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**Washington Public Power Supply System**

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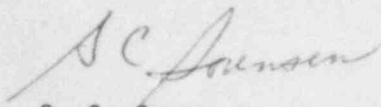
Mr. J. B. Martin  
Regional Administrator  
U.S. Nuclear Regulatory Commission  
Region V  
1450 Maria Lane, Suite 210  
Walnut Creek, California 94596

Subject: NUCLEAR PROJECT NO. 2  
10CFR50.55(e) REPORTABLE CONDITION #260  
STANDBY SERVICE WATER FLOW PROBLEMS  
REVISED FINAL REPORT

- References:
1. Telecon QA2-83-178, dated July 21, 1983, L.C. Floyd to R. Dodds
  2. Letter BRG0-83-004, Rev. 1, dated August 12, 1983, F.J. Patti to J.P. Collins
  3. Letter G02-83-761, dated August 11, 1983, C.S. Carlisle to J.B. Martin
  4. Letter G02-83-1017, dated November 3, 1983, J.W. Shannon to J.B. Martin

In accordance with provisions of 10CFR50.55(e), your office was informed by the references above of the subject condition. Reference 4 transmitted our final report; however, at Mr. Dodd's request, we are submitting a revised final response to more clearly define when the work will be completed. The attachment to this letter provides the Project's revised final report on Condition #260.

If you have any questions, please contact Roger Johnson, WNP-2 Project QA Manager, at (509) 377-2501, extension 2712.

  
G. C. Sorensen  
Manager, Regulatory Programs

JGT/jdb

Attachment: As stated

cc: W.S. Chin, BPA  
N.D. Lewis, EFSEC  
A. Toth, NRC Resident Inspector  
Document Control Desk, NRC

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM  
NUCLEAR PROJECT NO. 2  
DOCKET NO. 50-397  
LICENSE NO. CPPR-93  
EVALUATION OF POTENTIAL 10CFR50.55(e) CONDITION #260  
STANDBY SERVICE WATER FLOW PROBLEMS  
REVISED FINAL REPORT

Description of Deficiency

Startup testing identified insufficient flow to several heat exchangers in Standby Service Water (SSW) Loops A and B.

Safety Implication

Insufficient service water flow through heat exchangers could cause failure of safety-related equipment due to overheating. Failure of this equipment could preclude safe shutdown of the reactor. The design as issued for construction was deficient and required both physical and operational changes to meet and maintain design flow conditions. The condition is considered to be a reportable deficiency under 10CFR50.55(e) and Part 21 criteria.

Cause of the Deficiency

Design errors in the original system pressure drop calculations have been determined to be the cause for the low flow condition to the safety-related equipment. The condition was further accentuated by excessive pipe fouling which contributed to, but was not the actual cause for, low flow condition.

Action to Prevent Recurrence

A chemical treatment program is required to control water quality so as to prevent future material buildup and fouling of the piping system.

Two factors should reduce the possibility of design errors in pressure drop/flow calculations in the future.

- 1) We are now using a computer program for such calculations. This allows modelling of all loops of large parallel systems.
- 2) We now have available the as-built configuration of the piping within the plant upon which to base calculations.

Corrective Action

The Standby Service Water (SSW) system was chemically cleaned to remove the deposited materials and chemical treatment of system has been implemented by the Supply System. The SSW System Valve Lineup has been altered to maintain these conditions through Project Engineering Directive (PED) 215-M-X473.

Corrective Action (Continued)

Burns and Roe has resolved the design error covered by Startup problem Report (SPR) 2807 by issuing PED 215-M-X329 to install a bypass around orifices SW-R0-2A and 2B. Throttling of Residual Heat Removal (RHR) Heat Exchanger inlet and outlet valves (RHR-V-14A/B and RHR-V-68A/B) will further alter the service water system pressure drop configuration providing increased available pressure drop for the various heat exchangers and increase the flow through them. Startup testing has been done to achieve minimal throttling on each gate valve while obtaining the necessary flows through the heat exchangers. Data has been forwarded to Burns and Roe for dispositioning SPR-2808 without any further modification to the system.

This configuration will be used for system operation pending completion of an engineering evaluation on the most appropriate method for eliminating the need to throttle the RHR valves. The resulting system modification will be made prior to completion of the first refueling outage.