



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

June 28, 2013

Vice President, Operations
Entergy Nuclear Operations, Inc.
Indian Point Energy Center
450 Broadway, GSB
P.O. Box 249
Buchanan, NY 10511-0249

SUBJECT: INDIAN POINT NUCLEAR GENERATING UNIT NOS. 2 AND 3 - REQUEST
FOR ADDITIONAL INFORMATION REGARDING CONTAINMENT INTEGRITY
ANALYSIS (TAC NOS. MF0590 AND MF0591)

Dear Sir or Madam:

By separate letters dated January 28, 2013, Entergy Nuclear Operations, Inc., the licensee, submitted license amendments reflecting revised containment integrity analysis for both Indian Point Nuclear Generating Unit Nos. 2 and 3 due to mass and energy release rate errors identified in Nuclear Advisory Letter 11-5.

The Nuclear Regulatory Commission's Containment and Ventilation Branch is reviewing the submittals and has determined that additional information is needed to complete its review. The specific questions are found in the enclosed request for additional information (RAI). Based on our discussions we understand that a response to the RAI will be provided within 30 days of the date of this letter.

Please contact me at (301) 415-1364 if you have any questions on this issue.

Sincerely,

A handwritten signature in black ink that reads "Douglas V. Pickett".

Douglas V. Pickett, Senior Project Manager
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-247 and 50-286

Enclosure:

- 1) Request for Additional Information, Unit 2
- 2) Request for Additional Information, Unit 3

cc w/encl: Distribution via Listserv

REQUEST FOR ADDITIONAL INFORMATION
BY CONTAINMENT AND VENTILATION BRANCH
TECHNICAL SPECIFICATION CHANGES
CREDITING FOUR FAN COOLERS IN CONTAINMENT INTEGRITY ANALYSIS
ENTERGY NUCLEAR OPERATIONS, INC
INDIAN POINT NUCLEAR GENERATING UNIT 2
DOCKET NO. 50-247

By letter dated January 28, 2013, (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML13042A243), Entergy Nuclear Operations, Inc (Entergy, the licensee) submitted a license amendment request for Indian Point Unit No. 2. The proposed change would credit four instead of three fan cooler units in the containment integrity analysis. The licensee addressed mass and energy release errors for containment integrity analysis identified in Nuclear Safety Advisory Letter, "Westinghouse LOCA [Loss-of- Coolant Accident] Mass and Energy Release Calculation Issues," NSAL-11-5, dated July 25, 2011", by re-analyzing the large break LOCA which credited four fan cooler units for the limiting single failure.

The Containment and Ventilation Branch (SCVB) staff has reviewed the information the licensee provided that supports the proposed amendment and would like to request responses to the following issues to complete its review:

SCVB- RAI-1

Please list all the initial conditions used in the current most limiting large break LOCA analysis and the proposed analysis for the containment peak pressure and temperature response. In case any of the initial condition values are different in the proposed analysis from the current analysis of record, justify if the initial condition value in the proposed analysis is less conservative.

SCVB-RAI-2

Please list all the assumptions used in the current most limiting large break LOCA analysis and the proposed analysis for the containment peak pressure and temperature response. In case any of the assumptions are different in the proposed analysis from the current analysis of record, justify if the assumption in the proposed analysis is less conservative.

SCVB-RAI-3

Please list the computer codes used for the calculation of the proposed mass and energy (M&E) release during the various phases of LOCA (blowdown, refill, reflood and post-reflood) and justify their use if they differ from those used in the current licensing basis analysis.

SCVB-RAI-4

Please list the computer codes used for the proposed containment pressure and temperature response and justify their use if they differ from those used in the current licensing basis analysis.

SCVB-RAI-5

Please describe the impact of the changes in M&E input to the following containment analyses:

- (a) Containment gas temperature response under LOCA and MSLB accident for Equipment Environmental Qualification (EQ).
- (b) Containment wall temperature response under LOCA and MSLB accident

SCVB-RAI-6

Please describe the impact of the changes in M&E input to the following containment analyses:

- (a) Sump water temperature response under LOCA and MSLB accident
- (b) Net positive suction head (NPSH) analysis for containment spray and safety injection pumps during the recirculation phase. The uncertainty in the required NPSH provided by the pump manufacturer should be accounted as per guidance in Enclosure 1 of SECY-11-0014.

SCVB-RAI-7

NUREG-0800, Standard Review Plan (SRP) 6.2.1.5 describes the minimum containment pressure analysis for emergency core cooling system (ECCS) performance capability. Regulatory Guide (RG) 1.157, Section 3.12.1 provides guidance for calculating the containment pressure response used for evaluating cooling effectiveness during the post-blowdown phase of a LOCA. The RG states that the containment pressure should be calculated by including the effects of containment heat sinks and operation of all pressure-reducing equipment assumed to be available. Using the above guidance, please describe the impact of the changes in M&E input on the minimum containment pressure analyses for ECCS performance.

SCVB-RAI-8

Please describe the error in the EPITOME computer code that is used to determine the M&E release rate during the long-term steam generator depressurization phase of the LOCA transient. How much was the energy release (in percentage) underestimated due to error in the EPITOME computer code?

SCVB-RAI-9

Please provide a copy of Nuclear Safety Advisory Letter, "Westinghouse LOCA Mass and Energy Release Calculation Issues," NSAL-11-5, dated July 25, 2011.

REQUEST FOR ADDITIONAL INFORMATION
BY CONTAINMENT AND VENTILATION BRANCH
TECHNICAL SPECIFICATION CHANGES
REGARDING REFUELING WATER STORAGE TANK TEMPERATURE
AND CONTAINMENT PRESSURE IN CONTAINMENT INTEGRITY ANALYSIS
ENTERGY NUCLEAR OPERATIONS, INC.
INDIAN POINT NUCLEAR GENERATION UNIT 3
DOCKET NO. 50-286

By letter dated January 28, 2013, (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML13042A224), Entergy Nuclear Operations, Inc (Entergy, the licensee) submitted a license amendment request for Indian Point Unit No. 3. The proposed change would:

- a) Revise Technical Specification (TS) Surveillance Requirement (SR) 3.5.4.1, to limit the maximum Refueling Water Storage Tank (RWST) temperature to ≤ 105 °F;
- b) Revise TS 3.6.4 Limiting Condition for Operation to limit containment pressure to ≤ 1.5 psig [pounds per square inch gauge] if RWST temperature is > 95 °F or containment temperature is > 125 °F;
- c) Delete TS SR 3.6.3.9;
- d) Revise TS 5.5.15, "Containment Leakage Rate Testing Program" by specifying the revised value of peak containment pressure.

The Containment and Ventilation Branch (SCVB) staff has reviewed the information the licensee provided that supports the proposed amendment and would like to request responses to the following issues to complete its review:

SCVB-RAI-1

Please list all the assumptions used in the current most limiting large break loss-of-coolant accident (LOCA) analysis and the proposed analysis for the containment peak pressure and temperature response. In case any of the assumptions is different in the proposed analysis from the current analysis of record, justify if the assumption in the proposed analysis is less conservative.

SCVB-RAI-2

Please list the computer codes used for the calculation of the proposed Mass and Energy (M&E) release during the various phases of LOCA (blowdown, refill, reflood and post-reflood) and justify their use if they differ from those used in the current licensing basis analysis.

SCVB-RAI-3

Please describe the containment analysis methodology including the computer codes used for the proposed containment analysis and justify the use of the methodology and the computer codes if different from what is used in the current licensing basis analysis.

SCVB-RAI-4

Please describe the impact of the changes in M&E input to the following containment analyses:

- (c) Containment gas temperature response under LOCA and MSLB accident for Equipment Environmental Qualification (EQ).
- (d) Containment wall temperature response under LOCA and MSLB accident

SCVB-RAI-5

Please describe the impact of the changes in M&E input to the following containment analyses:

- (a) Sump water temperature response under LOCA and MSLB accident
- (b) Net positive suction head (NPSH) analysis for containment spray and safety injection pumps during the recirculation phase. The uncertainty in the required NPSH provided by the pump manufacturer should be accounted as per guidance in Enclosure 1 of SECY-11-0014.

SCVB-RAI-6

NUREG-0800, Standard Review Plan (SRP) 6.2.1.5 describes the minimum containment pressure analysis for emergency core cooling system (ECCS) performance capability. Regulatory Guide (RG) 1.157, Section 3.12.1 provides guidance for calculating the containment pressure response used for evaluating cooling effectiveness during the post-blowdown phase of a LOCA. The RG states that the containment pressure should be calculated by including the effects of containment heat sinks and operation of all pressure-reducing equipment assumed to be available. Using the above guidance please describe the impact of the changes in M&E input on the minimum containment pressure analyses for ECCS performance.

SCVB-RAI-7

Please describe the error in the EPITOME computer code that is used to determine the M&E release rate during the long-term phase of the LOCA transient. How much was the energy release (in percentage) underestimated due to errors in the EPITOME computer code?

June 28, 2013

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/ra/

Douglas V. Pickett, Senior Project Manager
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ADAMS ACCESSION NO.: ML13175A385

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DATE	6/27/13	6/25/13	06/20/13	6/28/13

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