Attachment to July 18th, 2014
10 C.F.R. 2.206 Enforcement Petition
Florida Power & Light Company
Turkey Point Nuclear Plant

Attachment – Five

Letter from the Florida Power & Light Co. to the NRC dated July 22nd, 2014 - Response to Request for Additional Information Regarding License Amendment Request No. 231, Application to Revise Technical Specifications to Revise Ultimate Heat Sink Temperature Limit (7-pages).

10 CFR 50.90
L-2014-232
July 22, 2014

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Renewed Facility Operating License Nos. DPR-31 and DPR-41

Subject: Response to Request for Additional Information Regarding License Amendment Request No. 231, Application to Revise Technical Specifications to Revise Ultimate Heat Sink Temperature Limit

References:

1. Florida Power & Light Company Letter L-2014-216, "License Amendment Request No. 231, Application to Revise Technical Specifications to Revise Ultimate Heat Sink Temperature Limit," July 10, 2014.
2. Florida Power & Light Company Letter L-2014-226, "License Amendment Request No. 231, Application to Revise Ultimate Heat Sink Temperature Limit – Request for Emergency Approval," July 17, 2014.
3. Email from A. Klett (NRC) to R. Tomonto (FPL), "Turkey Point 3 and 4 Request for Additional Information – LAR 231 (TAC MF4392 and MF4393)," July 18, 2014.

Per Reference 1 and pursuant to 10 CFR 50.90, Florida Power & Light Company (FPL) requested an amendment to the Technical Specifications (TS) for the Turkey Point Nuclear Plant (Turkey Point), Units 3 and 4. The proposed amendment would revise the ultimate heat sink (UHS) water temperature limit from 100°F to 104°F.

Per Reference 2, FPL supplemented the July 10, 2014 application requesting NRC to review and approve the amendment request as an emergency amendment.

By email from the NRC Project Manager dated July 18, 2014 [Reference 3], additional information was requested by the NRC staff to complete the review. The enclosure to this letter provides the response to the request for additional information.

The additional information provided in the enclosure to this letter does not impact the no significant hazards determination and environmental considerations previously provided in L-2014-216 [Reference 1].

A001
NRR

There are no new commitments made in this submission.

If you have any questions or require additional information, please contact Mr. Robert Tomonto at 305-246-7327.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on: July 22, 2014.

Very truly yours,

Michael Kiley
Vice President
Turkey Point Nuclear Plant

Enclosure: Response to Request for Additional Information Regarding LAR No. 231, Application to Revise Technical Specifications to Revise Ultimate Heat Sink Temperature Limit

cc: USNRC Regional Administrator, Region II
USNRC Project Manager, Turkey Point Nuclear Plant
USNRC Senior Resident Inspector, Turkey Point Nuclear Plant
Ms. Cindy Becker, Florida Department of Health

Response to Request for Additional Information Regarding

Turkey Point Units 3 and 4

License Amendment Request No. 231

Application to Revise Technical Specifications
To Revise Ultimate Heat Sink Temperature Limit

Enclosure

NRC RAI 4

Pursuant to the Endangered Species Act (ESA) of 1973, as amended, the U.S. Fish and Wildlife Service (FWS) issued the NRC a biological opinion for American crocodiles at Turkey Point on May 5, 2006 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML061430174), and this biological opinion was subsequently modified on August 1, 2006 (ADAMS Accession No. ML062420111). In 2011, the NRC and FWS consulted under the ESA's informal consultation procedures at Title 50 of the *Code of Federal Regulations*, Section 402.13 regarding the Turkey Point extended power uprate. In its October 25, 2011, letter concluding consultation (ADAMS Accession No. ML11306A160), the FWS stated the following:

> *Because the effects to crocodiles from the possible slight increase in water temperature and salinity in the cooling canals due to the proposed power uprate are unclear, FPL will increase their crocodile monitoring efforts in the project area...Should the monitoring reveal measurable, negative effects on the crocodile in this area, it will be considered additional information involving effects on a listed species and NRC (or FPL on their behalf) should contact the Service to reinitiate consultation.*

Accordingly, the NRC staff are concerned that the LAR to revise the UHS water temperature limit from 100 degrees Fahrenheit (°F) to 104 °F could adversely affect the population of Federally threatened American crocodiles (*Crocodylus acutus*) living on the Turkey Point site and the designated critical habitat on the plant site.

Provide an analysis of the impacts to crocodiles that would result from the temperature increase that addresses effects to crocodile growth, survival, abundance, and spatial distribution on the Turkey Point site. The analysis should also address any adverse modifications to designated critical habitat on the site. Both the direct impact of the LAR (i.e., increased cooling canal system temperatures) and any indirect impacts (e.g., increased salinity resulting from the increased evaporation rate of higher temperature water) should be addressed.

FPL Response

In 2011, Florida Power & Light Company (FPL) increased the crocodile monitoring in the cooling canal system (CCS). FPL and University of Florida (UF) conducted several years of pre-Uprate crocodile monitoring to assess the spatial distribution, growth and survivorship of the crocodiles. FPL committed to a minimum of 2 years post-Uprate monitoring to ensure the increase in temperature and salinity will have no impact to the crocodile population utilizing the CCS. Both Units have been operating in the Uprated mode since June of 2013. The surveys consist of spotlight surveys every other month (2011-2013) and capture and tagging surveys three times a year. In 2014, after approval of the Fish and Wildlife Conservation Commission, the spotlight surveys were reduced to quarterly. The data indicate that the crocodiles are distributed in the canals with the most concentrated area in the Southern and SW corner of the CCS.

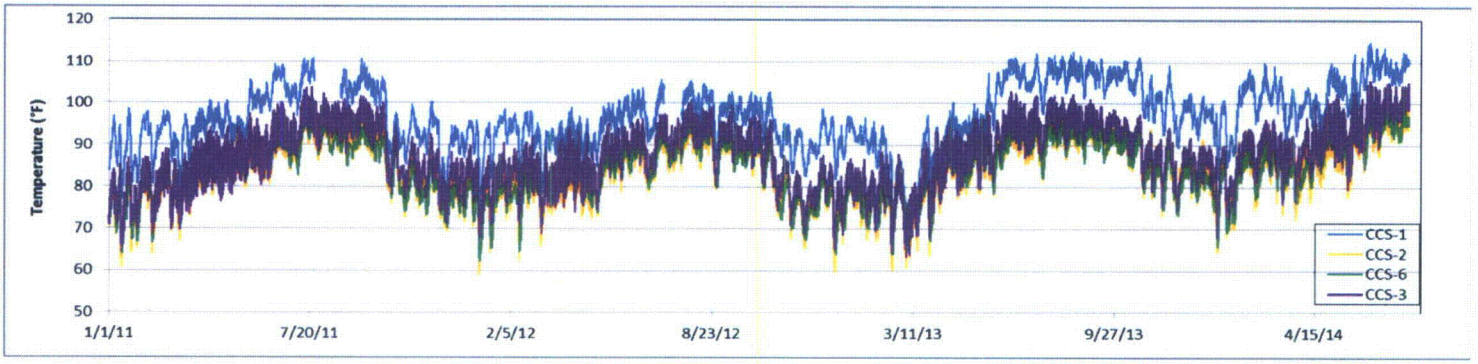
The crocodiles utilize the CCS for courting, nesting and basking. The data in the table below indicate any increase in temperature and salinity has not had an impact to the crocodiles use of the CCS.

Year	Spotlight Surveys Observances	Number of Captures	Number of Nest/Tagged Hatchlings
2011	747	117	15/268
2012	675	93	18/229
2013	646	102	25/429
2014	223[1]	64	25/398[2]

[1] Through May 2013 and spotlight surveys. In 2014, reduced from Bi-monthly to Quarterly
[2]Three more nest expected to hatch

FPL has several stations that monitor temperature in the CCS on an hourly basis. Below is a time series temperature plot for 4 of those stations. The attached map identifies the station locations. Station CCS-3 is a station in the area that is utilized most by the crocodiles. The data indicates the temperature fluctuates throughout the year with temperature typically peaking in the month of July. The factor that restricts American crocodiles across their range is access to fresh water for their hatchlings to develop salt excreting glands. The Turkey Point Nuclear Power Plant Cooling Canal System is an ideal situation in order for the population to recruit more individuals. Within the CCS there are numerous fresh water and lower saline ponds where females place the hatchlings for the purpose of developing their salt excreting glands.

Joe Wasilewski is a wildlife biologist that specializes in working on the natural history of apex predators (crocodilians) within wetlands of south Florida. FPL consulted with Mr. Wasilewski and he stated "Since 1978, the numbers of nests and hatchlings have steadily risen, there have been 424 successful nests at Turkey Point and 6,597 hatchlings captured, processed and released. The question remains as to carrying capacity of the cooling canal system. In April of 2005, American crocodiles were down listed from an Endangered Species to a Threatened Species. A major factor in the down listing was the success of the crocodile nesting at Turkey Point. Even though the CCS has historically been a super saline environment, there has always been access to fresh water and less saline refugia. During the normal course of the year the salinity and temperature fluctuates on a seasonal basis. Although the CCS temperatures are rising, the interior ponds should be constant in terms of temperature and salinity content. Crocodiles within the CCS have adapted to these changing salinities and temperature variations. They have the capability for access/egress on a daily basis. They typically use the CCS for feeding, nesting and rearing their young. Otherwise they move into and out of Biscayne Bay, C-107, C-106, the Interceptor Ditch." Based on the information provided by Mr. Wasilewski, a slight increase in temperature would likely have no effect on the Crocodile population using the CCS. FPL will continue to conduct the surveys described about to assess any potential impacts. The next survey is being conducted in August.



Time Series Temperature Plot

Figure 1 – Turkey Point Cooling Canal Sample Locations