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 AUTH.NAME AUTHOR AFFILIATION  
 SORENSEN, G.C. Washington Public Power Supply System  
 RECIPI.NAME RECIPIENT AFFILIATION  
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SUBJECT: Application for amend to license NPF-21, consisting of TS  
 change re source range monitor operability during refueling  
 operations.

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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January 21, 1992  
G02-92-016

Docket No. 50-397

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

Gentlemen:

Subject: NUCLEAR PLANT NO. 2, OPERATING LICENSE NPF-21  
REQUEST FOR AMENDMENT TO TS LIMITING CONDITION  
FOR OPERABILITY 3/4.9.2 SOURCE RANGE MONITOR  
OPERABILITY, REFUELING OPERATIONS

Reference: General Electric Service Information Letter No. 478, "SRM Minimum  
Count Rate", dated December 16, 1988

In accordance with the Code of Federal Regulations, Title 10 Parts 50.90 and 2.101, the Supply System hereby submits a request for amendment to the WNP-2 Technical Specifications. This proposal requests that source range monitor (SRM) operability during refueling operations be changed to provide flexibility for a complete core offload (see attached, technical specification and bases changes). Additionally this request incorporates the reference guidance modifying the acceptable SRM channel count rate and signal-to-noise ratio values to maintain the General Electric design confidence level.

The source range monitors (SRM) provide the operator with information relative to the neutron level at very low flux levels in the core. As such, the SRM indication is used to determine the approach to criticality, and when criticality is achieved. During refueling the primary indication of neutron flux levels is provided by the SRMs. The SRMs provide monitoring of reactivity changes during fuel or control rod movement and give the control room operator early indication of unexpected subcritical multiplication that could be indicative of an approach to criticality. Although no credit is taken for SRM function in any WNP-2 design basis accident or transient analysis they do provide added protection with a non-coincident scram when the RPS shorting links are removed. RPS shorting link removal is directed in accordance with Limiting Condition for Operation 3.9.2.d which specifies removal "prior to and during the time any control rod is withdrawn and shutdown margin demonstrations are in progress". Again, this function is a backup and no credit is taken for SRM operability in any design

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bases or transient analysis. Four SRM monitors are available with two required operable in OPERATIONAL CONDITION 5 (refueling) per the subject Limiting Condition for Operation.

In order to perform reactor vessel inspections during the next refueling outage (currently scheduled to start on April 18, 1992) it will be necessary to perform a complete core offload. As presently written the subject LCO does not provide the flexibility for offloading. The LCO requires that "At least 2 source range monitor\* (SRM) channels shall be OPERABLE" in "OPERATIONAL CONDITION 5" and defines OPERABLE by the surveillance requirement that a count rate be verified at prescribed intervals and certain conditions. With less than 2 operable SRMs the ACTION statement requires suspension of "all operations involving CORE ALTERATIONS". As a result the core offload would be suspended when there was no longer a source of neutrons capable of providing a count rate signal. As fuel was removed the signal to the monitors would be diminished to the point that OPERABILITY as defined by surveillance requirements could not be confirmed.

With the requested change the operability of an SRM with four or less adjacent fuel assemblies and no other fuel assemblies in the same quadrant will not cause the suspension of core alterations as would the present Technical Specification. As fuel is removed all four SRMs will become exempted from meeting the LCO 3.9.2 operability requirements and the core can be completely offloaded.

As stated above the SRMs are used to monitor any changes to reactivity that could be indicative of an approach to criticality. For fuel removal with the SRM exempted operability proposed (four or less adjacent fuel assemblies and no others in the same quadrant) there is no concern that an unmonitored approach to criticality will occur as the source of neutrons (fuel) is removed.

However upon reload, with no fuel adjacent to an SRM and no method of verifying SRM operability, assurance that an unmonitored criticality is not possible is needed to justify this change. Accordingly, it has been shown analytically that the most reactive four bundles, Xenon free, placed in a square array around each SRM with no control rods inserted will remain subcritical at the most reactive temperature (680°F) by a large margin. Also after the four have been loaded the SRM will be capable of meeting the OPERABILITY requirements.

Additionally this request incorporates the reference guidance modifying the SRM count rate to ensure that a 95% confidence level is maintained in verifying SRM operability. As stated in the reference the acceptable SRM count rate value based on signal-to-noise (S/N) ratio has not been consistent within the BWR community. As a result of inquiries from some BWRs, General Electric conducted studies showing that a 95% confidence level can be preserved by specifying either 0.7 counts per second (cps) with a  $S/N \geq 20$  or 3 cps with a  $S/N \geq 2$ . Accordingly this technical specification change request incorporates this guidance in surveillance 4.9.2.c.

The Supply System has evaluated these requested changes per 10 CFR 50.92 and determined that they do not represent a significant hazards consideration because they do not:

- 1) Involve a significant increase in the probability or consequences of an accident previously evaluated. These changes do not result in any hardware modifications. The SRM instrumentation is not assumed to be an initiator of any analyzed event. The SRM instrumentation, in OPERATIONAL CONDITION 5, provides monitoring of neutron flux levels to give the control room operator early indication of unexpected subcritical multiplication that could be indicative of an approach to criticality. As such, action could be taken on the indication to avert or minimize the consequences of the event. However, the SRM function is not relied upon in any design bases or transient analysis. Rod motion interlocks and other instrumentation are relied on in the accident analysis to avert the event. The change allows assemblies to be loaded such that an adequate count rate is obtained yet assures, by analysis, that shutdown margin requirements are met and criticality does not occur. The change in acceptable count rate and signal-to-noise ratio preserves the confidence level of the General Electric design. As a result, the consequences of any analyzed events are unaffected because the change does not alter any system or component design assumptions or operation. Therefore, no significant increase in the probability or consequences of an accident previously evaluated will be involved.
- 2) Create the possibility of a new or different kind of accident from any accident previously evaluated because the proposed change allowing a core offload and subsequent reload has been analyzed to show that reloading the four fuel assemblies with the highest reactivity into a square array will not cause an inadvertent criticality yet will allow the SRMs to monitor criticality thereafter. Hence the offload and subsequent reload do not create the possibility of a new or different kind of accident from any accident previously evaluated.

The change in SRM count rate and S/N ratio values does not create the possibility of a new or different kind of accident from any previously evaluated because it does not change modes of plant operation or require physical modifications. It preserves the original General Electric design confidence level. No new or different kind of accident is therefore credible.

- 3) Involve a significant reduction in a margin of safety. No significant reduction in a margin of safety is involved because this change still provides assurance, by analysis, that shutdown margin is maintained and inadvertent criticality does not occur.


The change in SRM count rate and S/N ratio values does not affect a margin of safety because the values preserve the original General Electric design confidence level. Therefore, no margin of safety is impacted by either of these changes.

REQUEST FOR AMEND. TO TS LCO 3/4.9.2 SRM  
OPERABILITY, REFUELING OPERATIONS

As discussed above, the Supply System considers that these changes do not involve a significant hazards consideration, nor is there a potential for significant change in the types or significant increase in the amount of any effluents that may be released offsite, nor do they involve a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed changes meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(C)(9) and therefore, per 10 CFR 51.22(b), an environmental assessment of these changes is not required.

This Technical Specification change request has been reviewed and approved by the WNP-2 Plant Operations Committee (POC) and the Supply System Corporate Nuclear Safety Review Board (CNSRB). In accordance with 10 CFR 50.91, the State of Washington has been provided a copy of this letter.

Very truly yours,

  
G. C. Sorensen, Manager  
Regulatory Programs

PLP/bk  
Attachments

cc: RG Waldo - EFSEC  
JB Martin - NRC RV  
NS Reynolds - Winston & Strawn  
PL Eng - NRC  
DL Williams - BPA/399  
NRC Site Inspector - 901A

STATE OF WASHINGTON)  
COUNTY OF BENTON )

Subject: Request for Amend to TS LCO 3/4.9.2  
SRM Operability, Refueling Operations

I, G. C. SORENSEN, being duly sworn, subscribe to and say that I am the Manager, Regulatory Programs, 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 21 JAN, 1992

G. C. Sorensen  
G. C. Sorensen, Manager  
Regulatory Programs

On this date personally appeared before me G. C. SORENSEN, 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 21 day of January 1992.

Bruce Kest  
Notary Public in and for the  
STATE OF WASHINGTON

Residing at Kennewick, Washington

My Commission Expires April 28, 1994

