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SUBJECT: Application for amend to license NPF-21, requesting mod to
 MCPR safety limits by 990930 to allow continued power
 operation at plant following restart from R-14 RFO.

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

P.O. Box 968 • Richland, Washington 99352-0968

April 7, 1999
GO2-99-064

Docket No. 50-397

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Gentlemen:

Subject: **WNP-2 OPERATING LICENSE NPF-21
REQUEST FOR AMENDMENT
MINIMUM CRITICAL POWER RATIO SAFETY LIMITS**

- References:
- 1) Letter ABBWP-99-015 dated February 19, 1999, R Matheny (ABB) to RA Vopalensky (Supply System), "WNP-2 Cycle 15 Safety Limit Minimum Critical Power Ratio for SVEA-96 Fuel Based on Reference Core"
 - 2) CE NPSD-844-P, "WNP-2 Cycle 15 Reference Core Reload Design Report", January 1999
 - 3) CENPD-300-P-A, "Reference Safety Report for Boiling Water Reactor Reload Fuel", July 1996
 - 4) ANFB Critical Power Correlation Uncertainty for Limited Data Sets, ANF-1125(P)(A), Supplement 1, Appendix D, Siemens Power Corporation - Nuclear Division, July 1998
 - 5) Letter KVVW:98:148 dated July 8, 1998, KV Walters, (Siemens Power Corporation), to RA Vopalensky (Supply System), "MCPR Safety Limit Reanalysis for WNP-2 Cycle 11"

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**REQUEST FOR AMENDMENT
MINIMUM CRITICAL POWER RATIO SAFETY LIMITS**

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In accordance with the Code of Federal Regulations, Title 10, Parts 50.59, 50.90, and 2.101, the Supply System hereby submits a request for amendment of the WNP-2 Operating License. Specifically, the Supply System is requesting modification of the minimum critical power ratio safety limits by September 30, 1999. Approval of the proposed change is necessary to allow continued power operation at WNP-2 following restart from the R-14 refueling outage.

Asea Brown Boveri (ABB) has completed an evaluation of the ABB SVEA-96 Safety Limit Minimum Critical Power Ratio (SLMCPR) for WNP-2 Cycle 15 (Reference 1). This evaluation is based on the reference core loading pattern and state point depletion strategy in Reference 2. The NRC approved methodology documented in CENPD-300-P-A, "Reference Safety Report for Boiling Water Reactor Reload Fuel", July 1996 (Reference 3) was utilized for this evaluation. The evaluation of the ABB SVEA-96 SLMCPR, as a function of cycle exposure, established values late in Cycle 15 that provide conservative two loop and single loop SLMCPRs of 1.10 and 1.12, respectively, which can be used to represent the entire cycle.

NRC approved methodology (Reference 3) assumes that the SLMCPR for the non-ABB resident fuel is unchanged from the last cycle for which it was evaluated by its supplier. The ATRIUM-9X fuel was last evaluated by Siemens Power Corporation (SPC) for Cycle 11 (Reference 5) using the additive constant uncertainty for ATRIUM-9X fuel of 0.0201 which is contained in the NRC safety evaluation approval of Reference 4. With the approval of Reference 4, it is now appropriate to recalculate the SLMCPRs. Based upon the NRC approved additive constant of uncertainty of 0.0201, as documented in Reference 5, at least 99.9% of the SPC ATRIUM-9X fuel rods are expected to avoid boiling transition with a SLMCPR of 1.10 during two loop operation and 1.11 during single loop operation.

In summary, this proposed change will establish the SLMCPR for SPC ATRIUM-9X fuel at 1.10 for two recirculation loop operation or 1.11 for single recirculation loop operation. This fuel is co-resident with ABB fuel at WNP-2. The SLMCPR for ABB SVEA-96 fuel shall be 1.10 for two recirculation loop operation or 1.12 for single recirculation loop operation.

Additional information has been attached to this letter to complete the Supply System's amendment request. Attachment 1 provides a detailed description of the proposed changes. Attachment 2 summarizes the proposed changes and provides marked up pages of the Technical Specifications. Attachment 3 describes an evaluation of the proposed changes in accordance with 10CFR50.92(c) and concludes they do not result in a significant hazards consideration. Attachment 4 provides the Environmental Assessment Applicability Review and notes that the proposed change meets the eligibility criteria for a categorical exclusion as set forth in 10CFR51.22(c)(9). Therefore, in accordance with 10CFR51.22(b), an environmental assessment of the change is not required. Attachment 5 submits the typed Technical Specification pages as proposed by this amendment.

This request for an amendment has been reviewed and approved by the WNP-2 Plant Operations Committee and the Supply System Corporate Nuclear Safety Review Board. In accordance with 10CFR50.91, the state of Washington has been provided a copy of this letter.

REQUEST FOR AMENDMENT
MINIMUM CRITICAL POWER RATIO SAFETY LIMITS

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- Should you have any questions or desire additional information regarding this matter, please contact me or P. J. Inserra at (509) 377-4147.

Respectfully,

G.O. Smith for GOS 4/7/99
G.O. Smith
Vice President, Generation
Mail Drop 927M

Attachments:

1. Description of the Proposed Change
2. Marked up Technical Specification Pages
3. Evaluation of Significant Hazards Considerations
4. Environmental Assessment Applicability Review
5. Revised Technical Specification Pages

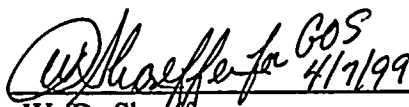
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STATE OF WASHINGTON)
COUNTY OF BENTON)

Subject: Request for Amendment to MCPR
Safety Limits


I, W. D. SHAEFFER, being duly sworn, subscribe to and say that I am the Acting Vice President, Generation for the WASHINGTON PUBLIC POWER SUPPLY SYSTEM, the applicant herein; that I have the full authority to execute this oath; that I have reviewed the foregoing; and that to the best of my knowledge, information, and belief the statements made in it are true.

DATE April 7, 1999


W. D. Shaeffer
Acting Vice President, Generation

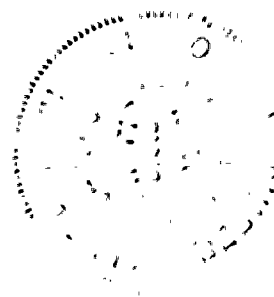
On this date personally appeared before me W. D. Shaeffer, to me known to be the individual who executed the foregoing instrument, and acknowledged that he signed the same as his free act and deed for the uses and purposes herein mentioned.

GIVEN under my hand and seal this 7 day of April 1999


Notary Public in and for the
STATE OF WASHINGTON

Residing at Kennewick WA

My Commission Expires 2/22/02



Description of the Proposed Changes

1. Summary of the Proposed Changes

The licensing analysis of the Reference Core (Reference 2) projected Cycle 15 would be comprised of 240 fresh ABB assemblies, 132 once-burned ABB assemblies, 112 twice-burned ABB assemblies, 104 thrice-burned ABB assemblies, and 176 more than thrice-burned SPC assemblies. Note, that the Reference Core calculations are conducted with additional margins to bound the final core configuration.

ABB has completed an evaluation of the ABB SVEA-96 Safety Limit Minimum Critical Power Ratio (SLMCPR) for WNP-2 Cycle 15 (Reference 1). This evaluation is based on the reference core loading pattern and state point depletion strategy in Reference 2. The ABB SVEA-96 SLMCPR was determined as a function of cycle exposure based on conservative radial power distributions established at critical control rod positions as predicted with the ABB three-dimensional core simulator. The evaluation of the ABB SVEA-96 SLMCPR as a function of cycle exposure established that values late in Cycle 15 provide conservative two loop and single loop SLMCPRs of 1.10 and 1.12, respectively, which can be used to represent the entire cycle. The approved methodology documented in Reference 3 was utilized for this evaluation.

ABB's NRC approved methodology (Reference 3) assumes that the SLMCPR for the non-ABB resident fuel is unchanged from the last cycle for which it was evaluated by its supplier. The ATRIUM-9X fuel was last evaluated by SPC for Cycle 11 (Reference 5) using the additive constant uncertainty for ATRIUM-9X fuel of 0.0201 which is contained in the NRC safety evaluation approval of Reference 4. Based upon the NRC approved additive constant uncertainty of 0.0201, as documented in Reference 5, at least 99.9% of the SPC ATRIUM-9X fuel rods are expected to avoid boiling transition with a SLMCPR of 1.10 during two loop operation and 1.11 during single loop operation.

In summary, a license amendment is being requested to change SLMCPR values (Technical Specifications Section 2.1.1.2):

- SPC ATRIUM-9X SLMCPR shall be 1.10 during two loop operation or 1.11 during single loop operation by recalculation of the two loop and single loop SPC ATRIUM-9X SLMCPRs using the NRC approved additive constant uncertainty for ATRIUM-9X fuel of 0.0201 (References 4 & 5); and
- ABB SVEA-96 SLMCPR shall be 1.10 during two loop operation or 1.12 during single loop operation as calculated using the NRC approved methodology documented in Reference 3.

**REQUEST FOR AMENDMENT
MINIMUM CRITICAL POWER RATIO SAFETY LIMITS**
Attachment 1, Page 2 of 2

2. Detailed Description of the Proposed Safety Limit Changes

A) Siemens Power Corporation (SPC)

ABB's NRC approved methodology (Reference 3) assumes that the SLMCPR for the non-ABB resident fuel is unchanged from the last cycle for which it was evaluated by its supplier. The ATRIUM-9X fuel was re-evaluated by SPC for Cycle 11 (Reference 5) using the additive constant uncertainty for ATRIUM-9X fuel of 0.0201 which is contained in the NRC safety evaluation approval of Reference 4. Based upon the NRC approved additive constant of uncertainty of 0.0201, as documented in Reference 5, at least 99.9% of the SPC ATRIUM-9X fuel rods are expected to avoid boiling transition with a SLMCPR of 1.10 during two loop operation and 1.11 during single loop operation.

B) Asea Brown Boveri (ABB)

ABB has completed an evaluation of the ABB SVEA-96 SLMCPR for WNP-2 Cycle 15 (Reference 1). This evaluation is based on the reference core loading pattern and state point depletion strategy in Reference 2. The ABB SVEA-96 SLMCPR was determined as a function of cycle exposure based on conservative radial power distributions established at critical control rod positions as predicted with the ABB three-dimensional core simulator. The evaluation of the ABB SVEA-96 SLMCPR as a function of cycle exposure established that values late in Cycle 15 provide conservative two loop and single loop SLMCPRs of 1.10 and 1.12, respectively, which can be used to represent the entire cycle. The approved methodology documented in Reference 3 was utilized for this evaluation.

The Cycle 14 two loop and single loop ABB SVEA-96 SLMCPRs were 1.07 and 1.09 respectively. The change in two loop and single loop ABB SVEA-96 SLMCPRs in Cycle 15 is due primarily to the use of nominal interassembly gaps in the monitored CPR. The 0.4 mm mean channel bow assumed in the monitored SVEA-96 CPR for Cycles 12 through 14 typically results in a reduction in SVEA-96 CPR of about 0.025 relative to the CPR calculated with interassembly nominal gaps. This reduction in monitored CPR effectively allowed a corresponding reduction in the SLMCPR to which the monitored CPR is compared. Consistently, the ABB SVEA-96 SLMCPRs have been conservatively adjusted to include the effects of mean channel bow.

**REQUEST FOR AMENDMENT
MINIMUM CRITICAL POWER RATIO SAFETY LIMITS**
Attachment 2, Page 1 of 1

Marked Up Technical Specification Pages

- Change the SLMCPRs as discussed above and delete the sentence that required interim cycle by cycle approval for ATRIUM-9X fuel. Technical Specification 2.1.1.2 Safety Limits (page 2.0-1) is modified to read as follows (see attached page markup):

2.1.1.2 With the reactor steam dome pressure ≥ 785 psig and core flow $\geq 10\%$ rated core flow:

The MCPR for ATRIUM-9X fuel shall be ≥ 1.10 for two recirculation loop operation or ≥ 1.11 for single recirculation loop operation. The MCPR for ABB SVEA-96 fuel shall be ≥ 1.10 for two recirculation loop operation or ≥ 1.12 for single recirculation loop operation.

- Reference 9 [ANFB Critical Power Correlation Uncertainty for Limited Data Sets, ANF-1125(P)(A), Supplement 1, Appendix D, Siemens Power Corporation - Nuclear Division, July 1998] is added to Technical Specification 5.6.5 list of COLR References (page 5.0-21) (see attached page markup).
- (Information Only) BASES Section 2.1.1.1 FUEL CLADDING INTEGRITY (page B 2.0-2) is changed to add new Reference 7 (see attached page markup).
- (Information Only) BASES Section 2.1.1.2 MCPR (page B 2.0-3) is changed to delete the use of an interim additive constant uncertainty for the SPC ATRIUM-9X fuel for Cycle 14 by deleting the following sentence (see attached page markup):

Reference 7 describes the interim use of increased ANFB additive constant uncertainty for the SPC ATRIUM-9X fuel during Cycle 14.

- (Information Only) BASES REFERENCES (page B 2.0-5) is changed to delete old Reference 7 and add new Reference 7 (see attached page markup):

7. ANFB Critical Power Correlation Uncertainty for Limited Data Sets, ANF-1125(P)(A), Supplement 1, Appendix D, Siemens Power Corporation - Nuclear Division, July 1998.