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 SORESENSEN, G.C. Washington Public Power Supply System
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SUBJECT: Application for amend to License NPF-21, revising TS
 4.6.6.1.b.3 re primary containment atmosphere control.

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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March 18, 1992
G02-92-064

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 TECHNICAL SPECIFICATION
4.6.6.1.b.3 PRIMARY CONTAINMENT ATMOSPHERE CONTROL

Reference: Letter, G02-92-061, JW Baker (SS) to JB Martin (NRC),
"Request for Waiver of Compliance Relative to Technical
Specification 4.6.6.1.b.3 Containment Atmosphere Control",
dated March 13, 1992

In accordance with the Code of Federal Regulations, Title 10, Parts 50.90, 2.101, and 50.91(a)(6), the Supply System hereby submits a request for amendment to the WNP-2 Technical Specifications on an exigent basis as provided for in the regulations. Specifically, the Supply System is requesting that the Technical Specification Surveillance Requirement 4.6.6.1.b.3 be revised to provide a more appropriate acceptance criterion for demonstrating operability of the primary containment hydrogen recombiner systems.

On March 13, 1992, by the Reference letter, the Supply System requested relief from the Technical Specification Containment Atmosphere Control (CAC) surveillance requirement that upon introduction of a 1% by volume hydrogen in a 140-180 scfm stream containing at least 1% by volume oxygen, that the catalyst bed temperature rises in excess of 120 degrees F within 20 minutes.

The reason for requesting the waiver was that as a result of intensive review of the operability of the CAC it had become evident that the acceptance criterion of the Technical Specification was very dependent on the analytical methods of calculating the input parameters and measurement of performance indicators; hydrogen concentration, process flows and temperatures. Depending on the methods of calculating the input parameters, the temperature rise experienced can vary significantly. The review had led to refinements in input parameter determination. As a result, during this review the temperature rise acceptance criterion method was identified as suspect. In addition to the analytical methods used to

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REQUEST FOR AMENDMENT TO TECHNICAL SPECIFICATION

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determine the input parameters, other factors such as: heat removed by the gas flow; heat capacity of the catalyst bed and the vessel; losses through vessel insulation, supports, and piping; time lag and heat loss caused by temperature sensors and uncertainties in flow determination during testing, all led to a conclusion that the present temperature rise acceptance criterion was not, by itself, an accurate reflection of catalyst operability. Test results showed variations primarily are a result of the ability to set initial conditions, input parameters, and instrument uncertainty.

As a result of an internal safety system functional inspection self assessment, it was concluded that sampling of the influent and effluent gases would be a more direct indication of catalyst efficiency. This was confirmed with the assistance of industry experts in catalyst bed design and operation. An appropriate acceptance criterion would be the sampling of the effluent gas stream for hydrogen concentration for a defined input volume percent of hydrogen. A sample retaining less than 25 parts per million by volume (ppmV) hydrogen (called reactor leakage in industry terminology) after passing through the catalyst bed would indicate acceptable recombiner operation for a feed of at least 1% hydrogen by volume. The Reference letter summarized sampling and testing performed on March 12 and 13 that showed 6 ppmV hydrogen concentration in the effluent stream of both recombiner trains. It was these test results that led the Supply System to conclude that the catalyst efficiency was acceptable and capable of performing in support of plant operation and that a waiver request was appropriate.

The Supply System, by this submittal, is requesting that the Technical Specification 4.6.6.1.b.3 be revised to provide for the demonstration of the operability of the CAC system by sampling of the effluent stream for a hydrogen concentration of less than 25 ppmV for the introduction of at least 1% by volume hydrogen into the catalyst bed preheated to a temperature not to exceed 300°F in lieu of the existing reference to catalyst bed temperature rise and flow. This submittal proposes the use of 25 ppmV as the acceptance criterion rather than the 10 ppmV mentioned in the Reference letter which was the basis for requesting the waiver. The 25 ppmV value is believed to be an acceptable indication of recombiner operation while leaving room for the inaccuracy in the measurement techniques. The catalyst expert mentioned above has stated that 25 ppmV would be an acceptable indication of catalyst performance as it indicates a minimum efficiency of 99.75% efficiency for a hydrogen feed of at least 1%. An effluent hydrogen concentration of 100 ppmV would indicate a possible problem with the catalyst and would require further investigation.

Changes to Bases 3/4.6.6 are provided to support this change request and to reflect the oxygen control function of the CAC system resulting from the change to an inerted containment. WNP-2 design basis for combustible gas control was changed from hydrogen control with a non-inerted containment to oxygen control with a nitrogen inerted containment during plant licensing.

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4.6.6.1.b.3 CONTAINMENT ATMOSPHERE CONTROL

The Supply System concludes that using the "less than 25 ppmV hydrogen concentration" acceptance criterion does not involve a significant hazards consideration for the following reasons:

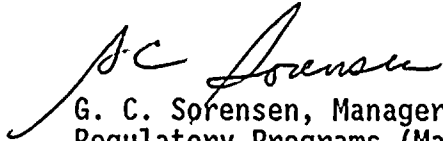
- It would not involve a significant increase in the probability or consequences of an accident. The recombiners are provided as an accident mitigating feature and, as such, do not have potential to cause an accident. In addition, the consequences of accidents are not increased. The 25 ppmV acceptance criterion more adequately demonstrates operability of the Containment Atmosphere Control system as it is a more direct indication of recombiner operational efficiency and is not dependent on analytical methods of determining input parameters or temperature losses and temperature measurement inaccuracies. Hence, there is no increase in the consequences of an accident introduced by this request as the proposed testing method is superior to that currently in the Technical Specification as it better quantifies the conversion capability of the catalyst. The existing testing method only confirms an efficiency of approximately 80% while the proposed method confirms a minimum efficiency of 99.75% for the minimum 1% hydrogen feed.
- It would not create the possibility of a new or different kind of accident. No new methods of system operation are introduced by this request. Accordingly, no new or different kind of accident is credible as a result of this request.
- It would not create a significant decrease in a margin of safety. The proposed testing provides a more direct and rigorous acceptance criterion. Sampling of the feed and product gases will be a more reliable indicator of catalyst performance thus assuring that the margin to unacceptable oxygen level is maintained. Limiting the catalyst bed preheat temperature to less than that expected for a LOCA condition provides additional insurance that the margin of safety will be maintained. Hence, this request does not represent a decrease in a margin of safety.

As discussed above, the Supply System considers that this change does 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 does it involve a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed change meets the eligibility criteria for categorical exclusion set forth in 10CFR 51.22(c)(9) and therefore, per 10CFR 51.22(b), an environmental assessment of the change is not required.

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This Technical Specification change 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 10CFR 50.91, the State of Washington has been provided a copy of this letter.

Sincerely,



G. C. Sorensen, Manager
Regulatory Programs (Mail Drop 280)

AGH/bk
Attachments

cc: JB Martin - NRC RV
NS Reynolds - Winston & Strawn
WM Dean - NRC
DL Williams - BPA/399
NRC Site Inspector - 901A

STATE OF WASHINGTON)
COUNTY OF BENTON)

Subject: Primary Containment Atmosphere Control

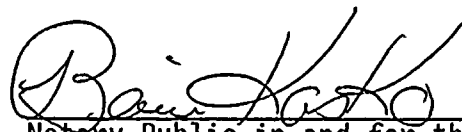
I. G. C. SORENSEN, being duly sworn, subscribe to and say that I am the Manager, Regulatory Programs for the WASHINGTON PUBLIC POWER SUPPLY SYSTEM, the applicant herein; that I have the full authority to execute this oath; that I have reviewed the foregoing; and that to the best of my knowledge, information, and belief the statements made in it are true.

DATE 18 MARCH, 1992


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 18th day of March 1992.


Notary Public in and for the
STATE OF WASHINGTON

Residing at Kennewick, Washington

My Commission Expires April 28, 1994



