

January 24, 2014

Mr. B. L. Ivey, Vice President
Regulatory Affairs
Southern Nuclear Operating Company, Inc.
40 Inverness Center Parkway, B022
Birmingham, AL 35242

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 01 RELATED TO
LICENSE AMENDMENT REQUEST (LAR 13-039) FOR THE VOGTLE
ELECTRIC GENERATING PLANT UNITS 3 AND 4: COATING THERMAL
CONDUCTIVITY (RP9487)

Dear Mr. Ivey:

In accordance with the provisions of Title 10 of the *Code of Federal Regulations* 10 CFR 50.90, by letter dated November 21, 2013, Southern Nuclear Operating Company (SNC) submitted a license amendment request (LAR) 13-039, "Coating Thermal Conductivity," to the U. S. Nuclear Regulatory Commission (NRC) for its Vogtle Electric Generating Plant (VEGP) Units 3 and 4 Combine licenses (License Nos.NPF-91 and NPF-92, respectively). The NRC staff is performing a detailed review of this LAR to enable the staff to reach a conclusion on the safety of the proposed LAR.

The NRC staff has identified that additional information is needed to continue portions of the review. The staff's request for additional information (RAI) is contained in the enclosure to this letter.

To support the review schedule, you are requested to respond to this RAI within 30 days of the date of this letter. If changes are needed to the final safety analysis report, the staff requests that the RAI response include the proposed wording changes.

B. Ivey

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If you have any questions or comments concerning this matter, you may contact me at 301-415-1439 or David.Jaffe@nrc.gov.

Sincerely,

/RA/

David H. Jaffe, Senior Project Manager
Licensing Branch 4
Division of New Reactor Licensing
Office of New Reactors

Docket Nos. 52-025
52-026

eRAI Tracking No. 7373

Enclosure:
Request for Additional Information

cc: see next page

B. Ivey

-2-

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Request for Additional Information
Southern Nuclear Operating Company
Docket No. 52-025 and 52-026
Coating Thermal Conductivity (RP9487)

QUESTIONS

1. What is the initial thermal conductivity value of the actual inorganic zinc (IOZ) coating(s) applied to the Vogtle Units 3 & 4 containments? WCAP-15845-P, Addendum 1, Rev. 0, identifies a measured value of $[[\quad \cdot \quad]]$ for a specific product (Carboline 11 HSN), but it is not clear from the amendment request or the WCAP addendum that this is the coating applied to the containment.
2. What are the measured thermal conductivity values for all IOZ coatings approved for application on the Vogtle Units 3 & 4 containments?
3. To the extent possible, please explain why the actual conductivity of the Carboline 11HSN is so much lower than the value assumed in the original WGOTHIC analysis.
4. WCAP-15846-P, Addendum 1, Rev. 0, compares the measured thermal conductivity to the thermal conductivity predicted by the proposed methodology for an inorganic zinc coating with a known composition. Provide the justification for applying the methodology to all approved IOZ coatings over the range of allowable coating compositions.
5. What is the increase in the calculated containment peak pressure caused by the change in initial thermal conductivity from the original value assumed in the WGOTHIC calculation (1.21 Btu/hr-ft-°F) to the value of the actual inorganic zinc coating applied to the containment ($[[\quad \cdot \quad]]$) assuming no other changes are made to the assumptions used in the WGOTHIC calculation?
6. Using the initial thermal conductivity value of the actual IOZ coating ($[[\quad \cdot \quad]]$) and the proposed new methodology for determining the oxidized (end-of-life) thermal conductivity value, what is the change in the calculated containment peak pressure, proposed in the license amendment, relative to the licensed value?
7. What is the decrease in the calculated containment peak pressure using the proposed new methodology for determining the oxidized (end-of-life) thermal conductivity value compared to the original calculation that conservatively assumed a factor-of-four reduction in the oxidized (end-of-life) thermal conductivity value?
8. Pages 3-5 and 3-6 of WCAP-15846-P, Addendum 1, Rev. 0, show calculations that include the thermal conductivity of "ZnCO3". Is this meant to be zinc oxide (ZnO)? Please clarify.
9. What is the basis for assuming no greater than seven percent uncertainty in any of the constituent thermal conductivities?

10. The porosity of the IOZ coating appears to be the dominant factor in determining the thermal conductivity. Please address the following concerning IOZ coating porosity:
- a. What determines the amount of porosity in the approved IOZ coatings?
 - b. Can an IOZ coating have enough porosity to make the initial conductivity lower than · ? If so, how much lower?
 - c. How is porosity controlled during application to ensure the initial thermal conductivity is at least · ?
 - d. The WCAP addendum (p. 3-5) states that oxidation of zinc will increase the thermal conductivity of IOZ coating because zinc oxide will displace porosity in the coating. Please clarify the basis for this statement. It is not clear to the staff whether this is based on technical judgment or physical evidence.

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- Proprietary Information per NRC letter dated December 13, 2013

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(Revised 01/06/2014)

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