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SUBJECT: Submits revised relief requests from inservice testing
 program for pumps & valves.Rev 17 to "Inservice Testing
 Program San Onofre Unit 2" & Rev 12 to "Inservice Testing
 Program San Onofre Unit 3" encl.

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October 28, 1991

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

Gentlemen:

Subject: Docket Nos. 50-361 and 50-362
Inservice Testing Program for Pumps and Valves
San Onofre Nuclear Generating Station
Units 2 and 3

- References:
1. NRC Safety Evaluation of Licensee Responses to Staff's Technical Evaluation Report Items and Revised Relief Requests to the IST Program for Pumps and Valves - San Onofre Nuclear Generating Station, Units 2 and 3 (TAC NOS. M80642 and M80643), dated October 2, 1991
 2. NRC Safety Evaluation Report of the Inservice Testing Program for Pumps and Valves, San Onofre Nuclear Generating Station, Unit Nos. 2 and 3 (TAC Nos. M55120 and M55121) dated September 24, 1991
 3. July 31, 1991 letter from R. M. Rosenblum (SCE) to Document Control Desk (NRC), Subject: Same as above

In response to the October 2, 1991 NRC Safety Evaluation on Inservice Testing (IST) (Reference 1), this letter provides additional information in support of Valve Relief Request (VRR) Nos. 3 and 13 for San Onofre Units 2 and 3. Descriptions of the methods for part-stroke exercising the check valves in these VRRs and the approach for developing non-intrusive diagnostic testing techniques are provided. By Reference 2 these two VRRs were granted until the current refueling outage for Unit 2 and the next refueling outage for Unit 3. By this submittal, we are asking that these relief requests be approved to be a permanent part of our current IST programs for both Units 2 and 3.

PARTIAL STROKE TESTING

Partial stroke testing will be completed on all valves addressed in VRR Nos. 3 and 13 beginning in the Cycle 6 refueling outages for both units. As proposed in Reference 3, partial stroke testing will be performed prior to returning the valve(s) to service after reassembly of the valve(s) following the disassembly, inspection, and manual full-stroking during refueling outages. The methods to be used for this testing are as follows:

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VRR No. 3: Alternate Testing for Safety Injection System Check Valves;
24-003-C-724, Outlet Check Valve - Containment Emergency Sump,
and, 24-004-C-724, Outlet Check Valve - Containment Emergency Sump

The partial flow test for these check valves will use the High Pressure Safety Injection (HPSI) pumps taking suction from the containment emergency sumps to provide flow through the check valves. Because the test flow achievable is only a fraction of the design flow rate from the sumps, it is expected the 24 inch sump outlet check valves will not fully open during the test. However, the described test method is the only reasonable means available to perform a partial flow test without a plant modification to provide significant flow. Accordingly, non-intrusive techniques combined with the partial flow test is not expected to fully satisfy the testing method described in the NRC Safety Evaluation Report issued on September 24, 1991, (Appendix C Item 6) because the valve will not full stroke during the test.

For the current Unit 2 outage, and the upcoming Unit 3 Cycle 6 outage, the testing is currently planned as follows:

These partial flow tests will require extensive cleaning of the containment emergency sumps to assure acceptable water quality for injection into the Refueling Water Storage Tank (RWST). The containment emergency sumps will be rinsed with high pressure water, drained, and hand wiped.

The containment emergency sumps will then be filled by gravity feed from the RWST using temporary hoses which will be flushed prior to use to ensure cleanliness. An operator will be stationed at the HPSI suction header to be able to immediately stop flow in the event of a hose failure or a potential sump overflow. Once the containment emergency sumps are filled with borated water, the water quality will be sampled to ensure it meets the requirements of RWST water. The entire cleaning procedure will be repeated until the water in the sumps is acceptable to inject into the RWST. Each flush is expected to generate approximately 5,000 gallons of radioactive waste.

During the tests, sump levels will be monitored continuously by an operator stationed at the sumps due to the limited volume and the inability to make up water to the sumps during the test. To protect the HPSI pump from cavitation damage due to air binding during this test, the run time will be limited to approximately two minutes. This will leave approximately one minute of margin to prevent losing pump suction and causing damage.

We estimate approximately 400 to 500 person hours will be required to prepare and perform the tests on these check valves.

VRR No. 13: Alternate Testing for Containment Spray System Check Valves;
8-004-C-406, Containment Isolation Stop Check Valve - Spray
Header #1, 8-006-C-406, Containment Isolation Stop Check Valve -
Spray Header #2

Air will be passed through these valves from separate test connections upstream of each valve (one valve will be tested at a time). The air will discharge either into the containment directly through a disconnected spool piece, or through the spray ring header nozzles in the containment building. Water may be used in the future with discharge through the removed spool piece connections inside containment. Acceptance will be based on detecting flow through the check valve which assures that the check valve internals move.

This test either requires the removal of a flanged spool piece or can be performed in conjunction with the spray nozzle air flow test. The spray nozzle air flow test is normally performed every five years. The check valve testing will essentially require the air flow test to be performed every outage. Due to involvement of several departments, we estimate 400 to 500 person hours will be added to outages when the spray nozzle flow test would not normally be performed.

NON-INTRUSIVE TESTING

As stated in our July 31, 1991 letter (Reference 3), Southern California Edison (SCE) is exploring the use of non-intrusive testing for a number of check valves, including those in VRR Nos. 3 and 13 (notwithstanding the above discussion on the limitations of non-intrusive testing of the emergency sump outlet check valves with low flow). The status of our activities to date is as follows:

1. SCE participates in the Nuclear Industry Check (NIC) Valve Group which includes NRC representatives. SCE has been represented on the steering committee for the past two years, and SCE is an active member of the working group which is investigating and evaluating check valve non-intrusive testing techniques including identifying, evaluating, and developing guidelines for the use of various methods of non-intrusive examination of check valves.
2. Non-intrusive techniques have been examined at San Onofre. Although these examinations were exploratory in nature, valuable insights and exposure to non-intrusive testing have contributed to our search for suitable tests.

In one instance, we conducted a non-intrusive examination of five check valves (four 3-inch valves and one 8-inch valve). Our objective was, by use of acoustic methods, to identify valve position change and valve degradation. From this testing, which was performed using available plant system conditions, SCE concludes that the NIC effort will provide an essential input to our development of non-intrusive examinations for several valves for which this technique is being considered.

The SCE evaluation of non-intrusive testing for check valves, including those in VRR Nos. 3 and 13, will include consideration of the outcome of the NIC Group testing programs. As NIC evaluation efforts of specific non-intrusive examination techniques for individual check valves are completed and documented SCE will evaluate the applicability of the results for check valve testing at San Onofre.

We recognize the testing of check valves filled with water has been completed by NIC. However, we expect that a significant effort is still required to establish the applicability of non-intrusive examination techniques and to implement them. Accordingly, SCE will submit to the NRC the status of our evaluation for implementation at San Onofre Units 2 and 3 by January 31, 1993. We may be able to test non-intrusive techniques on selected check valves during the Unit 2 Cycle 7 refueling outage. Our ability to do this testing will be described in our letter that will be sent by January 31, 1993.

If you have any questions or would like additional information, please let me know.

Very truly yours,

Edan Rabkin
for R. M. ROSENBLUM.

Enclosure

cc: J. B. Martin, Regional Administrator, NRC Region V
C. W. Caldwell, NRC Senior Resident Inspector, San Onofre Units 1, 2 & 3