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SUBJECT: Requests relief from Tech Specs 4.6.6.1.b.3, "Containment Atmosphere Control" & provides appropriate acceptance criterion.

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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March 13, 1992
G02-92-061

Docket No. 50-397

Mr. J.B. Martin, Regional Administrator
U. S. Nuclear Regulatory Commission
Region V
1450 Maria Lane, Suite 210
Walnut Creek, CA 94596

Subject: NUCLEAR PLANT NO. 2, OPERATING LICENSE NPF-21
REQUEST FOR WAIVER OF COMPLIANCE RELATIVE TO
TECHNICAL SPECIFICATION 4.6.6.1.b.3 CONTAINMENT
ATMOSPHERE CONTROL

The purpose of this letter is to request relief from the subject Technical Specification surveillance requirement. The surveillance requires:

"verifying during a recombiner system functional test 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 Supply System has been involved in an intensive review of operability of the hydrogen recombiner system due to identified problems which have now been resolved. It has become evident that the acceptance criteria of the original Technical Specification was very dependent on the analytical methods of calculating the input parameters; hydrogen concentration, process flows and temperatures. Depending on the methods of calculating the input parameters, the temperature rise experienced can vary significantly. The intense review has led to refinements in input parameter determination. As a result, during this review the temperature rise acceptance criteria method was identified as suspect. Besides the analytical methods used to 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, all lead to a conclusion that the present temperature rise acceptance criterion is not, by itself, an accurate reflection of operability. Test results show variations primarily are a result of the ability to set initial conditions, input parameters, and instrument uncertainty.

The Supply System, with the assistance of an industry expert in catalyst bed design and operation, has determined that an appropriate acceptance criterion would be the sampling of the effluent gas stream for hydrogen concentration under the input parameters of surveillance 4.6.6.1.b.3. A sample retaining less than 25 parts per million hydrogen after passing through the catalyst bed would indicate acceptable recombiner operation. A 10 ppm hydrogen concentration at the effluent is representative of a 99.99% efficiency factor, an industry standard much more rigorous than the temperature rise alone.

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With this acceptance criterion for recombiner efficiency both recombiners were tested (March 12 and 13) to satisfy the subject surveillance with the intention that both acceptance criteria would be used. A 120°F per percent hydrogen temperature rise and 6 ppm hydrogen concentration was obtained for Train B. Train A realized a 6 ppm hydrogen concentration in the effluent stream but failed to meet the 120°F per percent hydrogen temperature rise. An additional test introducing a nominal 2% by volume hydrogen was also conducted on both trains to further verify operability. Both trains reacted with an appropriate temperature rise given the increased concentration. In both the 1% hydrogen and 2% hydrogen tests, the major portion of the temperature rise was observed to occur in the top portion of the bed, providing clear evidence of unimpaired catalyst activity. As a result, in consideration of the 10 ppm acceptance criterion and the 2% concentration test, the Supply System has concluded that both trains are operable and capable of performing in support of plant operation.

With system operation proven, the Supply System does not consider it necessary to identify immediate compensatory actions in support of this request. A 99.99% recombiner efficiency adequately proves operability and justifies plant operation.

With this intensive review ongoing, modifications to the drains, and testing to obtain a thorough understanding of the system and analytical methods, it was not feasible to request this action at an earlier date. Test results were obtained late on March 12, 1992, confirming assumptions on the expected temperature rise, therefore an earlier request for this action was not possible.

Absent approval of this waiver request, WNP-2 will be unable to declare the hydrogen recombiners operable and in accordance with Applicability statement 3.0.4 of the WNP-2 Technical Specifications will remain shutdown until the processing of a Technical Specification reflecting appropriate acceptance criteria can be completed.

The Supply System concludes that using the "less than 10 ppm 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 a design basis accident. The consequences of accidents are not increased. The recombiners have been proven to have a 99.99% efficiency and are capable of meeting the design bases for hydrogen removal from containment post LOCA. The alternate acceptance criteria more adequately proves operability as it is a more repeatable 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 probability or consequences of an accident introduced by this request.

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- 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 because recombiner operability has been proven. The proposed testing provides a more repeatable and more rigorous acceptance criteria. With this new acceptance criteria assurance of hydrogen recombiner reliability is enhanced. Hence this request does not represent a decrease in a margin of safety.

The issuance of the requested waiver would have no environmental consequences as recombiner operability has been adequately proven by the described testing. This request has been approved by the WNP-2 Plant Operations Committee.

It is requested that the waiver be effective until the NRC approves an emergency technical specification change request. The Supply System intends to submit an emergency Technical Specification request on or before March 18, 1992.

Sincerely,



J.W. Baker
Plant Manager, WNP-2

AGH/bk
Attachments

cc: Document Control Desk
NS Reynolds - Winston & Strawn
W Dean - NRC
DL Williams - BPA/399
NRC Site Inspector - 901A
RG Waldo - EFSEC
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