

## PMTurkeyCOLPEm Resource

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**From:** Comar, Manny  
**Sent:** Thursday, October 30, 2014 9:27 AM  
**To:** TurkeyCOL Resource  
**Subject:** FW: FPL Letter L-2014-322 Dated 10-22-2014: NRC RAI Letter No. 031 (eRAI 5430) Supplemental Response  
**Attachments:** L-2014-322 Dated 10-22-2014 RAI Ltr 31 eRAI 5430 SUP Response.pdf

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**From:** Orthen, Richard [<mailto:Richard.Orthen@fpl.com>]  
**Sent:** Wednesday, October 22, 2014 12:19 PM  
**To:** Williamson, Alicia; Maher, William; Comar, Manny; Hoeg, Tim; Terry, Tomeka; McCree, Victor  
**Subject:** FPL Letter L-2014-322 Dated 10-22-2014: NRC RAI Letter No. 031 (eRAI 5430) Supplemental Response

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D.C. 20555-0001

Re: Florida Power & Light Company  
Proposed Turkey Point Units 6 and 7  
Docket Nos. 52-040 and 52-041  
Supplemental Response to NRC Request for Additional Information Letter No. 031  
(eRAI 5430) Standard Review Plan Section 12.03 - 12.04  
Radiation Protection Design Features

Reference:

FPL Letter L-2011-332 to NRC dated August 19, 2011, Response to NRC Request for Additional Information Letter No. 031 (eRAI 5430) Standard Review Plan Section 12.03 - 12.04 — Radiation Protection Design Features

Florida Power & Light Company (FPL) provides, as an attachment to this letter, its supplemental response to the Nuclear Regulatory Commission's (NRC) Request for Additional Information (RAI) Nos. 12.4.1.9.3-1 and 12.4.1.9.3-3 (eRAI 5430) provided in Attachments 3 and 5 to the referenced letter. The clarifications to the referenced responses are indicated by black text line-through and red text insertion in the attachment. The attachment identifies changes that will be made in a future revision of the Turkey Point Units 6 and 7 Combined License Application (if applicable).



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**Hearing Identifier:** TurkeyPoint\_COL\_Public  
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**Subject:** FW: FPL Letter L-2014-322 Dated 10-22-2014: NRC RAI Letter No. 031 (eRAI 5430) Supplemental Response  
**Sent Date:** 10/30/2014 9:27:05 AM  
**Received Date:** 10/30/2014 9:27:06 AM  
**From:** Comar, Manny

**Created By:** Manny.Comar@nrc.gov

**Recipients:**  
"TurkeyCOL Resource" <TurkeyCOL.Resource@nrc.gov>  
Tracking Status: None

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image002.jpg	4090		
L-2014-322 Dated 10-22-2014 RAI Ltr 31 eRAI 5430 SUP Response.pdf			156399

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**Recipients Received:**







L-2014-322  
10 CFR 52.3

October 22, 2014

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Florida Power & Light Company (FPL) provides, as an attachment to this letter, its supplemental response to the Nuclear Regulatory Commission's (NRC) Request for Additional Information (RAI) Nos. 12.4.1.9.3-1 and 12.4.1.9.3-3 (eRAI 5430) provided in Attachments 3 and 5 to the referenced letter. The clarifications to the referenced responses are indicated by black text line-through and red text insertion in the attachment. The attachment identifies changes that will be made in a future revision of the Turkey Point Units 6 and 7 Combined License Application (if applicable).

If you have any questions, or need additional information, please contact me at 561-691-7490.

Proposed Turkey Point Units 6 and 7  
Docket Nos. 52-040 and 52-041  
L-2014-322 Page 2

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

Executed on October 22, 2014.

Sincerely,



William Maher  
Senior Licensing Director – New Nuclear Projects

WDM/RFO

Attachment 1: FPL Supplemental Response to NRC RAI No. 12.4.1.9.3-1 (eRAI 5430)  
Attachment 2: FPL Supplemental Response to NRC RAI No. 12.4.1.9.3-3 (eRAI 5430)

cc:

PTN 6 & 7 Project Manager, AP1000 Projects Branch 1, USNRC DNRL/NRO  
Regional Administrator, Region II, USNRC  
Senior Resident Inspector, USNRC, Turkey Point Plant 3 & 4

**[Supplemental Information Request 1]**

**NRC RAI Letter No. PTN-RAI-LTR-031 Dated July 20, 2011**

**SRP Section: 12.03 - 12.04 – Radiation Protection Design Features**

Question from Health Physics Branch (CHPB)

**NRC RAI Number: 12.4.1.9.3-1 (eRAI 5430)**

Subsection 12.4.1.9.3 states, "The calculated dose rate of 0.009 mrem per year from a fully loaded ISFSI is negligible." Please provide the detailed methodology, measurements, parameters and/or bases used to calculate the dose rate from the ISFSI so that the staff can validate this conclusion. This information should include the exact location of the ISFSI in relation to the Units 6 and 7 construction workers and the quantity and radionuclide content of the fuel stored during the construction period.

**FPL RESPONSE:**

In response to an NRC letter to FPL dated July 20, 2011, Request for Additional Information Letter No. 031 Related to SRP Section: 12.03 – Radiation Protection Design Features for the Turkey Point Nuclear Plant Units 6 and 7 Combined License Application, FPL submitted an initial response to eRAI 5430 in a letter, L-2011-332, to the NRC dated August 19, 2011, "Response to NRC Request for Additional Information Letter No. 031 (eRAI 5430) Standard Review Plan Section 12.03 - 12.04 Radiation Protection Design Features." Subsequent to that submittal, additional clarification to the initial response is necessary.

This submittal revises the initial response to provide this additional clarification, as follows:

The *Radiological Impacts of Normal Operation* and the *Turkey Point ISFSI Dose Rate Evaluation* calculations contain the requested information and are available for inspection in the FPL online reference portal.

Sections 3.13 and 5.4 of *Radiological Impacts of Normal Operation*, **Revision 008**, indicate that Turkey Point Units 6 and 7 are at least 3000 ft from the ISFSI and that the dose rate at this distance from a fully loaded ISFSI is approximately ~~0.009~~ **0.013** mrem/yr. **This is an increase from the previously calculated dose rate because the ISFSI design has been updated to increase the capacity from 52 to 66 storage modules.** Attachment D of the calculation provides further details on the determination of the distance and the dose rate. **Figure D-1 of the calculation shows the location of the ISFSI with respect to Units 3 and 4 while Figure D-2 shows the location of Units 6 and 7 with respect to the ISFSI.**

Section 1.0 of *Turkey Point ISFSI Dose Rate Evaluation*, **Revision 0**, indicates that the Monte Carlo N-Particle Transport Code, Version 5 (MCNP5) computer program is used to calculate dose rates, assuming the ISFSI is fully loaded with ~~52~~ **66** horizontal storage modules, each containing design basis PWR fuel. Sections 6.0 and 7.0 of the calculation provide further information on the methodology and the MCNP5 model.

**As indicated in Environmental Report Table 3.9-1, commercial operation of Units 6 and 7 is scheduled to commence in the third quarter of 2022 and 2023, respectively. Hence, Unit 7 construction workers will be exposed to radiation from Units 3, 4, and 6 and the ISFSI for a year from the third quarter of 2022 to the third quarter of 2023. To date, 20 horizontal storage modules have been placed on the ISFSI pad. Current plans call for up to 18 additional modules to be loaded prior to the end of 2023, meaning a maximum of 38 modules during the construction of Unit 7. Therefore, calculating the construction worker doses based on 66 modules is conservative.**

This response is PLANT SPECIFIC.

**References:**

None

**ASSOCIATED COLA REVISIONS:**

The first paragraph of FSAR Subsection 12.4.1.9.3 will be changed as follows in a future COLA revision:

12.4.1.9.3 Construction Worker Dose Estimates

Although there has been no measurable direct radiation from Units 3 & 4, the direct dose rate in the Units 6 & 7 construction area from each existing unit is assumed to be 1 mrem per year. Compared to this, the calculated dose rate of ~~0.009~~ **0.013** mrem per year from a fully loaded ISFSI is negligible.

**ASSOCIATED ENCLOSURES:**

None



**[Supplemental Information Request 2]**

**NRC RAI Letter No. PTN-RAI-LTR-031 Dated July 20, 2011**

**SRP Section: 12.03-12.04 – Radiation Protection Design Features**

Question from Health Physics Branch (CHPB)

**NRC RAI Number: 12.4.1.9.3-3 (eRAI 5430)**

Subsection 12.4.1.9.3 states that "Gaseous effluent doses from Units 3 & 4 were estimated from the annual effluent reports for those units." However, the applicant did not provide the calculated gaseous effluent dose from Units 3 & 4, nor did it reference the specific annual effluent reports that support the applicant's construction worker exposure analysis. Please provide the calculated construction worker dose from Units 3 & 4 gaseous effluents, along with the data used to perform the calculation. The data should reference the applicable annual reports and include the assumed effluent source terms, locations where exposure results were calculated, and assumed  $\chi/Q$ . In addition, these data should be evaluated to ensure that they are representative of Units 3 & 4 plant operating conditions that will be expected during the period of construction for Units 6 & 7.

**FPL RESPONSE:**

In response to an NRC letter to FPL dated July 20, 2011, Request for Additional Information Letter No. 031 Related to SRP Section: 12.03 – Radiation Protection Design Features for the Turkey Point Nuclear Plant Units 6 and 7 Combined License Application, FPL submitted an initial response to eRAI 5430 in a letter, L-2011-332, to the NRC dated August 19, 2011, "Response to NRC Request for Additional Information Letter No. 031 (eRAI 5430) Standard Review Plan Section 12.03-12.04 Radiation Protection Design Features." Subsequent to that submittal, additional clarification to the initial response is necessary.

This submittal revises the initial response to provide this additional clarification, as follows:

The *Radiological Impacts of Normal Operation* calculation, **Revision 008**, contains the requested information and is available for inspection in the FPL online reference portal.

**Specifically, the calculation contains the following information:**

- **Annual effluent reports for Units 3 and 4 for the years 2004 to 2008 were used to estimate the gaseous effluent doses to construction workers, as indicated in Section 3.2. As five years of data is used, these effluent reports are considered representative of plant conditions during the construction of Units 6 and 7.**

**Furthermore, as indicated in the footnotes of Table 5-8, the maximum doses over the five years are utilized as representative.**

- **The gaseous effluent source terms are shown in Tables 3-2 to 3-11.**
- **The doses to construction workers were calculated at a distance of 0.25 mile from Units 3 and 4, where the  $\chi/Q$  is  $2.9E-6 \text{ sec/m}^3$ , as shown in Table 5-8 and its footnotes.**

This response is PLANT SPECIFIC.

**References:**

None

**ASSOCIATED COLA REVISIONS:**

None

**ASSOCIATED ENCLOSURES:**

None