

RULES AND DIRECTIVES
BRANCH
USFDC

2017
2016 APR 27 AM 10: 07

PUBLIC SUBMISSION

As of: 4/27/17 9:40 AM
Received: April 21, 2017
Status: Pending_Post
Tracking No. 1k1-8vyg-h3s4
Comments Due: April 21, 2017
Submission Type: Web

RECEIVED

Docket: NRC-2016-0233

Pressurized Water Reactor Control Rod Ejection and Boiling Water Reactor Control Rod Drop Accidents

Comment On: NRC-2016-0233-0003

Pressurized Water Reactor Control Rod Ejection and Boiling Water Reactor Control Rod Drop Accidents;
Extension of Comment Period

Document: NRC-2016-0233-DRAFT-0007

Comment on FR Doc # 2017-02073

Submitter Information

81 FR 83288
11/21/2016
⑨

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General Comment

Docket ID NRC2016-0233

Attachments

NL-17-0691

SUNSI Review Complete
Template = ADM - 013
E-RIDS= ADM -03
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APR 21 2017

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NL-17-0691

Comments on Draft Regulatory Guide DG-1327, "Pressurized Water Reactor Control Rod Ejection and Boiling Water Reactor Control Rod Drop Accidents"
[Docket ID NRC-2016-0233]

Dear Ms. Bladey:

Southern Nuclear Operating Company (SNC) hereby submits comments for consideration by the U.S. Nuclear Regulatory Commission (NRC) staff. Specifically, SNC is providing comments on Draft Regulatory Guide DG-1327, "Pressurized Water Reactor Control Rod Ejection and Boiling Water Reactor Control Rod Drop Accidents," as noticed in the Federal Register (82 FR 8958; Docket ID NRC-2016-0233).

SNC has reviewed DG-1327 and has the following comments:

1. The applicability statements specified in Sections 1.2 and 3.1 should be consistent with the description of the fuel rod cladding failure thresholds in Section 3, "... During a prompt critical reactivity insertion (i.e., $\Delta\rho/\beta_{eff} > 1.0$), fuel temperatures may approach melting temperatures, and rapid fuel pellet thermal expansion may promote PCMI cladding failure. During more benign power excursions, local heat flux may exceed critical heat flux conditions, prompting fuel cladding temperatures to rise. ..."

Rationale: There is no evidence of any fuel rod cladding failure due solely to the local heat flux exceeding the thermal design limit (e.g., departure from nucleate boiling and critical power ratios) for a prompt critical reactivity insertion.

2. The conclusion in Section 3.1 of DG-1327, "For all other operating conditions up to full power (i.e., Mode 1), fuel cladding failure is presumed if local heat flux exceeds thermal design limits (e.g., departure from nucleate boiling and critical power ratios)," should be revised to reflect the wording found in the technical basis document (ML14188C423).

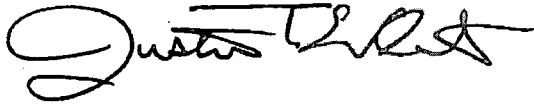
Rationale: Page 19 of the technical basis states: "Regulatory Guide 1.77 established the presumption of cladding failure at the onset of DNB. However, RG 1.77 also included the following provision: *Other DNB or clad failure correlations may be used if they are adequately justified by analytical methods*

and supported by sufficient experimental data. Alternative cladding failure criteria will be addressed on a case-by-case basis.”

This alternative should be added back into the final version of the regulatory guide such that other alternative failure criteria than the departure from nucleate boiling can be used in the future as different experimental data or improved methods become available. This provision was also included in the previous two versions of DG-1327.

This letter contains no NRC commitments. If you have any questions, please contact me at 205.992.5998.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Justin T. Wheat". The signature is stylized with a large initial "J" and a long horizontal stroke.

Justin T. Wheat
Nuclear Licensing Manager

JTW/KMO/lc