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SUBJECT: Application for amend to license NPF-21, revising SR
 4.6.6.1.b to include addl acceptance criterion for temp
 profile within hydrogen recombiner bed.

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June 25, 1992
G02-92-154

Docket No. 50-397

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

Gentlemen:

Subject: WNP-2, OPERATING LICENSE NPF-21
REQUEST FOR AMENDMENT TO TECHNICAL SPECIFICATION 4.6.6.1.B.3
PRIMARY CONTAINMENT ATMOSPHERE CONTROL (ADDITIONAL INFORMATION)

Reference: Letter G02-92-064, dated March 18, 1992, GC Sorensen (SS) to NRC,
same subject

In the reference, the Supply System requested an amendment to WNP-2 Technical Specifications surveillance requirements for the Containment Atmosphere Control System (CAC). After several discussions with WM Dean and AJ D'Angelo of the NRC, the Supply System has decided to modify the original request. Specifically, Surveillance Requirement 4.6.6.1.b should be revised to include an additional acceptance criterion for the temperature profile within the hydrogen recombiner bed. The proposed revision is included as Attachment 1 to this letter. In support of this revision, the corresponding changes to the bases are shown in Attachment 2.

As discussed in the reference, the Supply System believes that measuring less than 25 parts per million by volume (ppmV) hydrogen in the effluent stream, after the introduction of at least a 1% hydrogen concentration to the recombiner skid provides acceptable indication of the operability of the catalyst. However, additional information about the degradation of the bed may be obtained by monitoring the temperature profile through the catalyst bed.

Ideally, a catalyst bed should show a sharp increase in temperature within the first few inches of the bed upon the introduction of hydrogen and oxygen. Under ideal equilibrium and adiabatic conditions, downstream temperatures should indicate little or no increase because the reaction has been essentially completed in the first few inches. In actual testing where neither equilibrium nor adiabatic conditions exist, the downstream temperatures should be considerably lower than the peak temperature. If the catalyst activity is degraded for any reason, the reaction will take place further into the bed and the peak temperature will occur further down.

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The majority of our tests have shown the peak temperature to be at the second in-bed detector which is approximately at the 30% level. A few tests have shown peak temperature at the third detector which is approximately at the 60% level. There has not been a consistent downward trend and we believe these few cases have been due to lower initial temperatures and/or varying heat loss conditions from year to year. The surveillance tests are run without the electric preheater at inlet temperatures around 250°F rather than the design inlet temperature of 500° to 550°F.

It is important to note that a catalyst bed and its ability to recombine hydrogen and oxygen does not deplete simply from use. Any reduction in recombination capability is caused by poisoning or other damage to or loss of catalyst, or by insufficient activation energy (low inlet temperature). Given adequate inlet temperature, the presence of poisoning in the top few inches of the bed will simply move the peak reaction further down in the bed with very little effect on the percent completion of the reaction. Any such downward movement in the site of the majority of the recombination should be evaluated to determine any actions that may be necessary. Taking temperature readings of the catalyst bed during the surveillance to determine that the recombination process is occurring in the upper 60% of the bed will provide the data to support the analysis of the capability of the catalyst. Measuring the hydrogen concentration in the effluent stream provides the necessary information that in fact the catalyst is able to recombine hydrogen and oxygen. The evaluation of the change of location of that recombination process provides indication of the potential degradation of the catalyst.

The Supply System has determined that monitoring the relative temperature profile in the recombiner catalyst bed does not involve a significant hazards consideration for the following reasons:

It does 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 the potential to cause an accident or increase the consequences of an accident. The temperature rise criterion combined with the measurement of the hydrogen concentration in the effluent stream provides information of the operability and capability of the recombiner skid.

It does not create the possibility of a new or different kind of accident. No new methods of system operation are introduced by the request. Accordingly, no new or different kind of accident is credible as of result of this request.

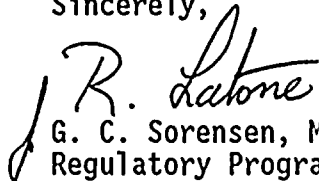
It does not create a significant decrease in the margin of safety. The proposed data recording provides information concerning the health of the catalyst. This provides additional assurance that the catalyst bed will be able to perform the required functions in the event of the design bases accidents. Hence, this request does not represent a decrease in the margin of safety.

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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.

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)

MGE/bk
Attachments

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

ATTACHMENT 1

