

## **NRR-PMDAPEm Resource**

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**From:** Saba, Farideh  
**Sent:** Monday, July 30, 2012 2:57 PM  
**To:** Turkal, Mark  
**Cc:** Murray, William R. (Bill)  
**Subject:** Brunswick Units 1 and 2- RAIs Regarding TSs 2.1.1.2 and 5.6.5 and revising a license condition (ME8135 and ME8136)  
**Attachments:** ME8135-6\_BR 1-2\_TR Addition RAI s from SRXB.docx  
**Importance:** High

Mark,

Please see attached request for additional information (RAI) from the NRC staff (reactor system branch) and the following RAI from the Tech Spec branch. I may have additional RAIs for you from the nuclear performance and code review branch next week. Please let me know if you need a conference call with the NRC staff to discuss these RAIs. As we have discussed, please provide your responses to these RAIs within 30 calendar days from today.

### RAI for TS

The licensee indicated in its license amendment request that the changes are equivalent; however, the two units do not appear to have common Technical Specifications. Per 50.36 (a)(1), "Each applicant for a license authorizing operation of a production or utilization facility shall include in his application proposed technical specifications in accordance with the requirements of this section..." Please provide Unit 1 Technical Specification Markups to ensure a complete detailed technical review of the proposed action.

Thank you,

Farideh

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**From:** Saba, Farideh

**Created By:** Farideh.Saba@nrc.gov

**Recipients:**  
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Tracking Status: None  
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Tracking Status: None

**Post Office:**

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BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2

ADDITION OF ANALYTIC METHODOLOGY TOPICAL REPORT

REACTOR SYSTEMS BRANCH

REQUEST FOR ADDITIONAL INFORMATION

By letter dated March 6, 2012, Progress Energy, the licensee for Brunswick Steam Electric Plant, Units 1 and 2 (BSEP) requested changes to Technical Specification 2.1.1.2, Safety Limit Minimum Critical Power Ratio (SLMCPR).

Title 10 of the *Code of Federal Regulations*, part 50 (10 CFR 50), section 36, "Technical Specifications," promulgates requirements for facility Technical Specifications. Among other things, paragraph (c)(1)(i)(A) of 10 CFR 50.36 requires the establishment of safety limits upon important process variables that are found to be necessary to reasonably protect the integrity of certain of the physical barriers that guard against the uncontrolled release of radioactivity.

General Design Criterion (GDC) 10, "Reactor Design," of Appendix A 10 CFR 50 states that the reactor core and associated coolant, control and protection systems shall be designed with appropriate margin to assure that specified acceptable fuel design limits (SAFDLs) are not exceeded during any condition of normal operation, including the effects of anticipated operational occurrences. Section 3.1.2.2.1 of the BSEP Updated Final Safety Analysis Report (UFSAR) states the following, regarding compliance with GDC 10: "Analyses of abnormal operational transients, described in [UFSAR] Chapter 15, show that the minimum critical power ratio (MCPR) is always  $> 1.0$ ."

The SLMCPR is one such SAFDL. Pertinent to the MCPR, the applicable criteria for meeting the requirements of GDC 10 are discussed in NUREG-0800, *Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition* (SRP) Chapter 4.4, "Thermal and Hydraulic Design." The limiting value of CPR correlations is to be established such that at least 99.9 percent of the fuel rods in the core will not experience a departure from nucleate boiling or boiling transition during normal operation or anticipated operational occurrences.

The SLMCPR meets this criterion by taking the CPR at which boiling transition would be expected on a fuel rod (1.0), and adding to it a margin for correlation, fuel design, and plant operating uncertainties. An additional margin, added for the change in critical power ratio due to the limiting anticipated operational occurrence, is then added to the SLMCPR to determine the operating limit (OL) MCPR.

The NRC staff is requesting additional information to verify the following:

- The basis for the change is appropriately justified,
  - The proposed values were determined in a manner consistent with NRC-approved methods,
  - Deviations from previously approved methods, whether generic or plant-specific, remain technically acceptable in accordance with SRP guidance, and that deviations from the SRP are acceptable, and
  - The statistical methods used to determine the SLMCPR are appropriate for application to BSEP.
1. Explain the changes that occurred such that single loop operation of Units 1 and 2 now have the same SLMCPR where the previous values were different. (Enclosure 1, page 2, Proposed Change 2, Last Paragraph)

Unit	Current Two-Loop Operation SLMCPR	Proposed Two-Loop Operation SLMCPR	Current Single-Loop Operation SLMCPR	Proposed Single-Loop Operation SLMCPR
1	1.11	1.08	1.12	1.11
2	1.11	1.08	1.13	1.11

2. Regarding the operability assessment SLMCPR described in Enclosure 1, Section 3, Technical Evaluation, please provide the following additional information:
  - a. Identify NRC-approved precedents following the same or similar approach as that described in ANP-3086P.
  - b. Justify the use of the ANP-3086P methodology in light of the fact that the current license condition requires adherence instead to ANP-10298PA.
3. Provide information to demonstrate that the channel bow database is specifically applicable to Brunswick measurements. (Enclosure 1, Page 5, Last Paragraph)
4. Provide data to demonstrate that design basis power distribution is conservative and explain how the assumed limiting initial conditions will bound the as-operated core design. (Enclosure 1, page 5, second paragraph)