

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

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SUBJECT: Forwards replacement pages for rev 15 to IST program for facility.

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July 2, 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 TAC Nos. 55120/1  
San Onofre Nuclear Generating Station  
Units 2 and 3

References: June 18, 1991, letter from R. M. Rosenblum to the Document  
Control Desk, Subject: Docket Nos. 50-361 and 50-362 Inservice  
Testing Program for Pumps and Valves TAC Nos. 55120/1

Enclosed are replacement pages for Revision 15 to the Inservice Testing (IST)  
Program for San Onofre Unit 2. These pages correct a typographical error in  
the heading of the Unit 2 Pump Relief Requests (PRR) No. 1, PRR No. 3, PRR No.  
8, PRR No. 10, PRR No. 11, and Valve Relief Request No. 19, enclosed in the  
reference letter.

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

Very truly yours,

R. M. Rosenblum  
Manager of Nuclear Regulatory Affairs

Enclosures

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

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AD-47

PUMP RELIEF REQUEST NO. 1  
(Withdrawn)

INSERVICE TESTING PROGRAM  
SAN ONOFRE - UNIT 3

PUMP RELIEF REQUEST NO. 3

SYSTEM: Diesel Fuel Transfer System and Salt Water Cooling System

COMPONENTS: Diesel Fuel Transfer Pumps 2P093, 2P094, 2P095 and 2P096, and Salt Water Cooling Pumps 2P112, 2P113, 2P114 and 2P307.

CLASS: 3

FUNCTION: The Diesel Fuel Transfer Pumps are used to transfer diesel fuel from the diesel fuel storage tanks to the day tank for the emergency diesels. The Salt Water Cooling pumps provide salt water to the component cooling water, shutdown cooling and other systems.

TEST REQUIREMENT: Measure pump bearing vibration (Paragraph IWP-4510) and temperature (IWP-4310), and observe lubrication level (IWP-3100).

BASIS FOR RELIEF: These are submerged, vertical shaft, centrifugal pumps. The pump bearings are inaccessible. It is, therefore, not possible to measure bearing vibration or temperature. Being submerged, the pump fluid (diesel fuel and salt water) provides lubrication and cooling for the pump bearings.

ALTERNATE TESTING: Vibration of the pump motor thrust bearing will be measured and trended on a quarterly basis to provide indirect indication of pump degradation.

NOTE: (1) See NRC SER, Appendix C, Item 2.

PUMP RELIEF REQUEST NO. 8  
(WITHDRAWN)

INSERVICE TESTING PROGRAM  
SAN ONOFRE - UNIT 3

PUMP RELIEF REQUEST NO. 10

SYSTEM: Diesel Fuel Transfer System and Salt Water Cooling System

COMPONENTS: Diesel Fuel Transfer Pumps 2P093, 2P094, 2P095 and 2P096, and Salt Water Cooling Pumps 2P112, 2P113, 2P114 and 2P307.

CLASS: 3

FUNCTION: The Diesel Fuel Transfer Pumps are used to transfer diesel fuel from the diesel fuel storage tanks to the day tank for the emergency diesels. The Salt Water Cooling pumps provide salt water to the component cooling water, shutdown cooling and other systems.

TEST REQUIREMENT: Measure pump inlet pressure (IWP-3100).

BASIS FOR RELIEF: The inlet pressure is determined by the variation normally occurring in tank level/sea level.

These are submerged, vertical shaft, centrifugal pumps. The pump inlet pressure is a result of the head imposed by:

- (1) the pumped fluid in the diesel fuel storage tanks in the cases of the diesel fuel transfer pumps, and
- (2) the level of sea water in the inlet bay in the case of the salt water cooling pumps.

Measuring inlet pressure to the pumps is not practical in these cases due to the nature and location of the pump inlets. The pump suction are located in the bottom of the tank/inlet bay. The suction proper consist of openings with screen across them at the pump impeller inlet.

ALTERNATE TESTING: Calculate inlet pressure using a measurement of the level of fluid over the pump inlet, accounting for the fluid specific gravity use

INSERVICE TESTING PROGRAM  
SAN ONOFRE - UNIT 3

PUMP RELIEF REQUEST NO. 10 (Continued)

accepted engineering practices to determine inlet pressure from standard references. Document the calculation for each test in the test records.

NOTE:

(1) See the NRC SER, Appendix C, Item 3.

INSERVICE TESTING PROGRAM  
SAN ONOFRE - UNIT 3

PUMP RELIEF REQUEST NO. 11

SYSTEM: All Systems.

COMPONENTS: All pumps in the IST Program.

CLASS: 2 and 3

FUNCTION: Depends on the pump.

TEST

REQUIREMENT: Article IWP-4310 of the ASME Code, Section XI, Bearings, requires that the temperature of all centrifugal pump bearings outside the main flow path and the main shaft bearings of reciprocating pumps shall be measured at points selected to be responsive to changes in temperature of the bearing. Lubricant temperature when measured after passing through the bearing, and prior to entering a cooler, shall be considered the bearing temperature. Article IWP-3300 of the ASME Code, Section XI, Scope of Tests, requires that bearing temperatures shall be measured during at least one inservice test each year.

BASIS FOR  
RELIEF:

It is unlikely that bearing failure would be detected by a yearly test. The code does not require continuous monitoring of bearing temperature and this parameter is only indicative of impending pump bearing failure when it is continuously monitored. Annual bearing temperature measurement is required by the code, but if a bearing is failing, temperature increases rapidly until bearing failure. Furthermore, this temperature increase is only seen for those bearings outside of the pumped fluid flow path (bearings in separate housings) and does not, therefore, afford reliable detection of bearing degradation for bearings submerged in and cooled by the pumped fluid.



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PUMP RELIEF REQUEST NO. 11 (Continued)

As a result of this reasoning, OM-6 entitled "Inservice Testing of Pumps in Light Water Reactor Power Plants," does not require bearing temperature to be measured.

ALTERNATE  
TESTING:

In lieu of measuring the bearing temperature for pumps in the Inservice Testing Program, substitute additional vibration monitoring. In addition to the code required unfiltered displacement vibration measurements, measure vibration in units of velocity during each Inservice Test. Record these measurements and use them as a substitute for bearing temperature measurements.

The acceptance criteria for the vibration measurements, shall be those provided in OM-6, with Addenda through May 31, 1989.

INSERVICE TESTING PROGRAM  
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VALVE RELIEF REQUEST NO. 19  
(WITHDRAWN)