

NRR-PMDAPEm Resource

From: Saba, Farideh
Sent: Wednesday, July 01, 2015 3:17 PM
To: 'Williams, Gordon Robert'
Cc: Razzaque, Muhammad; Schrull, Edward Dustin (edschrull@tva.gov)
Subject: BFN SL: Revised Follow-up RAI
Attachments: Browns Ferry Dome Pressure TS Follow-up RAI.docx

Importance: High

Gordon,

By letter to the Nuclear Regulatory Commission (NRC) dated December 11, 2014, Tennessee Valley Authority (TVA), licensee of the Browns Ferry Nuclear Plant (BFN) Units 1, 2, and 3 submitted a License Amendment Request (LAR) for review and approval of a revision to the BFN Technical Specification (TS) Section 2.1.1 to reflect a lower reactor steam dome pressure for Reactor Core Safety Limits 2.1.1.1 and 2.1.1.2. TVA states that the revision is needed to address the potential to exceed the low pressure TS safety limit. After reviewing the responses to the request for additional information (CNL-15-085, June 3, 2015) the NRC staff has determined that follow-up additional information is needed.

The NRC staff revised follow up RAI is attached. Per our telephone conversation today, you confirmed that you agree with the NRC staff determination that the follow up RAI does not contain any sensitive information. Also, you agreed to respond to the RAI by July 31, 2015.

Thanks,

Farideh

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Subject: BFN SL: Revised Follow-up RAI
Sent Date: 7/1/2015 3:17:27 PM
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From: Saba, Farideh

Created By: Farideh.Saba@nrc.gov

Recipients:

"Razzaque, Muhammad" <Muhammad.Razzaque@nrc.gov>

Tracking Status: None

"Schrull, Edward Dustin (edschrull@tva.gov)" <edschrull@tva.gov>

Tracking Status: None

"Williams, Gordon Robert" <grwilliams1@tva.gov>

Tracking Status: None

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Options

Priority: High
Return Notification: No
Reply Requested: Yes
Sensitivity: Normal
Expiration Date:
Recipients Received:

REQUEST FOR ADDITIONAL INFORMATION RELATED TO
LICENSE AMENDMENT REQUEST FOR TECHNICAL SPECIFICATION CHANGES
TO RECTOR CORE SAFETY LIMITS
TENNESSEE VALLEY AUTHORITY
BROWNS FERRY NUCLEAR PLANT, UNITS 1,2, AND 3
DOCKET NO. 50-259, 50-260, AND 50-296

By letter to the Nuclear Regulatory Commission (NRC) dated December 11, 2014, Tennessee Valley Authority (TVA), licensee of the Browns Ferry Nuclear Plant (BFN) Units 1, 2, and 3 submitted a License Amendment Request (LAR) for review and approval of a revision to the BFN Technical Specification (TS) Section 2.1.1 to reflect a lower reactor steam dome pressure for Reactor Core Safety Limits 2.1.1.1 and 2.1.1.2. TVA states that the revision is needed to address the potential to exceed the low pressure TS safety limit. After reviewing the responses to the request for additional information (CNL-15-085, June 3, 2015) the NRC staff has determined that follow-up additional information is needed.

RAI-08: Response to RAI-04b points out for pressures below 700 psia an enthalpy offset is added to the nodal enthalpy used by the SPCB/GE14 correlation. The dashed curves in Figure 4.5 appear to be horizontal extensions from the corresponding values at 700 psia.

- a) Clarify with an example how the offset was applied in generating the dashed curves in Figure 4.5 of ANP-3245P Revision 1 (Attachment 5 to the LAR).
- b) Did the limiting case with the minimum steam dome pressure shown in Figure 3.2 of ANP-3245P Revision 1 reach a core inlet condition that is saturated (two-phase)? What is the core inlet enthalpy when the steam dome pressure reaches the minimum in Figure 3.2? Will the SPCB/GE14 correlation issue an error message during the transient calculation when the core inlet or the node of interest reaches a condition that is beyond the applicability range of the correlation?
- c) The SPCB correlation is applicable to the ATRIUM -10 fuel. The SPCB/GE14 correlation was developed using the indirect method (Indirect Correlation Application) and is applicable to the legacy GE14 fuel in BFN Unit 1 for pressures not less than 700 psia. Clarify whether the solid curves in Figure 4.5 were calculated using the SPCB or the SPCB/GE14 correlation.
- d) The last paragraph on page 4-2 of the AREVA topical report ANP-3245P Revision 1 states, "*For pressures that are lower than the SPCB/GE14 700 psia correlation boundary, the critical power will be evaluated as though the pressure was at 700 psia (preserving the same inlet subcooling). The results of applying the SPCB/GE14 correlation to pressures lower than 700 psia is illustrated with dashed lines in Figure 4.5 and indicates that the alternative low pressure boundary treatment is **conservative***". It appears that the term "conservative" is used

because the dashed line values are lower than the solid line values when the pressure is lower than 700 psia. However, the SPCB correlation is not applicable to the GE14 fuel and the SPCB/GE14 correlation is not applicable for pressures lower than 700 psia. Justify how the alternative low pressure boundary treatment is conservative.