent natural forested area on the Martin site to the north, and designated wetland mitigation areas (Barley Barbour Swamp adjacent to the existing cooling ponds). Important species known or likely to exist on or near the site include the bald eagle, wood stork, and gopher tortoise. Existing transmission lines could be utilized, but additional capacity would be required. The nearest population center is Port St. Lucie. The site has rail and highway access. The land area that would be utilized at the Martin site is now being cleared for a solar generation facility that will offset a portion of the energy needs for the existing units at the site.

7. The St. Lucie site has two operating nuclear units. The nearest towns are Port St. Lucie and Ft. Pierce. The site is located on a barrier island with access via two causeways that are north and south of the site. South of the site there are numerous high rise condominiums. Additional transmission towers would be required in the existing right-of-way. FPL has proposed some wind turbines for the site. Construction of additional nuclear units would require clearing of 79 acres of mangrove wetlands adjacent to the Indian River estuary and require large amounts of fill to bring the site to grade level of the existing two units. The mangrove communities are maintained through water management for mosquito control, but likely harbor important species and function as habitat for wildlife. All fill would have to be transported to the site. The exiting site has a barge unloading facility that could accommodate large components. Site rail service is only available on the mainland; the existing causeways would be utilized to transport materials to the site. The water source would be the Atlantic Ocean using the existing intake canal for St. Lucie Units 1 and 2. Circulating water system cooling would be by saltwater cooling towers. Water discharge would be by deep well injection.

Summary

Overall, FPL appears to be on track to submit its COL application in June 2009. The team found that the applicant has an overall understanding of the information necessary to allow the staff to assess the alternative sites. Based on the staff's cursory visit there were no apparent major flaws in any of the alternative sites visited. Additional detailed information on the specifics of each alternate site is expected in the COL application Environmental Report (ER).

Based on the meetings with Federal and local representatives of a number of resource agencies during the last week in March 2009 the NRC staff recognizes that there is considerable concern over surface and groundwater hydrology, cumulative impacts, protected species, water quality, the potential impact to nearby national parks, as well as other environmental issues related to the construction and operation of two additional nuclear units at the Turkey Point site. To the extent possible these issues should be thoroughly examined in the ER submitted by the applicant in support of the COL application.