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 SORESEN, G.C. Washington Public Power Supply System
 RECIP. NAME RECIPIENT AFFILIATION
 BUTLER, W.R. Licensing Branch 2

SUBJECT: Submits supplemental info in support of 850717 request for
 Tech Spec change under emergency circumstances. Concurrence
 w/request & justification of emergency circumstances
 necessary to alleviate suffured derating.

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Washington Public Power Supply System

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July 19, 1985
G02-85-388

Docket No. 50-397

Director of Nuclear Reactor Regulation
Attention: Mr. W. R. Butler, Chief
Licensing Branch No. 2
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

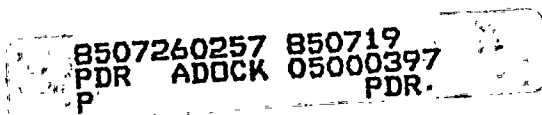
Dear Mr. Butler:

Subject: NUCLEAR PLANT NO. 2
SUPPLEMENTAL INFORMATION IN SUPPORT OF TECHNICAL
SPECIFICATION CHANGE REQUEST UNDER EMERGENCY
CIRCUMSTANCES

Reference: Letter, G02-85-381, G. C. Sorensen (SS) to W. R.
Butler (NRC), "Request for Technical Specification
Amendment Under Emergency Circumstances", dated
July 17, 1985

The reference letter requested a technical specification change under emergency circumstances. In support of this request, the following supplemental information is provided:

- o Operation of WNP-2 in accordance with the proposed Technical Specification amendment would not involve a significant hazards consideration because it would not:
 - 1) Involve a significant increase in the probability or consequences of an accident previously evaluated because our evaluation of the proposed changes indicates that the principal accident associated with a single recirculation loop operation would be an inadvertent startup of the idle recirculation loop pump causing a transient. However, such a transient was evaluated in the WNP-2 Final Safety Analysis Report (FSAR) and found to satisfy the Commission's regulations. In addition, the Technical Specifications contain more restrictive MCPR limits, flow-biased scram and rod-block setpoints, and reduced MAPLHGR operating limits to ensure that the probabilities and the consequences of



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accidents with single recirculation loop operation will not be significantly increased. We have also evaluated the implication of thermal-hydraulic stability for both single and dual loop operations based on the GE recommendations in SIL 380, Revision 1 after incorporation of the proposed Technical Specification changes. We have determined that the proposed changes would alleviate any concerns related to the thermal-hydraulic instability by adding surveillance requirements for detecting thermal-hydraulic instabilities and specifying the remedial operator actions for responding to them. Such operator actions will also assure that there will be no significant increase in the probability or consequences of an accident. Based on the above discussion, we find that the proposed changes are not expected to significantly increase the probability or consequences of previously evaluated accidents.

- 2) Create the possibility of a new or different kind of accident from any accident previously evaluated because the proposed change does not include any system changes not analyzed in the FSAR. All abnormal operating transients which could be initiated with single loop operation, such as an inadvertent startup of an idle recirculation pump or pump trip have already been analyzed in the FSAR, and reviewed and accepted by the Staff.

The addition of the surveillance requirements and remedial actions for thermal-hydraulic instability detection and response involve normal plant operating practices and therefore are not expected to create a new or different kind of accident from any previously analyzed in the FSAR.

- 3) Involve a significant reduction in a margin of safety because the proposed technical specification change ensures safety margins are maintained within analyzed limits. Our evaluation indicates that the proposed change will ensure that the FSAR margins of safety will not be reduced during normal operation and with one recirculation pump not operating. Our conclusions are based in part on the NRC's Safety Evaluation of GE Topical Report NEDE-24011, Amendment 8.

For single and dual loop operation, the additional surveillance requirements and remedial actions required of the operator for detection of and response to thermal-hydraulic instability will actually increase the present margin of safety.



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- o The shutdown of recirculation pump B caused the initial derating of power from 100% to 50%. Under the proposed change the derating would be ameliorated and the derating suffered would be alleviated by authorizing operation at a higher power level.
- o The mechanical problem involving recirculation pump B was unforeseen and could not be avoided. The sequence of events leading to the shutdown of recirculation pump B is as follows. Prior to the scheduled M-3 outage in the spring of 1985, a reactor recirculation flow control valve hydraulic line weld failed. The line was repaired and the subsequent failure analysis attributed the failure to excessive piping vibration. Data collected and analyzed from vibration instruments installed on recirculation pump B indicated the cause to be excessive pump vibration. During the M-3 outage the pump was partially disassembled and damage was found in the radial bearing and seal assembly. The failure of the bearing was considered by the pump manufacturer's technical representative, a GE technical representative and the Supply System's technical personnel to have caused the vibration problem. The pump was reassembled and tested while in cold shutdown on the 60 Hz power supply. The vibration data collected during the test was evaluated and determined by the technical representatives to indicate that the problem had been solved. No further repair was deemed necessary. Following the conclusion of M-3 during power escalation the vibration levels increased to unacceptable levels, lower than those experienced prior to M-3 but higher than the levels experienced during the cold shutdown test. The vibration levels experienced are such that extended operation at rated speed is not prudent.

From this sequence it is evident that the Supply System could not have anticipated the reoccurrence of high vibration in pump B. Pump technical representatives felt that the problem had been identified and repaired, data from a test of the pump indicated the repairs to be successful and it wasn't until July 7 during power escalation following the M-3 outage that vibration readings associated with loop B began increasing. On July 8 the vibration levels of the pump exceeded the manufacturer's recommended shutdown limits and the pump was subsequently secured. Between July 8 and July 16 the plant operated in single loop while engineering options for repair were considered. On July 17 a shutdown was performed which allowed visual examination of the pump and installation of a snubber on the pump suction valve to be performed. It was felt that the addition of the snubber would eliminate the sympathetic vibration caused by the piping system to isolate the pump induced vibration thus facilitating data analyses. The plant has since returned to power and the pump has been tested at 60 Hz with unsatisfactory results. Consequently, pump repair must be accomplished. At that time, July 17, 1985, it became apparent due to power considerations and the derating suffered that the emergency technical specification change was necessary.



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Your concurrence with the reference request and the justification of emergency circumstances is necessary to alleviate the suffered derating. WNP-2 is ready as soon as your approval is forthcoming to begin preparations to mitigate the presently derated condition of the plant.

We greatly appreciate your cooperation in this matter. Please contact us immediately if further information is required.

Very truly yours,

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

HLA/PLP/tmh

cc: JO Bradfute - NRC
WS Chin - BPA
C Eschels - EFSEC
JB Martin - NRC RV
E Revell - BPA
NS Reynolds - BLCP&R
AD Toth - NRC Site