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

Gentlemen:

Subject: Docket No. 50-206  
In-Service Testing Program for Pumps and Valves  
San Onofre Nuclear Generating Station, Unit 1

Enclosed for your review and approval is Revision 1 to Pump Relief Request (PRR) No. 4 associated with the in-service testing program for pumps and valves for San Onofre Unit 1. It incorporates the results of recent discussions with the NRC staff regarding suitable alternative testing for residual heat removal pumps G-14A and G-14B, addressing their reliability history as well as risks associated with testing these pumps to verify their operability while the plant is at power or in hot standby.

If you have any questions, please call me.

Very truly yours,

*M. O. Medford*

Enclosure

cc: J. B. Martin, Regional Administrator, NRC Region V  
F. R. Huey, NRC Senior Resident Inspector, San Onofre Units 1, 2 and 3  
R. F. Dudley, NRR Project Manager, San Onofre Unit 1

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## PUMP RELIEF REQUEST NO. 4

SYSTEM: Residual Heat Removal (RHR)

COMPONENT: RHR pumps, G-14A, G-14B

CLASS: 2

FUNCTION: The RHR pumps provide flow through the reactor coolant system (RCS) during the final stage of plant cooldown to cold shutdown. They also provide flow to remove residual heat to maintain cold shutdown conditions. Operation of the pumps during Modes 1, 2 or 3 is not required.

TEST REQUIREMENT: Quarterly testing per Article IWP-3400.

## BASIS FOR RELIEF:

During normal plant operation, the low pressure RHR system is isolated from the RCS by motor operated valves MOV-813 and MOV-814 which are series valves on the suction side of RHR pumps G-14A and G-14B. Additionally, MOV-813 and MOV-834, the first isolation valves at the RCS boundary, are interlocked with RCS pressure such that these valves may not be opened until RCS pressure has been reduced to 400 psig or less.

The pumps are provided with a 2 inch diameter bypass that is used for safety injection recirculation alternate path hot leg injection and a 3/4 inch diameter bypass that is used for system warmup. If the pump is run with the suction valves MOV-813 and MOV-814 closed, NPSH (net positive suction head) for the pumps would be provided by letdown pressure. However, for this to be done the pressure control valve (PCV-1105) would have to be placed in the manual position and RCS letdown pressure would be controlled by the plant operators. Since this valve has a very slow response time, it could result in system overpressurization and the lifting of the RHR system relief valve RV-206, which has a setpoint of approximately 480 psig. Lifting of this relief valve has, historically, led to continued valve leakage and cause for having to perform difficult repairs in Mode 3.

If the RHR pumps are operated in this abnormal configuration, the total flow would be approximately 320 GPM, which is below the minimum flow required for pump hydraulic stability (380 GPM). Additionally, these pumps are located inside containment within the secondary shield in a high radiation area. Consequently, since they are inaccessible during plant operation, visible abnormalities and deterioration in RHR pump performance during the test would go undetected.

Testing the pumps without the RHR system in service would force system equipment to be operated in an abnormal manner and, therefore, increase the risk of unanticipated system transients. In addition, as stated previously, it would increase the risk of lifting the system pressure relief valve (RV-206) and possibly damage the pump due to its operation outside of its design conditions.

Past operating experience has demonstrated there is no indication that additional pump testing between plant shutdowns would increase pump reliability. There have been no pump failures during startup of the RHR system in the entire operating history at San Onofre Unit 1. As a result, the pumps should be tested quarterly only during cold shutdown.

ALTERNATE  
TESTING:

Test pumps within 96 hours of placing the RHR system in service if it has been more than 3 months since the pump's last inservice test. Test frequency during cold shutdown periods will be quarterly.

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