**Attachment 4 Contains Proprietary Information**
Withhold Attachment 4 from Public Disclosure in Accordance with 10 CFR 2.390

FPL.

L-2015-189
10 CFR 50.90
October 6, 2015

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

Re: Turkey Point Nuclear Plant, Units 3 and 4
Docket Nos. 50-250 and 50-251
License Amendment Request 240, Conditional Exemption from End-of-Life Moderator Temperature Coefficient Measurement

Pursuant to 10 CFR 50.90, Florida Power & Light Company (FPL) hereby requests a license amendment to revise the technical specifications (TS) for Turkey Point Units 3 and 4. The proposed change revises the end-of-life moderator temperature coefficient (MTC) surveillance requirement 4.1.1.3.b for Turkey Point Units 3 and 4 by placing a set of conditions on reactor core operation, which if met, would allow exemption from the required MTC measurement.

The Enclosure to this letter provides FPL's evaluation of the proposed changes and contains six attachments. Attachment 1 to the enclosure provides a markup of the TS showing the proposed change, and the clean TS page containing the proposed change is included in Attachment 2. Included in Attachment 3 for information only is a proposed change to the Core Operating Limits Report.

Beaver Valley Power Station (BVPS), Farley Nuclear Plant (FNP), and Vogtle Electric Generating Plant (VEGP) previously submitted similar license amendment requests (LARs) and received requests for additional information (RAI) from the NRC regarding the LARs. Therefore, FPL has included responses to the RAI questions as they relate to the Turkey Point LAR in Attachment 4, FPL Response to BVPS, FNP and VEGP RAI Questions (Proprietary), and Attachment 5, FPL Response to BVPS, FNP and VEGP RAI Questions (Non-Proprietary).

Attachment 4 contains information proprietary to Westinghouse Electric Company, LLC and is supported by an affidavit in Attachment 6 signed by Westinghouse, the owner of the information. The affidavit sets forth the basis on which the information may be withheld from public disclosure and addresses with specificity the considerations listed in paragraph (b)(4) of Section 2.390 of the Commission's regulations. Accordingly, it is respectfully requested that the information which is proprietary to Westinghouse be withheld from public disclosure in accordance with 10 CFR 2.390. Correspondence with respect to the copyright or proprietary aspects of the items listed above or the supporting Westinghouse affidavit should reference

A001
NRR

CAW-15-4156 and should be addressed to James A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company, 1000 Westinghouse Drive, Building 3 Suite 310, Cranberry Township, Pennsylvania 16066.

As discussed in the evaluation, the proposed change does not involve a significant hazards consideration pursuant to 10 CFR 50.92, and there are no significant environmental impacts associated with the change.

The Turkey Point Plant Nuclear Safety Committee (PNSC) has reviewed the proposed license amendment. In accordance with 10 CFR 50.91(b)(1), a copy of this letter is being forwarded to the designee of the State of Florida.

There are no new commitments made in this submittal.

FPL requests approval of this amendment request by October 1, 2016 and implementation within 90 days.

Should you have any questions regarding this submittal, please contact Mr. Mitch Guth, Licensing Manager, at 305-246-6698.

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

Executed on October 6, 2015

Sincerely,

Thomas Summers
Site Vice President
Turkey Point Nuclear Plant

Enclosure

cc: NRC Regional Administrator, Region II
NRC Senior Resident Inspector
NRC Project Manager
Ms. Cindy Becker, Florida Department of Health

# ENCLOSURE

Evaluation of the Proposed Change

SUBJECT: License Amendment Request 240, Conditional Exemption from End-of-Life Moderator Temperature Coefficient Measurement

## 1.0 SUMMARY DESCRIPTION

The proposed change revises the near-end of life (EOL) Moderator Temperature Coefficient (MTC) Surveillance Requirement (SR) 4.1.1.3.b for Turkey Point Units 3 and 4 by placing a set of conditions on reactor core operation, which if met, would allow exemption from the required MTC measurement. The conditional exemption will be determined on a cycle-specific basis by considering the margin predicted to the SR MTC limit and by the performance of other reactor core parameters, such as beginning of life (BOL) MTC measurements and the critical boron concentration as a function of cycle length. The conditional exemption will improve plant availability and minimize disruptions to normal plant operation with no compromise in plant safety. No changes to the Technical Specification (TS) Bases will be required as a result of the proposed amendment.

## 2.0 DETAILED DESCRIPTION

WCAP-13749-P-A, Safety Evaluation Supporting the Conditional Exemption of the Most Negative EOL Moderator Temperature Coefficient Measurement [Reference 1], included suggested TS markups. The proposed TS changes are consistent with the WCAP's revisions. The notation added to the SR references the WCAP. This provides the necessary linkage to ensure the MTC prediction satisfies the requisite criteria of WCAP-13749-P-A.

The following Note is proposed to be added to SR 4.1.1.3.b:

> "Measurement of the MTC in accordance with Surveillance Requirement 4.1.1.3.b may be suspended provided that the benchmark criteria in WCAP-13749-P-A and the Revised Prediction specified in the COLR are satisfied."

## 3.0 TECHNICAL EVALUATION

One of the controlling parameters for power and reactivity increases is the MTC. The requirements of TS 3.1.1.3, Moderator Temperature Coefficient, ensure that the MTC remains within the bounds used in the applicable Updated Final Safety Analysis Report (UFSAR) accident analysis (Chapter 14). This, in turn, ensures inherently stable power operations during normal operation and accident conditions.

TS 3.1.1.3 places limits on the MTC, based on the accident analysis assumptions for the moderator density coefficient (MDC). A positive MDC corresponds to a negative MTC. TS 3.1.1.3 requires that the MTC be less negative than the specified limit for the all rods withdrawn, EOL, Rated Thermal Power condition. To demonstrate compliance with the Limiting Condition for Operation (LCO) for the most negative MTC LCO, SR 4.1.1.3.b requires verification of the MTC after a 300 parts per million (ppm) equilibrium boron concentration is reached. Because the Hot Full Power (HFP) MTC value will gradually become more negative with additional core burnup and reduction in boron concentration, a 300 ppm MTC surveillance value should be less negative than the EOL LCO limit. To account for this effect, the 300 ppm MTC surveillance value is sufficiently less negative than the EOL LCO limit value, to provide assurance that the LCO limit will be met as long as the 300 ppm MTC surveillance criterion is met.

Currently, the TS require measurements of MTC at BOL to verify the most positive MTC limit is satisfied and near EOL to verify the most negative MTC limit is satisfied. At BOL, the measurement of the isothermal temperature coefficient is relatively simple to perform since it is done at hot zero power isothermal conditions and is not complicated by changes in the reactor coolant enthalpy rise or the presence of xenon. The measurement made near-EOL is performed at or near HFP conditions. MTC measurements at HFP are more difficult to perform due to small variations in soluble boron concentration, changes in xenon concentration and distribution, changes in fuel temperature, and changes in reactor coolant enthalpy rise created by small changes in the core average power during the measurement. Changes in each of these parameters must be accurately accounted for when reducing the measurement data, or additional measurement uncertainties will be introduced. Even though these additional uncertainties may be small, the total reactivity change associated with the swing in moderator temperature is also relatively small. The resulting MTC measurement uncertainty created by even a small change in power level can then become significant and, if improperly accounted for, can yield misleading measurement results.

The MTC measurement typically includes time at reduced power as a result of the measurement procedures. This measurement introduces a perturbation to normal reactor operation and increases the potential for a human performance error involving a reactivity manipulation. An alternate method is proposed to improve availability and minimize perturbations on normal reactor operation. The MTC measurement is replaced by a design calculation of the core MTC if predefined requirements are met.

The proposed change would modify the EOL MTC SR by placing a set of conditions on core operations. If these conditions are met, i.e., the specified revised prediction of the MTC and several core parameters measured during the cycle are within specified bounds, the surveillance measurement would not be required to be performed.

The proposed conditional exemption from the HFP near-EOL 300 ppm MTC measurement does not impact the safe operation of Turkey Point Units 3 and 4. The safety analysis assumption of a constant MDC and the actual value assumed will not change. The proposed change uses a revised prediction to determine if the MTC surveillance limit is met. The proposed method for calculating the revised prediction is consistent with the approved algorithm contained in WCAP-13749-P-A, "Safety Evaluation Supporting the Conditional Exemption of the Most Negative EOL Moderator Temperature Coefficient Measurement."

The methodology associated with the proposed change was submitted to the NRC in Westinghouse topical report WCAP-13749-P in June 1993. In October 1996, the NRC determined the report to be acceptable for referencing in license applications to the extent specified and under the limitations stated in the Brookhaven Technical Evaluation Report (TER) and the NRC staff's Safety Evaluation Report.

The NRC approved WCAP-13749-P-A with two conditions:

"(1) only PHOENIX/ANC calculation methods are used for the individual plant analyses relevant to determinations for the EOL MTC plant methodology, and

(2) the predictive correction is reexamined if changes in core fuel designs or continued MTC calculation/measurement data show significant effect on the predictive correction."

The FPL resolution to both of these conditions is discussed below.

Condition 1

Only PHOENIX/ANC calculation methods are used for the individual plant analyses relevant to determinations for the EOL MTC plant methodology.

FPL Disposition to Condition 1

The Turkey Point core design calculations currently are performed with the PHOENIX-P lattice code to generate cross-section data; however, the calculations may eventually transition to those that use the PARAGON lattice code.

In Section 4.0, Conditions and Limitations of the NRC's Safety Evaluation (SE) for WCAP-16045-P-A, "Qualification of the Two-Dimensional Transport Code PARAGON," (Reference 2), the NRC stated:

> "1. The PARAGON code can be used as a replacement for the PHOENIX-P lattice code, whenever the PHOENIX-P code is used in NRC approved methodologies."

The NEXUS methodology is a re-parameterization of the PARAGON nuclear data output and a new reconstruction approach within the ANC core simulator code to simplify the use of this code system for design use. NEXUS has been implemented in the PARAGON/ANC code system for design use. Specifically, the NEXUS methodology has been implemented in the parameterization of PARAGON cross sections for input to ANC and also in ANC to reconstruct those cross sections at specific nodal conditions. The NEXUS methodology provides a linkage between PARAGON and ANC, establishing a new code system, while still using PARAGON.

In Section 5.0, Conclusion, of the NRC's SE for WCAP-16045-P-A, Addendum 1-A, "Qualification of the NEXUS Nuclear Data Methodology," (Reference 3), the NRC stated:

> "The NRC staff has reviewed the TR submitted by Westinghouse and determined that the NEXUS/ANC code system is adequate to replace the PARAGON/ANC code system wherever the latter is used in NRC-approved methodologies."

As discussed above, future core design calculations that are performed using the PARAGON/ANC or NEXUS/ANC system will be equivalent to those performed with those using the PHOENIX/ANC system. The use of PARAGON is consistent with condition (1) above in the NRC SER for WCAP-13749-P-A, since it was benchmarked against PHOENIX-P. Similarly, the use of NEXUS is consistent with condition (1) above in the SER for WCAP-13749-P-A, since it was benchmarked against PARAGON (which was benchmarked against PHOENIX-P). Therefore the PARAGON and NEXUS codes satisfy the TER requirement to demonstrate the uncertainty limits assumed in WCAP-13749-P-A, as discussed on page 5 of the TER. The NRC used this TER as the basis for their SER.

For additional information regarding how FPL will meet this Condition, see Attachment 4 (proprietary) or Attachment 5 (non-proprietary), FPL Response to BVPS, FNP and VEGP RAI Questions.

Condition 2

The predictive correction is reexamined if changes in core fuel designs or continued MTC calculation/measurement data show significant effect on the predictive correction.

FPL Disposition to Condition 2

Prior to the use of the conditional elimination technique, FPL will confirm that core design changes and MTC calculation and measurement data do not show a significant effect on the predictive correction. The administrative controls for this confirmation will reside in the Turkey Point procedure that controls the EOL MTC surveillance. If a significant effect is found, the use of the predictive correction will be re-examined.

All of the core performance benchmark criteria confirmed from startup physics test results, from routine HFP boron concentration measurements, and from flux map surveillances performed during the cycle must be met before the Revised Predicted MTC can be calculated in accordance with the prescribed algorithm contained in Reference 1. An illustration of the benchmark criteria is contained in Table D-1, "Benchmark Criteria for Application of the 300 PPM MTC Conditional Exemption Methodology," in WCAP-13749-P-A.

For additional information regarding how FPL will meet this Condition, see Attachment 4 (proprietary) or Attachment 5 (non-proprietary).

FPL is using NRC-approved WCAP-13749-P-A as the basis for this license amendment request. FPL will meet all of the technical requirements in the approved WCAP-13749-P-A, but proposes an enhancement to reduce regulatory burden for both the NRC and the licensee. FPL proposes not to submit a "Most Negative Moderator Temperature Coefficient Limit Report" to the NRC, for two reasons. First, there is an inconsistency in WCAP-13749-P-A regarding the time frame of data collection and the submittal of the Most Negative Moderator Temperature Coefficient Limit Report to the NRC. Additionally, the Most Negative Moderator Temperature Coefficient Limit Report serves no apparent technical purpose. Each of these reasons is discussed below.

Section 3.3.3 of WCAP-13749-P-A states:

"The Technical Specification Bases of the most negative MTC LCO and SR and the values of these limits are not altered. Instead, a revised prediction is compared to the SR MTC to determine if the SR limit is met. The revised prediction is simply the sum of the predicted HFP 300 ppm SR MTC plus an AFD correction factor plus a predictive correction term. This algorithm is summarized in Table 3-3."

Appendix A of WCAP-13749-P-A requires a new Specification 6.9.1.7 to be added as stated below.

"6.9.1.7 The most negative MTC limits shall be provided to the NRC Regional Administrator with a copy to the Director of Nuclear Reactor Regulation, Attention: Chief, Core Performance Branch, U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, at least 60 days prior to the date the limit would become effective unless otherwise approved by the Commission by letter. This report will include the data required for the determination of the Revised Prediction of the 300 ppm/ARO/RTP MTC per WCAP-13749, "Safety Evaluation Supporting the Conditional Elimination of the Most Negative EOL Moderator Temperature Coefficient Measurement", May, 1993 (Westinghouse Proprietary)."

Since the Most Negative Moderator Temperature Coefficient Limit Report would have to be submitted at least 60 days before reaching 300 ppm boron concentration, it cannot include the 300 ppm data required for determining the Revised Prediction. To satisfy the Most Negative Moderator Temperature Coefficient Limit Report submittal requirement, the data to be used for calculating the revised predicted MTC may have to be taken 60 to 90 days prior to reaching 300 ppm boron. WCAP-13749-P-A does not provide any method for adjusting the revised predicted MTC to account for data collected 60 to 90 days prior to reaching 300 ppm boron, nor does it provide justification for using such early data in the calculation. Therefore, the requirement to submit the Most Negative Moderator Temperature Coefficient Limit Report and the requirements for the data that go into the report are inconsistent.

Additionally, the Most Negative Moderator Temperature Coefficient Limit Report serves no apparent technical requirement. The benchmark criteria and the algorithm in WCAP-13749-P-A for determining the revised predicted MTC will be incorporated into the applicable procedures. There is no compelling reason that this particular surveillance should require notifying the NRC prior to performing the surveillance procedure.

The exception of not including a "Most Negative Moderator Temperature Coefficient Limit Report" that is contained in WCAP-13749-P-A was approved by the NRC for South Texas Units 1 and 2 in Amendment 144 to Facility Operating License No. NPF-76 and Amendment 132 to Facility Operating License No. NPF-80 dated November 26, 2002.

The fourth paragraph in Section 3.2.1 of WCAP-13749-P-A states:

"As part of determining the applicability of a conditional exemption from the near-EOC MTC measurement, a cycle-specific figure similar to Figure 3-1 will be provided as part of that cycle's Technical Specifications or Core Operating Limits Report (COLR)."

However, the COLR changes contained in Appendix B, "COLR Revision," of WCAP-13749-P-A do not include a reference to Figure 3-1, Example of Predicted HFP ARO 300 ppm MTC Versus Cycle Burnup. As a result, FPL proposes referencing the appropriate cycle-specific Figure 3-1, Predicted HFP ARO 300 ppm MTC Versus Cycle Burnup, for Turkey Point and the benchmark criteria in the surveillance procedure associated with the EOL MTC measurement. The COLR will contain the algorithm for the Revised Predicted MTC similar to the draft change to the COLR shown in Attachment 3.

## 4.0 REGULATORY EVALUATION

### 4.1 Applicable Regulatory Requirements/Criteria

- 10 CFR 50.36(c), "Technical specifications," requires Technical Specifications to be included for the following categories:

  *(1) Safety limits, limiting safety system settings, and limiting control settings.*
  *(2) Limiting conditions for operation.*
  *(3) Surveillance requirements.*
  *(4) Design features.*
  *(5) Administrative controls.*

  10 CFR 50.36(c) (3) *Surveillance requirements*, states:

  "Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met."

  None of the TS categories are impacted by the proposed TS changes, and SR 4.1.1.3.b is not being deleted. The Bases for and values of the most negative MTC Limiting Condition for Operation and for the Surveillance Requirement are not altered. Instead, a revised prediction is compared to the MTC Surveillance limit to determine if the limit is met.

  Therefore, 10 CFR 50.36(c) continues to be met.

### 4.2 Precedent

Several license amendments have been approved allowing an alternative to an EOL MTC surveillance test measuring the MTC. The following are approved license amendments similar to Turkey Point's request:

- NRC letter to FPL Energy Seabrook, LLC, "Seabrook Station, Unit No. 1 – Issuance of Amendment RE: Removal of Requirement to Perform End-of-Life Moderator Temperature Coefficient Measurement (TAC No. MC 6566)," February 17, 2006, Accession No. ML060040160.
- NRC letter to FirstEnergy Nuclear Operating Company, "Beaver Valley Power Station, Unit Nos. 1 and 2 – Issuance of Amendments Regarding Technical Specification 3.1.3, 'Moderator Temperature Coefficient Measurement' (TAC Nos. ME9144 and ME9145)," September 17, 2014, Accession No. ML14245A151.
- NRC letter to STP Nuclear Operating Company, "South Texas Project, Units 1 and 2 – Issuance of Amendments Approving Technical Specification Changes Revising the End of Life Moderator Temperature Coefficient Surveillance

Requirements (TAC Nos. MB5160 and MB5161)," November 26, 2002, Accession No. ML023400252.

Turkey Point's request varies from these amendments because it does not add a reference to WCAP-13749-P-A in TS 6.9.1.7, Core Operating Limits Report. Consistent with GL 88-16, WCAP-13749-P-A does not establish a core operating limit. The footnote that modifies SR 4.1.1.3.b refers to WCAP-13749-P-A, so adding the reference to TS 6.9.1.7 would be redundant. In addition, the TS changes provided in WCAP-13749-P-A do not include a revision to the TS requirements for the COLR. Therefore, FPL determined that adding to TS 6.9.1.7 a reference to WCAP 13749-P-A would be redundant and unnecessary.

## 4.3 Significant Hazards Consideration

The proposed changes revise the near-end of life (EOL) Moderator Temperature Coefficient (MTC) Surveillance Requirement (SR) 4.1.1.3.b by placing a set of conditions on reactor core operation, which if met, would allow exemption from the required MTC measurement. The conditional exemption will be determined on a cycle-specific basis by considering the margin predicted to the surveillance requirement MTC limit and the performance of other reactor core parameters, such as beginning of life (BOL) MTC measurements and the critical boron concentration as a function of cycle length.

As required by 10 CFR 50.91(a), FPL has evaluated the proposed changes to the Turkey Point TS using the criteria in 10 CFR 50.92 and has determined that the proposed changes do not involve a significant hazards consideration. An analysis of the issue of no significant hazards consideration is presented below:

1: Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No

The safety analysis assumption of a constant moderator density coefficient and the actual value assumed are not changing. The Bases for and values of the most negative MTC Limiting Condition for Operation and for the Surveillance Requirement are not changing. Instead, a revised prediction is compared to the MTC Surveillance limit to determine if the limit is met.

The proposed changes to the TS do not affect the initiators of any analyzed accident. In addition, operation in accordance with the proposed TS changes ensures that the previously evaluated accidents will continue to be mitigated as analyzed. The proposed changes do not adversely affect the design function or operation of any structures, systems, and components important to safety.

The probability or consequences of accidents previously evaluated in the UFSAR are unaffected by this proposed change because there is no change to any

equipment response or accident mitigation scenario. There are no new or additional challenges to fission product barrier integrity.

Therefore, it is concluded that the proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2: Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No

The proposed changes do not involve a physical alteration of the plant (no new or different type of equipment will be installed). The proposed changes do not create any new failure modes for existing equipment or any new limiting single failures. Additionally the proposed changes do not involve a change in the methods governing normal plant operation and all safety functions will continue to perform as previously assumed in accident analyses. Thus, the proposed changes do not adversely affect the design function or operation of any structures, systems, and components important to safety.

No new accident scenarios, failure mechanisms, or limiting single failures are introduced as a result of the proposed changes. The proposed changes do not challenge the performance or integrity of any safety-related system.

Therefore, it is concluded that the proposed changes do not create the possibility of a new or different kind of accident from any previously evaluated.

3: Does the proposed amendment involve a significant reduction in a margin of safety?

Response: No

The margin of safety associated with the acceptance criteria of any accident is unchanged. The proposed change will have no affect on the availability, operability, or performance of the safety-related systems and components. A change to a surveillance requirement is proposed based on an alternate method of confirming that the surveillance is met. The Technical Specification Limiting Condition for Operation limits are not being changed.

The proposed change will not adversely affect the operation of plant equipment or the function of equipment assumed in the accident analysis.

Therefore, it is concluded that the proposed change does not involve a significant reduction in a margin of safety.

Based upon the above analysis, FPL concludes that the proposed amendment does not involve a significant hazards consideration, under the standards set forth in 10 CFR

50.92(c), "Issuance of Amendment," and accordingly, a finding of "no significant hazards consideration" is justified.

### 4.4 Conclusions

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

## 5.0 ENVIRONMENTAL CONSIDERATIONS

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR Part 20, or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

## 6.0 REFERENCES

1. WCAP-13749-P-A, "Safety Evaluation Supporting the Conditional Exemption of the Most Negative EOL Moderator Temperature Coefficient Measurement," March 1997.

2. WCAP-16045-P-A, "Qualification of the Two-Dimensional Transport Code PARAGON," August 2004.

3. WCAP-16045-P-A, Addendum 1-A, "Qualification of the NEXUS Nuclear Data Methodology," August 2007.

# Attachment 1

Markup of Technical Specification Page

LIMITING CONDITION FOR OPERATION

ACTION: (Continued)

b. With the MTC more negative than the EOL limit specified in the COLR, be in HOT SHUTDOWN within 12 hours.

SURVEILLANCE REQUIREMENTS

4.1.1.3 The MTC shall be determined to be within its limits during each fuel cycle as follows:

a. The MTC shall be measured and compared to the BOL limit specified in the COLR, prior to initial operation above 5% of RATED THERMAL POWER, after each fuel loading; and

b. The MTC shall be measured at any THERMAL POWER and compared to the 300 ppm surveillance limit specified in the COLR (all rods withdrawn, RATED THERMAL POWER condition) within 7 EFPD after reaching an equilibrium boron concentration of 300 ppm.* In the event this comparison indicates the MTC is more negative than the 300 ppm surveillance limit specified in the COLR, the MTC shall be remeasured, and compared to the EOL MTC limit specified in the COLR, at least once per 14 EFPD during the remainder of the fuel cycle.

* Measurement of the MTC in accordance with Surveillance Requirement 4.1.1.3.b may be suspended provided that the benchmark criteria in WCAP-13749-P-A and the Revised Prediction specified in the COLR are satisfied.

# Attachment 2

Clean Revised Technical Specification Page

LIMITING CONDITION FOR OPERATION

ACTION: (Continued)

b. With the MTC more negative than the EOL limit specified in the COLR, be in HOT SHUTDOWN within 12 hours.

SURVEILLANCE REQUIREMENTS

4.1.1.3 The MTC shall be determined to be within its limits during each fuel cycle as follows:

a. The MTC shall be measured and compared to the BOL limit specified in the COLR, prior to initial operation above 5% of RATED THERMAL POWER, after each fuel loading; and

b. The MTC shall be measured at any THERMAL POWER and compared to the 300 ppm surveillance limit specified in the COLR (all rods withdrawn, RATED THERMAL POWER condition) within 7 EFPD after reaching an equilibrium boron concentration of 300 ppm*. In the event this comparison indicates the MTC is more negative than the 300 ppm surveillance limit specified in the COLR, the MTC shall be remeasured, and compared to the EOL MTC limit specified in the COLR, at least once per 14 EFPD during the remainder of the fuel cycle.

* Measurement of the MTC in accordance with Surveillance Requirement 4.1.1.3.b may be suspended provided that the benchmark criteria in WCAP-13749-P-A and the Revised Prediction specified in the COLR are satisfied.

# Attachment 3

Change to Core Operating Limits Report
(Information Only)

**2.5 Moderator temperature coefficient (MTC) (TS 3.1.1.3)**

- **$\leq$ + 5.0 x $10^{-5}$ $\Delta k/k/°F$** — BOL, HZP, ARO and, from HZP to 70% Rated Thermal Power (RTP)

- **From 70% RTP to 100% RTP the MTC decreasing linearly from $\leq$ + 5.0 x $10^{-5}$ $\Delta k/k/°F$ to $\leq$ 0.0 x $10^{-5}$ $\Delta k/k/°F$**

- **Less negative than - 41.0 x $10^{-5}$ $\Delta k/k/°F$** — EOL, RTP, ARO

**2.6 Moderator temperature coefficient (MTC) Surveillance at 300 ppm (TS 4.1.1.3)**

- **Less negative than - 35.0 x $10^{-5}$ $\Delta k/k/°F$** — Within 7 EFPD of reaching equilibrium boron concentration of 300 ppm.

← Insert 1

**2.7 Analog Rod Position Indication System (TS 3.1.3.2)**

- **Figure A3** (page 14A-A9) — The All Rods Out (ARO) position for all shutdown Banks and Control Banks is defined to be 230 steps withdrawn.

**2.8 Control Rod Insertion Limits (TS 3.1.3.6)**

- **Figure A3** (page 14A-A9) — The control rod banks shall be limited in physical insertion as specified in Figure A3 for ARO = 230 steps withdrawn.

**2.9 Axial Flux Difference (TS 3.2.1)**

- **Figure A4** (page 14A-A10)

**2.10 Heat Flux Hot Channel Factor $F_Q(Z)$ (TS 3.2.2)**

- **$[F_Q]^L = 2.30$**

- **K(z) = 1.0** — For 0' $\leq$ z $\leq$ 12' where z is core height in ft

**Insert 1**

The Revised Predicted near – EOL 300 ppm MTC shall be calculated using the algorithm contained in WCAP-13749-P-A:

Revised Predicted MTC = Predicted MTC + AFD Correction - 3 PCM/degree F

If the Revised Predicted MTC is less negative than the SR 4.1.1.3.b 300 ppm surveillance limit and all the benchmark data contained in the surveillance procedure are met, then an MTC measurement in accordance with SR 4.1.1.3.b is not required to be performed.

**Attachment 5**

FPL Response to BVPS, FNP and VEGP RAI Questions (Non-Proprietary)

**BVPS RAI Question 1:**

**In accordance with the second condition in the NRC staff's safety evaluation for WCAP-13749-P-A, the licensee proposed to confirm, on a cycle-specific basis, that core fuel design changes or data from MTC predictions and measurements do not show a significant effect on the predictive correction. Please clarify the process and criteria for making this determination and justify their adequacy (e.g., statistical testing, engineering judgment, etc.).**

Response:

As described in WCAP-13749-P-A, "Safety Evaluation Supporting the Conditional Exemption of the Most Negative EOL Moderator Temperature Coefficient Measurement," approved in March 1997, the HFP predictive correction accounts for the observed differences between the measured and predictive (M-P) MTCs. "The hot full power (HFP) predictive correction ([ ]$^{a,c}$) was "derived by summing the hot zero power (HZP) predictive correction, the xenon sensitivity and the burnup sensitivity." The HZP predictive correction is provided in WCAP-13749-P-A. As long as the beginning of life (BOL) HZP MTC (M-P) is less negative than the HZP predictive correction, the HFP predictive correction is valid for use during the cycle.

Tables 1 and 2 provide Beginning-of-Life (BOL) HZP Isothermal Temperature Coefficient (ITC) measured values (ITC M), predicted values (ITC P), and the measured minus the predicted values (M-P) for each cycle listed for Turkey Point Unit 3 and Unit 4. The ITC M for both units is consistently more positive than ITC P, and therefore is conservative for evaluating the continued use of the HFP predictive correction value of [ ]$^{a,c}$. Note that the BOL HZP ITC data was included instead of BOL HZP MTC data as the measured BOL HZP MTC is just the predicted BOL HZP Doppler Temperature Coefficient (DTC) subtracted from the measured BOL HZP ITC. Therefore, the same M-P value will be calculated for the BOL HZP MTC and BOL HZP ITC data sets. Thus, the conclusion that the HFP predictive correction is valid for use during the Turkey Point Unit 3 and Unit 4 cycles is still valid.

Table 1: Turkey Point Unit 3 BOL HZP ITC Data (all values in pcm/°F)

| Cycle | ITC M | ITC P | (M-P) |
|---|---|---|---|
| 25 | -2.214 | [ ]$^{a,c}$ | [ ]$^{a,c}$ |
| 26 | 0.004 | [ ]$^{a,c}$ | [ ]$^{a,c}$ |
| 27 | -1.732 | [ ]$^{a,c}$ | [ ]$^{a,c}$ |

Table 2: Turkey Point Unit 4 BOL HZP ITC Data (all values in pcm/°F)

| Cycle | ITC M | ITC P | (M-P) |
|---|---|---|---|
| 26 | -0.337 | [ ]a,c | [ ]a,c |
| 27 | -1.456 | [ ]a,c | [ ]a,c |
| 28 | -0.821 | [ ]a,c | [ ]a,c |

WCAP-13749-P-A states, "...the (HFP) predictive correction is reexamined if changes in core fuel designs or continued MTC calculation/measurement data show significant effect on the predictive correction." During the Turkey Point core design process for each cycle, FPL would verify that the predictive correction remains valid for the applicable fuel cycle by performing the following two qualitative assessments.

1. FPL would identify fuel and core design methodology changes as part of the fuel design process. Prior to each reload, a reload risk evaluation checklist is used to identify and determine the risk of major fuel design changes or core design methodology changes. This checklist would identify whether the reload will use revised or different methodologies, and assesses the impact of these changes on the existing analyses. This evaluation would provide initial indication of a possible change in the BOL HZP MTC (M-P) relationship prior to startup of the fuel cycle.

2. Per TS 3.1.1.3, each cycle during low power physics testing, FPL measures the BOL HZP MTC. Prior to each conditional exemption of the end of life (EOL) HFP MTC measurement test, FPL would compare Turkey Point specific MTC (M-P) data each cycle against previous cycles to determine if there is a change to the measured vs. predicted MTC relationship.

If the value of the BOL HZP MTC (M-P) approaches the HZP predictive correction given in WCAP-13749-P-A then FPL would evaluate the use of the HFP MTC predictive correction to show that the value of [ ]a,c is conservative or measure the EOL HFP MTC in accordance with the Technical Specifications. The above tools and assessments would be used each cycle during and after a transition to NEXUS/ANC9 (PARAGON) to verify continued consistency and validity of the BOL HZP MTC (M-P) relationship as it pertains to the predictive correction of WCAP-13749-P-A.

**<u>BVPS RAI Question 2:</u>**

**The predictive correction term defined in WCAP-13749-P-A is based, in part, on a tolerance limit that Westinghouse derived from differences between a set of measured and predicted values of the MTC at the beginning of an operating cycle at hot, zero-power conditions. Specifically, the predicted MTC values in WCAP-13749-P-A were determined from calculations using the PHOENIX-P/ANC code package for a variety of pressurized-water reactor (PWR) core designs prior to 1995. Although the NRC staff has approved the PARAGON lattice physics code as a replacement to PHOENIX-P, it cannot**

**not be concluded that the statistical database, and hence the predictive correction terms, for the two codes will be equivalent. Therefore, if approval for the use of the predictive correction term derived for the PHOENIX-P code for calculations with the PARAGON code is sought under this license amendment request, please provide unbiased and statistically significant data analogous to that reported in Table 3-1 of WCAP-13749-P-A for calculations performed with the PARAGON code for contemporary PWR core designs, along with: (1) justification that this data belongs to the same population as the pre-1995 data in WCAP-13749-P-A, generated with the PHOENIX-P code; or (2) a new predictive correction term for the PARAGON code for contemporary cores that is based on a 95/95 tolerance limit appropriate for modifying end-of-cycle MTC predictions made with this code.**

Response:

A database of plants is used for regression testing and continued qualification of core design system code releases. This database consists of multiple cycles of plants chosen to encompass the variety of plant, fuel lattice types, and fuel management strategies that the code will be used to analyze. Comparison of the results for any release with those of previous releases assures continued compliance of the code with its licensing basis.

This set of contemporary PWR cores has been selected as representative of the statistical database used in WCAP-13749-P-A. These cores have been modeled using both PHOENIX-P/ANC and NEXUS/ANC (the NEXUS cross-section generation system uses PARAGON as the lattice transport code).

Table 1 below lists data analogous to that reported in Table 3-1 of WCAP-13749-P-A for calculations performed with NEXUS/ANC. Benchmarks for both PHOENIX-P/ANC and NEXUS/ANC are listed in the table to show a comparison between the two code sets. Measured End-Of-Cycle (EOC) Hot Full Power (HFP) Moderator Temperature Coefficient (MTC) data is not readily available for most of the benchmark cores, and therefore, for this parameter, measured-minus-predicted data was only provided for Turkey Point for PHOENIX-P/ANC. Additionally, Beginning-of-Cycle (BOC) Hot Zero Power (HZP) Isothermal Temperature Coefficient (ITC) data was included instead of BOC HZP MTC data as the measured BOC HZP MTC is just the predicted BOC HZP Doppler Temperature Coefficient (DTC) subtracted from the measured BOC HZP ITC.

The results in Table 1 show that [

]$^{a,c}$ Using the measured-minus-predicted values in Table 1, the predictive correction term from WCAP-13749-P-A [
]$^{a,c}$

Using commercial statistics software, the BOC HZP ITC M-P data points in Table 1 have been demonstrated to fall within a normal distribution per the Anderson-Darling and Ryan-Joiner tests, with a M-P mean of [ ]$^{a,c}$ pcm/°F and a standard deviation of [ ]$^{a,c}$ pcm/°F. From this data, a 95/95 one-sided tolerance limit for the HZP predictive correction of [ ]$^{a,c}$ pcm/°F can be calculated using a K-value of [ ]$^{a,c}$

Applying [
]$^{a,c}$ from WCAP-13749-P-A [ ]$^{a,c}$ yields a HFP predictive correction of [ ]$^{a,c}$ pcm/°F. [

]$^{a,c}$

Additionally, the predictive correction term for PHOENIX-P/ANC was recalculated for comparison (for contemporary cores). [ ]$^{a,c}$ using the K-value of [ ]$^{a,c}$ a HZP predictive correction of [ ]$^{a,c}$ pcm/°F was calculated. [
]$^{a,c}$ yields a HFP predictive correction of [ ]$^{a,c}$ pcm/°F. [
]$^{a,c}$ This shows that: (1) the PHOENIX-P/ANC results in WCAP-13749-P-A are reproducible with the contemporary PWR cores and latest code versions, and (2) the set of cores chosen represents a good unbiased sample of the larger data set used in WCAP-13749-P-A.

**Table 2: Summary of Statistics for Measured Minus Predicted Differences of Critical boron, ITC, MTC, and Rod Worths for Westinghouse Cores**

a,c

| Parameter | PHOENIX-P/ANC | | NEXUS/ANC | | No. |
|---|---|---|---|---|---|
| | Mean | Std. Dev. | Mean | Std. Dev. | Pts. |

**Farley and Vogtle RAI Question 1:**

**On December 28, 2012, the NRC issued requests for additional information (RAIs) for a similar license amendment request (LAR) at Beaver Valley Power Station (BVPS). In Enclosure 9, SNC provided their responses to these RAIs. Table 1 of Enclosure 9 provides a summary of statistics to compare PHOENIX-P/ANC and NEXUS/ANC results. Though the PHOENIX-P/ANC and NEXUS/ANC results compare favorably to each other, they appear to differ significantly from the values found in Table 3-1 of WCAP-13749-P-A. Please discuss this discrepancy.**

**In this discussion, emphasis should be placed on the differences in the means and standard deviations between the two tables, particularly for the end-of-cycle (EOC) hot full power (HFP) moderator temperature coefficient (MTC). The discussion should present a statistical analysis of the datasets used to generate the two tables to explain whether or not the results presented belong to the same population.**

**"The discussion should also address the deviation between measured and predicted critical boron throughout the cycle. Based on the statistics provided, many of the calculated values would apparently violate the generally-used acceptance criterion of ± 50 ppm for comparison to measurements (as discussed in ANSI/ ANS-19.6.1, the PARAGON topical report WCAP-16045-P-A, and others).**

Response

Response to Paragraphs 1 and 2

The plants and cycles used for benchmarking Westinghouse PWR nuclear analysis methods are continuously updated to reflect the changes that occur in fuel management and operations. Westinghouse does not use one single consistent set of plant/cycles for code qualification, because that would restrict the validation basis to include only old operating cycles that do not reflect today's modern fuel designs, power uprates, increased fuel burnups, and longer cycles with higher operating capacity factors.

Table 3-1 in WCAP-13749-P-A compares the measured to predicted EOL HFP MTC. The Table 3-1 results show a mean difference of [ ]$^{a,c}$ pcm/°F and a standard deviation of [ ]$^{a,c}$ pcm/°F based on [ ]$^{a,c}$ data points. Based on RAIs received for the EOL MTC topical report, additional data was also provided in Section G, Table 2 of that topical report. The EOC HFP MTC data is expanded to include [ ]$^{a,c}$ data points with a mean difference of [ ]$^{a,c}$ pcm/°F and a standard deviation of [ ]$^{a,c}$ pcm/°F.

The response to BVPS RAI Question 2 compared recent NEXUS/ANC code system predictions to recent PHOENIX-P/ANC code system predictions to establish the similarity of predictions for MTC and ITC between the two code systems. The data presented was from the qualification of the NEXUS/ANC code system, so it used the more recent plant/cycle data used in that code system qualification. However, EOL HFP MTC comparisons of measured and predicted data were not available for this qualification effort, so only comparisons of predictions for EOL HFP MTC between the NEXUS/ANC and PHOENIX-P/ANC code systems were presented. These comparisons demonstrate the predictive capability for the NEXUS/ANC code system is comparable to the predictive capability for the PHOENIX-P/ANC code system.

Table 1 in the response to BVPS RAI Question 2 provides the ITC and MTC comparisons. Using the more recent plant/cycle data, the BOC, HZP ITC predictions from [ ]$^{a,c}$ data points using the PHOENIX-P/ANC code system show a mean difference of [ ]$^{a,c}$ pcm/°F and a standard deviation of [ ]$^{a,c}$ pcm/°F. This code performance is comparable to the data presented in the EOL MTC topical report. The comparable NEXUS/ANC code system data shows a mean difference of [ ]$^{a,c}$ pcm/°F and a standard deviation of [ ]$^{a,c}$ pcm/°F. The NEXUS/ANC code system appears to be slightly more accurate for BOC, HZP ITC predictions compared to the PHOENIX-P/ANC code system, although the differences are relatively small. Absolute comparisons of predicted EOL, HFP MTC are also presented in that table for both code systems to again demonstrate the similarity of the predictions. These are not measured minus predicted comparisons, but just comparisons of absolute MTC predicted values. For the PHOENIX-P/ANC code system, the mean prediction is [ ]$^{a,c}$ pcm/°F with a standard deviation of [ ]$^{a,c}$ pcm/°F. For the NEXUS/ANC code system the mean prediction is [ ]$^{a,c}$ pcm/°F with a standard deviation of [ ]$^{a,c}$ pcm/°F. This comparison again demonstrates that the code systems provide comparable predictive capability, so the conclusions of the EOL MTC topical report, WCAP-13749-P-A would not change based on substitution of the NEXUS code system for the PHOENIX-P/ANC code system.

Some comparisons of PHOENIX-P/ANC code system predictions of EOL HFP MTC to measurements are also provided to illustrate that data comparisons using more recent plant/cycles show behavior that is as good as or better than that presented in the EOL MTC

measurement elimination topical report, WCAP-13749-P-A. The more recent PHOENIX-P/ANC code system EOL, HFP MTC measured to predicted comparisons show a mean difference of [ ]$^{a,c}$ pcm/°F and a standard deviation of [ ]$^{a,c}$ pcm/°F. These comparisons show somewhat better performance compared to the EOL MTC measurement elimination topical report, WCAP-13749-P-A, but are also taken from a smaller set of plant cycles, where [ ]$^{a,c}$ plant cycles are presented. Based on the close agreement between PHOENIX-P/ANC and NEXUS/ANC, as described above, comparable measured to predicted statistics for the EOL HFP MTC are expected when the predictions are based on NEXUS/ANC.

Response to Paragraph 3

Regarding the question on deviation between measured and predicted critical boron concentrations throughout the cycle, the measured data includes the effects of boron-10 ($^{10}B$) depletion in the coolant during the cycle, while the predictions assume the nominal (no $^{10}B$ depletion) $^{10}B$ fractions. During operation, the $^{10}B$ in the coolant will deplete due to exposure to neutron flux from the reactor core. As a result, the measured concentration at the middle of the cycle will be higher to maintain critical conditions than if no $^{10}B$ depletion occurred. Westinghouse chose to present the comparison data without accounting for depletion effects in the predictions, since we do not have access to the actual measured $^{10}B$ fractions for all of the cycles where we compare it to measured data. The effect of $^{10}B$ depletion is largest at the middle of cycle, where the measured concentrations are typically 50-100 ppm higher than if no $^{10}B$ depletion were occurring. Based on Westinghouse's experience with modeling $^{10}B$ depletion when the data is available, accounting for this effect would significantly reduce the mean error in the presented MOC data such that it would compare with or be better than previously reported performance statistics.

To illustrate this point, two plant cycles were simulated to predict the effects of $^{10}B$ depletion in the coolant. One is a three loop plant and the other is a four loop plant. The three loop plant shows that accounting for $^{10}B$ depletion increased the MOC boron concentration by [ ]$^{a,c}$ ppm, while the four loop result is a [ ]$^{a,c}$ ppm increase in predicted boron. These results are consistent with the reported MOC difference in boron concentration where $^{10}B$ depletion effects were not included in the predictions.

a,c

a,c

Response Conclusion

In conclusion, the plants/cycles chosen for code validation are always being updated as new data from more recent, modern core and fuel design become available. A comparison of the code performance for MTC predictions shows a general improvement over time. The NEXUS/ANC code system also shows slightly better performance compared to the older PHOENIX-P/ANC code system. As such, the conclusions of the EOL MTC measurement elimination topical report, WCAP-13749-P-A remain applicable when either code system is used.

**Farley and Vogtle RAI Question 2:**

**The LAR states that the 'FNP [Farley Nuclear Plant] and VEGP [Vogtle Electric Generating Plant] core design calculations are currently being transitioned from nuclear calculations that are performed with the PHOENIX-P lattice code to generate cross-section data to those that will be performed with the PARAGON lattice code.' Farley TS 5.6.5.b, the Core Operating Limits Report (COLR) reference list, includes references for PHOENIX-P as well as the PARAGON and NEXUS methodologies. Vogtle TS 5.6.5.b, on the other hand, does not include any of these references.**

**In both sites' TS, WCAP-9272-P-A, 'Westinghouse Reload Safety Evaluation Methodology' is referenced for calculation of the moderator temperature coefficient. WCAP-9272 states that 'the values of all measured parameters are calculated using the design codes described in Table 3.1.' Table 3.1 is a list of older neutronics codes, such as LEOPARD and TURTLE, which were in use at the time when WCAP-9272-P-A was first published in 1978. While the Vogtle and Farley Final Safety Analysis Reports (FSARs) include references to these older codes as well as newer codes like PHOENIX-P and ANC, they both indicate that the newer codes are used for core design.**

a. **Please discuss how WCAP-9272-P-A is being used for calculation of the MTC limits for TS 3.1.3 when the codes being used for design are not part of the WCAP-9272-P-A methodology.**

b. **Please provide a justification for why the COLR reference list for Vogtle does not need to be updated to include PHOENIX-P, PARAGON, and/or NEXUS. This is especially pertinent given that Farley submitted an LAR on August 14, 2012 (ADAMS Accession No. ML 12227A884), specifically to include NEXUS in their COLR reference list.**

Response to a.

WCAP-9272-P-A is currently being used at Turkey Point Units 3 and 4 for the calculation of the Moderator Temperature Coefficient (MTC) limits, as is currently identified in TS 6.9.1.7 for each of those plants. As noted in the RAI, the computer codes cited in WCAP-9272-P-A, LEOPARD and TURTLE have been superseded by newer codes, specifically PHOENIX-P and ANC, as correctly described in the Turkey Point Units 3 and 4 FSARs. ANC was approved by the NRC via WCAP-10965-P-A, which states: "The intended usage of the Advanced Nodal Code encompasses all applications described in the reload safety evaluation methodology topical report. [3]", where [3] refers to WCAP-9272-P-A. The NRC then approved the use of PHOENIX-P and ANC based on qualification work that was documented in WCAP-11596-P-A, which incorporates WCAP-10965-P-A by reference. This reference (WCAP-11596-P-A) thus supports the use of PHOENIX-P and ANC in lieu of LEOPARD and TURTLE.

Similarly, Westinghouse recently developed the NEXUS/PARAGON code suite for use with ANC and received NRC approval for its use in core design work via WCAP-16045-P-A and WCAP-16045-P-A, Addendum 1-A. These approvals support this application and provide the necessary benchmarking data to support Turkey Point Units 3 and 4 transitioning to NEXUS/PARAGON in the future.

The supporting Safety Evaluation Report for WCAP-9272-P-A acknowledges that "significant changes to codes and methods are extensively documented in topical reports to the NRC staff in order that generic approval be obtained." Likewise, as updated codes and methods are approved and used in reactor core designs they follow the design guideline provided in WCAP-9272-P-A and incorporated into the design using 10 CFR 50.59 because they are previously approved methods.

Response to b.

Similarly, like Vogtle, Turkey Point also does not include PHOENIX-P in the list of COLR methodologies. As stated, PHOENIX-P has been generically approved. When the PHOENIX-P method and other updated codes and methods are generically approved they can be incorporated into the plant's design using 10 CFR 50.59. Furthermore, these methods are tools used to confirm that reload parameters are bounded by the values used in the safety analysis. These tools are not methodologies used to calculate core operating limits. As such, Turkey Point does not propose to add PHOENIX-P, PARAGON, or NEXUS to the listed COLR references in the technical specifications.

# Attachment 6

Application for Withholding Proprietary Information from Public Disclosure

Westinghouse

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CAW-15-4156

April 7, 2015

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

Subject: **Turkey Point Units 3 and 4,Docket Nos. 50-250 and 50-251,License Amendment Request 240,Conditional Exemption from End-of Life Moderator Temperature Coefficient Measurement, FPL Response to BVPS, FNP and VEGP RAI Questions (Proprietary)**

The proprietary information for which withholding is being requested in the above-referenced document is further identified in Affidavit CAW-15-4156 signed by the owner of the proprietary information, Westinghouse Electric Company LLC. The Affidavit, which accompanies this letter, sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of 10 CFR Section 2.390 of the Commission's regulations.

Accordingly, this letter authorizes the utilization of the accompanying Affidavit by Florida Power and Light Company (FPL).

Correspondence with respect to the proprietary aspects of the Application for Withholding or the Westinghouse Affidavit should reference CAW-15-4156, and should be addressed to James A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company, 1000 Westinghouse Drive, Building 3 Suite 310, Cranberry Township, Pennsylvania 16066.

Very truly yours,

James A. Gresham, Manager
Regulatory Compliance

CAW-15-4156
April 7, 2015

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

ss

COUNTY OF BUTLER:

I, James A. Gresham, am authorized to execute this Affidavit on behalf of Westinghouse Electric Company LLC (Westinghouse), and that the averments of fact set forth in this Affidavit are true and correct to the best of my knowledge, information, and belief.

James A. Gresham, Manager
Regulatory Compliance

(1) I am Manager, Regulatory Compliance, Westinghouse Electric Company LLC (Westinghouse), and as such, I have been specifically delegated the function of reviewing the proprietary information sought to be withheld from public disclosure in connection with nuclear power plant licensing and rule making proceedings, and am authorized to apply for its withholding on behalf of Westinghouse.

(2) I am making this Affidavit in conformance with the provisions of 10 CFR Section 2.390 of the Commission's regulations and in conjunction with the Westinghouse Application for Withholding Proprietary Information from Public Disclosure accompanying this Affidavit.

(3) I have personal knowledge of the criteria and procedures utilized by Westinghouse in designating information as a trade secret, privileged or as confidential commercial or financial information.

(4) Pursuant to the provisions of paragraph (b)(4) of Section 2.390 of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld.

(i) The information sought to be withheld from public disclosure is owned and has been held in confidence by Westinghouse.

(ii) The information is of a type customarily held in confidence by Westinghouse and not customarily disclosed to the public. Westinghouse has a rational basis for determining the types of information customarily held in confidence by it and, in that connection, utilizes a system to determine when and whether to hold certain types of information in confidence. The application of that system and the substance of that system constitute Westinghouse policy and provide the rational basis required.

Under that system, information is held in confidence if it falls in one or more of several types, the release of which might result in the loss of an existing or potential competitive advantage, as follows:

(a) The information reveals the distinguishing aspects of a process (or component, structure, tool, method, etc.) where prevention of its use by any of

Westinghouse's competitors without license from Westinghouse constitutes a competitive economic advantage over other companies.

(b) It consists of supporting data, including test data, relative to a process (or component, structure, tool, method, etc.), the application of which data secures a competitive economic advantage, e.g., by optimization or improved marketability.

(c) Its use by a competitor would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing a similar product.

(d) It reveals cost or price information, production capacities, budget levels, or commercial strategies of Westinghouse, its customers or suppliers.

(e) It reveals aspects of past, present, or future Westinghouse or customer funded development plans and programs of potential commercial value to Westinghouse.

(f) It contains patentable ideas, for which patent protection may be desirable.

(iii) There are sound policy reasons behind the Westinghouse system which include the following:

(a) The use of such information by Westinghouse gives Westinghouse a competitive advantage over its competitors. It is, therefore, withheld from disclosure to protect the Westinghouse competitive position.

(b) It is information that is marketable in many ways. The extent to which such information is available to competitors diminishes the Westinghouse ability to sell products and services involving the use of the information.

(c) Use by our competitor would put Westinghouse at a competitive disadvantage by reducing his expenditure of resources at our expense.

(d) Each component of proprietary information pertinent to a particular competitive advantage is potentially as valuable as the total competitive advantage. If competitors acquire components of proprietary information, any one component may be the key to the entire puzzle, thereby depriving Westinghouse of a competitive advantage.

(e) Unrestricted disclosure would jeopardize the position of prominence of Westinghouse in the world market, and thereby give a market advantage to the competition of those countries.

(f) The Westinghouse capacity to invest corporate assets in research and development depends upon the success in obtaining and maintaining a competitive advantage.

(iv) The information is being transmitted to the Commission in confidence and, under the provisions of 10 CFR Section 2.390, it is to be received in confidence by the Commission.

(v) The information sought to be protected is not available in public sources or available information has not been previously employed in the same original manner or method to the best of our knowledge and belief.

(vi) The proprietary information sought to be withheld in this submittal is that which is appropriately marked in "Turkey Point Units 3 and 4, Docket Nos. 50-250 and 50-251, License Amendment Request 240, Conditional Exemption from End-of Life Moderator Temperature Coefficient Measurement, FPL Response to BVPS, FNP and VEGP RAI Questions" (Proprietary), for submittal to the Commission, being transmitted by Florida Power and Light Company (FPL) letter and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk. The proprietary information as submitted by Westinghouse is that associated with FPL's request for NRC approval of a License Amendment Request that would allow a change to the Turkey Point Units 3 and 4 Technical Specifications to provide a conditional exemption from Moderator Temperature Coefficient measurement, and may be used only for that purpose.

(a) This information is part of that which will enable Westinghouse to:

(i) Assist FPL with obtaining NRC approval of a License Amendment Request that would allow a change to the Technical Specifications to provide a conditional exemption from Moderator Temperature Coefficient measurement.

(ii) Provide Results of customer specific calculations.

(iii) Provide licensing support for customer submittals.

(b) Further this information has substantial commercial value as follows:

(i) Westinghouse plans to sell the use of similar information to its customers for the purpose of meeting NRC requirements for licensing documentation associated with End of Life Moderator Temperature Coefficient Elimination submittals.

(ii) Westinghouse can sell support and defense of industry guidelines and acceptance criteria for plant-specific applications.

(iii) The information requested to be withheld reveals the distinguishing aspects of a methodology which was developed by Westinghouse.

Public disclosure of this proprietary information is likely to cause substantial harm to the competitive position of Westinghouse because it would enhance the ability of competitors to provide similar technical evaluation justifications and licensing defense services for commercial power reactors without commensurate expenses. Also, public disclosure of the information would enable others to use the information to meet NRC requirements for licensing documentation without purchasing the right to use the information.

The development of the technology described in part by the information is the result of applying the results of many years of experience in an intensive Westinghouse effort and the expenditure of a considerable sum of money.

In order for competitors of Westinghouse to duplicate this information, similar technical programs would have to be performed and a significant manpower effort, having the requisite talent and experience, would have to be expended.

Further the deponent sayeth not.

## PROPRIETARY INFORMATION NOTICE

Transmitted herewith are proprietary and non-proprietary versions of documents furnished to the NRC associated with FPL's request for NRC approval of a License Amendment Request that would allow a change to the Turkey Point Units 3 and 4 Technical Specifications to provide a conditional exemption from Moderator Temperature Coefficient measurement, and may be used only for that purpose

In order to conform to the requirements of 10 CFR 2.390 of the Commission's regulations concerning the protection of proprietary information so submitted to the NRC, the information which is proprietary in the proprietary versions is contained within brackets, and where the proprietary information has been deleted in the non-proprietary versions, only the brackets remain (the information that was contained within the brackets in the proprietary versions having been deleted). The justification for claiming the information so designated as proprietary is indicated in both versions by means of lower case letters (a) through (f) located as a superscript immediately following the brackets enclosing each item of information being identified as proprietary or in the margin opposite such information. These lower case letters refer to the types of information Westinghouse customarily holds in confidence identified in Sections (4)(ii)(a) through (4)(ii)(f) of the Affidavit accompanying this transmittal pursuant to 10 CFR 2.390(b)(1).

## COPYRIGHT NOTICE