

NRR-DMPSPeM Resource

From: Klett, Audrey
Sent: Thursday, February 14, 2019 11:23 AM
To: Wasik, Christopher J
Cc: Zaremba, Arthur H.
Subject: RE: RE: Draft NRC RAI for Oconee LAR 2018-05

Hi Chris,

The reviewer informed me that the LAR states: “No other non-LOCA accidents that may result in departure from nucleate boiling (DNB) are considered (e.g., locked rotor accident, rod ejection accident, etc.). Fuel cycles for ONS are designed so that no fuel rod predicted to enter DNB will have been operated beyond the current limit in Footnote 11 for maximum LHGR.” Because of this, the NRC would be approving a change to the gap fractions for the FHA only. The sentence pointing to in the email below is worded, “none of these fuel pins,” which refers to the non-DNB fuel pins that exceed the rod power/burnup criteria of footnote 11 in RG 1.183 and the new proposed gap fractions provided in this LAR, which applies to FHA only. The LAR doesn’t clearly state that the fuel cycle design ensures that *no fuel rod* predicted to experience DNB *in any other non-LOCA accidents will have operated beyond the power/burnup criteria of Footnote 11 in Regulatory Guide 1.183 and that the gap fractions used in these non-LOCA accidents analyses remain those stated in Table 3 of RG 1.183*. The sentence pointed out below clearly explains that the rods will not experience DNB following any DBA, but it does not clearly state that the gap fractions in the locked rotor and rod ejection accident remain those in Table 3 of RG 1.183 and that the exceeding the power/burnup criteria in Footnote 11 in RG 1.183 does not apply to these accidents.

Please let me know if a clarification call is needed. I’ll revise the draft RAI with this information regardless.

From: Wasik, Christopher J [mailto:Christopher.Wasik@duke-energy.com]
Sent: Tuesday, February 12, 2019 3:55 PM
To: Klett, Audrey
Cc: Zaremba, Arthur H.
Subject: [External_Sender] RE: Draft NRC RAI for Oconee LAR 2018-05

Audrey,

The Oconee UFSAR already has a provision that may address the question (recall that we already had a similar gas gap fraction LAR approved). Please have the reviewer look at the UFSAR information included with the current LAR (excerpt below). The highlighted statement below may be what the reviewer is seeking. If not, then I’m thinking we should schedule a call to discuss.

15.1.10 Environmental Consequences Calculation Methodology

Environmental Consequences

A summary of the offsite doses is presented in Table 15-16. A description of each accident analysis is given in the appropriate section.

Fission Product Inventories

Inventory in the Core: Fission product inventories within the core are calculated based on the ORIGEN methodology (e.g., ORIGEN-ARP or SAS2H/ORIGEN-S of the SCALE computer code)(Section 15.1, Ref. 27). The core inventories for the Maximum Hypothetical Accident are shown in Table 15-15.

Inventory in the Fuel Pellet Clad Gap: The fuel pin gap activities were determined using Regulatory Guide 1.183 (Section 15.1, Ref. 35). For non-DNB fuel pins which exceed the rod power/burnup criteria of Footnote 11 in RG 1.183, the gap fractions from RG 1.183 are increased by a factor of 3 for Kr-85, Xe-133, Cs-134 and Cs-137, and increased by a factor of 2 for I-131, and other noble gases, halogens and alkali metals (Reference 46 and 47). A maximum of 25 fuel rods, per fuel assembly, shall be allowed to exceed the rod power/burnup criteria for Footnote 11 in RG 1.183 in accordance with the license amendment request submitted by letter dated July 15, 2015 (Reference 46). The fuel cycle design ensures that none of these fuel pins experience DNB following any design basis accident. The environmental consequences of the control rod ejection accident, and fuel handling accidents are based on the assumption that the fission products in the gap between the fuel pellets and the cladding of the damaged fuel rods are released as a result of cladding failure. The inventories used for the control rod cluster assembly ejection accident are shown in Table 15-50. The gap inventory for the fuel handling accident is shown in Table 15-1.

Insert
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Chris

From: Klett, Audrey [<mailto:Audrey.Klett@nrc.gov>]
Sent: Monday, February 11, 2019 4:05 PM
To: Wasik, Christopher J <Christopher.Wasik@duke-energy.com>
Cc: Zaremba, Arthur H. <Arthur.Zaremba@duke-energy.com>
Subject: Draft NRC RAI for Oconee LAR 2018-05

*** Exercise caution. This is an EXTERNAL email. DO NOT open attachments or click links from unknown senders or unexpected email. ***

Hi Chris,

Attached is a draft RAI for LAR 2018-05 (Fission Gas Gap Release Fractions). Please let me know by February 19th if the licensee will need a clarification call (if not, then whether the licensee can respond within 30 days of the final RAI version being sent to you).

FYI - Harris was asked a similar RAI for its LAR (NRC EPID # L-2017-LLA-0233).

-Audrey

Hearing Identifier: NRR_DMPS
Email Number: 805

Mail Envelope Properties (Audrey.Klett@nrc.gov20190214112200)

Subject: RE: RE: Draft NRC RAI for Oconee LAR 2018-05
Sent Date: 2/14/2019 11:22:58 AM
Received Date: 2/14/2019 11:22:00 AM
From: Klett, Audrey

Created By: Audrey.Klett@nrc.gov

Recipients:
"Zaremba, Arthur H." <Arthur.Zaremba@duke-energy.com>
Tracking Status: None
"Wasik, Christopher J" <Christopher.Wasik@duke-energy.com>
Tracking Status: None

Post Office:

Files	Size	Date & Time
MESSAGE	3060	2/14/2019 11:22:00 AM
image001.png	283555	

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

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Insert
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