

ENCLOSURE 1

INSERVICE TESTING PROGRAM
REVISION 17
SAN ONOFRE NUCLEAR GENERATING STATION
UNIT 2

October 1991

Unit 2, Rev. 17

9111060124 911023
PDR ADOCK 05000361
P PDR

INSERVICE TESTING PROGRAM
SAN ONOFRE - UNIT 2

VALVE RELIEF REQUEST NO. 3

System: Safety Injection

Components: Safety Injection System Check Valves:
24-003-C-724 - Outlet Check Valve - Containment Emergency
Sump,
24-004-C-724 - Outlet Check Valve - Containment Emergency
Sump.

Category: C

Class: 2

Function: These valves open to provide recirculation flow from the containment sump to the suction piping of the HPSI, LPSI and Containment Spray pumps.

Test Requirement:

IWV-3411, exercise these valves every three months.

Basis for Relief:

Test Methodology

NORMAL PLANT OPERATION

The only source of water to the inlet of the containment sump outlet check valves is the containment building sump. During normal plant operation this sump is required to be kept dry and the isolation valves shut. This system lineup precludes either full-stroke or partial stroke of these check valves using flow in this mode.

COLD SHUTDOWN AND REFUELING MODES

In cold shutdown or reactor refueling modes, part stroke exercising of these valves is possible with flow from the containment sump. This is one of the alternate, partial flow methods available.

INSERVICE TESTING PROGRAM
SAN ONOFRE - UNIT 2VALVE RELIEF REQUEST NO. 3
ContinuedCONCLUSION

Code required testing could only be performed after significant system modifications involving considerable costs. These system modifications would involve additional containment penetrations and long runs of large diameter piping with associated supports and isolation valves. NRC Generic Letter 89-04, Attachment 1, Position 2, identifies partial disassembly and inspection as an acceptable alternative for stroking a valve when it is impractical to use flow. In this case, there is no practical way to full-stroke these check valves using flow with the existing system design.

TEST SCHEDULE

Disassembly and inspection of these valves each refueling outage requires the associated system piping to be drained. This generates a significant amount of liquid radioactive waste. In addition, considerable radiation exposure can be received by personnel performing the partial disassembly, hand stroking and inspection. As a consequence, there is a clear advantage in reducing the number of these tests required in each refueling.

Alternate Testing:

The valves will be partially disassembled, inspected and manually full stroked at each refueling outage on a rotating basis (one valve per refueling). During partial disassembly the valve internals will be visually inspected for worn or corroded parts, and the valve disk will be manually exercised. If it is found that the full stroke capability of the disassembled valve is in question, the other valve will be similarly disassembled and inspected and manually full stroked during the same outage.

INSERVICE TESTING PROGRAM
SAN ONOFRE - UNIT 2VALVE RELIEF REQUEST NO. 3
Continued

A method of partial stroke testing will be used following the partial disassembly and prior to returning the valve(s) to service. Additionally, we will actively pursue the use of non-intrusive diagnostic techniques to demonstrate acceptable check valve performance during flow testing. When another method is developed to verify the full-stroke capability of these check valves, this relief request will be revised or withdrawn.

Implementation of partial stroke testing will be prior to the completion of cycle 6 for Units 2 and 3.

The Nuclear Industry Check (NIC) Valve Group report of the final phase of their test program is expected to be available in mid-1992. Our current schedule for implementing the non-intrusive testing for the valves discussed in this VRR depends on the outcome of the NIC Group testing programs and the evaluation of the individual check valves and related non-intrusive examination techniques.

INSERVICE TESTING PROGRAM
SAN ONOFRE - UNIT 2

VALVE RELIEF REQUEST NO. 13

System: Containment Spray

Components: 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.

Category: A and C

Class: 2

Function: These valves open to allow a flow of water from the containment spray pump discharge into the containment spray ring headers.

Test Requirement:

IWV-3411, exercise these valves every three months.

Basis for Relief:

FULL FLOW TESTING

These valves are in the line leading from the Containment Spray pump discharge to the riser inside the containment building that leads up to the ring headers and spray nozzles. As a consequence full-stroke exercising these valves through this flow path using the containment spray pumps would result in a containment spray down and consequent potential equipment damage as well as create additional liquid radwaste to be removed from the Containment Building sump.

PARTIAL FLOW TESTING

The riser inside the containment building that leads up to the ring headers and spray nozzles is drained each refueling and refilled prior to returning the plant to service. When the riser is being filled with water, the water can be put in the system upstream of each stop check valve. Therefore, this flow through the Spray Header Containment Isolation Stop Check Valves during the filling of the riser would result in a partial stroke of these valves.

INSERVICE TESTING PROGRAM
SAN ONOFRE - UNIT 2VALVE RELIEF REQUEST NO. 13
ContinuedCONCLUSION

A usable flow path does not exist in any plant mode to allow a full-stroke of the Containment Isolation Stop Check Valves for the Spray Headers using flow. Code required full-stroke testing using flow could only be performed after considerable modification of the system design, such as installation of an instrumented test loop. The high costs of the necessary design changes involved would not be justified by the improvement of the valve testing. Further, the addition of valves, piping, supports and penetrations could result in reduced plant reliability. NRC Generic Letter 89-04, Attachment 1, Position 2, identifies partial disassembly and inspection as an acceptable alternative for stroking a valve when it is impractical to use flow. In this case, there is no way to stroke these valves with the existing system design using flow.

TEST SCHEDULE

Disassembly and inspection of both of these valves each refueling outage requires additional draining of the associated system piping over and above draining the riser as previously discussed. This generates a significant amount of liquid radioactive waste. In addition, considerable radiation exposure can be received by personnel performing the partial disassembly, hand stroking and inspection. As a consequence, there is a clear advantage in reducing the number of partial disassembly and hand stroking tests required in each refueling.

Alternate Testing:

At each refueling outage, (1) test the valves by partial disassembly, inspection and manual stroking on a rotating basis (one valve per refueling) and, (2) perform a partial stroke test (open) of each valve.

During partial disassembly the valve internals will be visually inspected for worn or corroded parts, and the valve disk will be manually exercised. If it is found that the full stroke capability of the disassembled valve is in question, the other valve will be similarly disassembled and inspected and manually full stroked during the same outage.

INSERVICE TESTING PROGRAM
SAN ONOFRE - UNIT 2

VALVE RELIEF REQUEST NO. 13
Continued

Following reassembly and prior to return to service, the valve will be partial stroke tested using either air or water. Additionally, we will actively pursue the use of non-intrusive diagnostic techniques to demonstrate acceptable valve performance during partial flow testing. When another method is developed to verify the full-stroke capability of these check valves, this relief request will be revised or withdrawn.

Implementation of partial stroke testing will be prior to the completion of cycle 6 for Units 2 and 3.

The Nuclear Industry Check (NIC) Valve Group report of the final phase of their test program is expected to be available in mid-1992. Our current schedule for implementing the non-intrusive testing for the valves discussed in this VRR depends on the outcome of the NIC Group testing programs and the evaluation of the individual check valves and related non-intrusive examination techniques.