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SUBJECT: Advises that installation of Bingham-Willamette mechanical shaft seals in reactor coolant pumps being considered. Decision to proceed w/seal installation will be made after completion of joint development program.

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February 22, 1985

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Director, Office of Nuclear Reactor Regulation
Attention: Mr. George W. Knighton, Branch Chief
Licensing Branch No. 3
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Gentlemen:

Subject: Reactor Coolant Pump Seal Planned Modification
Docket Nos. 50-361 and 50-362
San Onofre Nuclear Generating Station
Units 2 and 3

The purpose of this letter is to inform you that SCE is considering installation of Bingham-Willamette mechanical shaft seals in the San Onofre Units 2 and 3 Reactor Coolant Pumps (RCP's). The change is being considered as part of Southern California Edison's efforts to extend RCP seal life.

San Onofre Units 2 and 3 RCP shafts are currently equipped with Byron-Jackson type SU shaft seal cartridges. The Bingham-Willamette mechanical shaft seals under consideration for installation are the Balanced Stator Model 950 design. This is the same Bingham-Willamette seal design which has been retrofitted at Oconee Units 2 and 3, Rancho Seco and WPPSS Unit 2. Like the Byron-Jackson seals, the Bingham seals are hydrodynamic seals and are cartridge assemblies, installed and removed from the pump as a unit. The seal cartridge contains three active seal stages of identical configuration which distribute the system operating pressure equally across each seal stage. Similar to the Byron-Jackson seal, the Bingham seal cartridge has a fourth seal having a configuration identical to the active seals which acts as a back-up. Each seal stage is designed to operate at the full system design pressure of 2500 psig.

Certain items within a Bingham-Willamette scope of supply, as part of the reactor coolant pressure boundary, for any San Onofre Units 2 and 3 RCP shaft seal replacement would be Seismic Category I, Quality Class I. A Bingham-Willamette scope of supply would also include a manufacturer's certification of compliance with the applicable editions of the ASME Boiler and Pressure Vessel Code, Section III. Additionally, documented analyses of Operating Basis Earthquake (OBE) and Design Basis Earthquake (DBE) events as required would be developed for safety-related parts.

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During the licensing phase of San Onofre Units 2 and 3, the NRC reviewed the adequacy of the RCP shaft seals. Initially, it was requested that loss of (RCP seal) cooling for longer than 30 minutes without loss of function and without the need for operator protective action be demonstrated. Verification by actual pump test was requested to demonstrate that the RCP's would not experience shaft seizure or complete loss of seal function following loss of cooling water for longer than 30 minutes without the need for operator corrective action. A special two-part motor and pump test was subsequently performed in conjunction with the normal RCP acceptance testing.

A similar 30-minute loss of cooling test is scheduled to be performed on a Bingham-Willamette shaft seal during March, 1985. The purpose of this test is to provide added assurance that the RCP shaft seals would not fail under conditions equivalent to a loss of Component Cooling Water (CCW) cooling at San Onofre Unit 2 or 3. The test will be performed on a boiler circulation pump at SCE's Alamitos Generating Station. The Bingham-Willamette shaft seal cartridge slated for testing at the Alamitos Station is of the identical Bingham-Willamette Balanced Stator design as those seals planned for installation at San Onofre. The balance diameter of the test shaft seal is 4.50 inches whereas the shaft seals procured for SONGS 2 and 3 have a balance diameter of 9.50 inches. As in the previous test, evidence of gross seal failure or excessive leakage from the shaft cartridge would be grounds for test failure. The pump will then be disassembled and the seals inspected for wear subsequent to test completion.

SCE's joint development program with Bingham-Willamette is scheduled for completion in late 1985. After program completion, SCE will decide whether or not to proceed with the Bingham-Willamette seal installation. Seal replacement would be handled in accordance with the provisions of 10 CFR 50.59.

If you have any questions, please contact me.

Very truly yours,



cc: Mr. H. Rood, Project Manager
Licensing Branch 3

Mr. F. R. Huey
USNRC Senior Resident Inspector, Units 1, 2 and 3