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July 7, 2016

NL-16-050

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
11555 Rockville Pike, OWFN-2 F1
Rockville, MD 20852-2738

SUBJECT: 30-Day 10 CFR 50.46 Report of Change in Emergency Core Cooling System Model (TAC Nos. ME8918 and ME8919)
Indian Point Unit Numbers 2, and 3
Docket Nos. 50-247 and 50-286
License Nos. DPR-26 and DPR-64

- REFERENCES:
1. Entergy Letter NL-12-083 to NRC regarding 30-Day 10 CFR 50.46 Report of Change in Emergency Core Cooling System Model, June 29, 2011.
 2. Nuclear Regulatory Commission (NRC) Information Notice (IN 2011-21) Regarding Realistic Emergency Core Cooling System Evaluation Model Effects Resulting from Nuclear Fuel Thermal Conductivity Degradation, dated December 13, 2011
 3. WCAP-16009-P-A, "Realistic Large-Break LOCA Evaluation Methodology Using the Automated Statistical Treatment of Uncertainty Method (ASTRUM)," dated January 2005.
 4. WCAP-12945-P-A, Volume 1, Revision 2, and Volumes 2 through 5, Revision 1, "Code Qualification Document for Best Estimate Loss-of-Coolant-Accident Analysis," dated March 1998.
 5. Nuclear Regulatory Commission (NRC) letter to Entergy regarding Closure Evaluation for Report Pursuant to Title 10 of the Code of Federal Regulations, Part 50, Section 50.46, Paragraph (a)(3)(ii) Concerning Significant Emergency Core Cooling System Evaluation Model Error Related to Nuclear Fuel Thermal Conductivity Degradation (TAC Nos. ME8918 and ME8919), dated June 21, 2013.

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NRR

Dear Sir or Madam:

The purpose of this letter is to revise the existing commitment in Reference 1. In Reference 1, Entergy Nuclear Operations Inc. (Entergy), submitted information related to the estimated effect on peak cladding temperature (PCT) resulting from thermal conductivity degradation (TCD) in the Westinghouse furnished realistic, emergency core cooling system evaluation for Indian Point Units 2 and 3. The purpose was to address the effect of a potentially significant error associated with fuel pellet TCD on PCT in the Westinghouse Electric Company LLC (Westinghouse) furnished realistic emergency core cooling system evaluation models that was discussed in Reference 2. Entergy currently uses Westinghouse Automated Statistical Treatment of Uncertainty Method (ASTRUM) Large Break Loss of Coolant Accident (LBLOCA) evaluation methodology of WCAP-16009-P-A (Reference 3) and Westinghouse Code Qualification Document (CQD) evaluation methodology of WCAP-12945-P-A (Reference 4) for Indian Point Unit 2 and Unit 3, respectively. In Reference 1, Entergy docketed a Commitment, due December 15, 2016, to submit for review and approval reanalysis of a LBLOCA analysis that applies NRC approved methods, including the effects of fuel TCD.

The original commitment and scheduled due date stated that the date was contingent upon the following milestones:

1. Submittal by Westinghouse, to the NRC for review and approval, of revised fuel performance and LBLOCA Evaluation Model (EM) methodologies that include the effects of TCD.

Currently, WCAP-17642-P, "Westinghouse Performance Analysis and Design Model (PAD5)," was submitted to the NRC as a revised fuel performance methodology that includes the effects of TCD. WCAP-16996-P, "Realistic LOCA Evaluation Methodology Applied to Full Spectrum of Break Sizes (Full Spectrum LOCA Methodology)," was submitted to the NRC as a revised LOCA Evaluation Model. Both WCAP-17642-P and WCAP-16996-P are currently undergoing staff review. A supplement is anticipated to WCAP-16996-P to include changes associated with the forthcoming 10 CFR 50.46(c) rulemaking.

2. Prior NRC approval of a fuel performance analysis methodology that includes the effects of TCD and approval of a LBLOCA EM that includes the effects of TCD and accommodates the ongoing 10 CFR 50.46(c) rulemaking process.

Currently, WCAP-17642-P, "Westinghouse Performance Analysis and Design Model (PAD5)," was submitted to the NRC as a revised fuel performance methodology that includes the effects of TCD. WCAP-16996-P, "Realistic LOCA Evaluation Methodology Applied to Full Spectrum of Break Sizes (Full Spectrum LOCA Methodology)," was submitted to the NRC as a revised LOCA Evaluation Model. Both WCAP-17642-P and WCAP-16996-P are currently undergoing staff review. A supplement is anticipated to WCAP-16996-P to include changes associated with the forthcoming 10 CFR 50.46(c) rulemaking (a draft final rule was presented to the commissioners in SECY-16-0033 dated March 16, 2016).

Entergy previously evaluated (Reference 1) the impact of TCD on LBLOCA Peak Clad Temperature and the results showed that the impact is 209 degrees Fahrenheit (°F) for Unit 2 and 185 °F for Unit 3. The NRC reviewed the Entergy evaluation and commitment and found them acceptable to meet the intent of the re-analysis requirement contained in 10 CFR 50.46(a)(3)(ii).

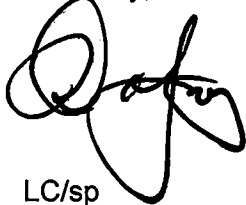
The current status of the NRC rulemaking and review of Westinghouse reanalysis submittals require Entergy to revise the commitment in Reference 1 since the proposed schedule will not be met. The Commitment will be revised to require a submittal of unit-specific LBLOCA analysis with an NRC approved Emergency Core Cooling System Evaluation Model that explicitly accounts for TCD. The date for the submittal of the analyses is projected based upon on the following milestones:

- Issuance of the final rule for 10 CFR 50.46.
- NRC approval of WCAP-17642-P, a fuel performance analysis methodology that includes the effects of TCD.
- NRC approval of WCAP-16996-P, and any required Supplements thereto, a LBLOCA Evaluation Model that includes the effects of TCD and accommodates the ongoing 10 CFR 50.46(c) rulemaking process.

The revised due date for this commitment is 12 months for IP2 and IP3 following completion of the milestones. The changed due date is based upon an event, the time the new 50.46(c) rule and all needed analysis methodologies are approved, so that the time to perform analysis scoping and input selection with time to consider margin optimization is allowed.

This letter contains no new regulatory commitments and one revised regulatory commitment as summarized in the enclosure to this letter. Should you have any questions concerning this letter, or require additional information, please contact Robert Walpole, Manager, Regulatory Assurance at (914) 254-6710.

Sincerely,

 Richard J. Burroni for Larry Cayle 7/7/16

LC/sp

Attachment: Regulatory Commitment List

cc: Mr. Douglas Pickett, Senior Project Manager, NRC NRR DORL
Mr. Daniel H. Dorman, Regional Administrator, NRC Region 1
NRC Resident Inspector's Office

ATTACHMENT TO NL-16-050

REGULATORY COMMITMENT LIST

**ENTERGY NUCLEAR OPERATIONS, INC.
INDIAN POINT NUCLEAR GENERATING UNITS NO. 2 and 3
DOCKET NOS. 50-247, and 50-286**

Regulatory Commitment List

The following list identifies those actions committed to by Entergy Nuclear Operations, Inc. (Entergy) for Indian Point Unit Nos. 2 and 3 in this document. Any other actions discussed in the submittal represent intended or planned actions by Entergy. They are described only as information and are not Regulatory Commitments. Please notify Mr. Robert Walpole, Manager, Licensing, at (914) 254-6710 of any questions regarding this document or associated Regulatory Commitments.

Regulatory Commitment List	Regulatory Commitment Due Date
<p>Entergy will submit to the NRC for review unit-specific large break loss of coolant accident (LBLOCA) analyses that apply NRC approved methods that include the effects of fuel thermal conductivity degradation (TCD). The date for the submittal of the analyses is projected based upon the completion of a revised licensing basis LBLOCA analysis with an NRC approved Emergency Core Cooling System Evaluation Model that explicitly accounts for TCD. This is based upon NRC approval of revised fuel performance and LBLOCA Evaluation model methodologies that include the effects of TCD. This includes WCAP-17642-P, a fuel performance analysis methodology that includes the effects of TCD, and WCAP-16996-P, a LBLOCA Evaluation Model that includes the effects of TCD and accommodates the ongoing 10 CFR 50.46(c) rulemaking process and any supplements.</p>	<p>A LBLOCA analysis will be submitted after the approval of the last topical report (WCAP-17642-P or WCAP-16996-P), and any required supplements, that support the new 10 CFR 50.46 rule and would be needed for the analysis. The analyses for both Units will be submitted 12 months after this date.</p>