

LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Perry Nuclear Power Plant, Unit 1 DOCKET NUMBER (2) 0500054410 PAGE (3) 1 OF 15

TITLE (4) Failed Local Leak Rate Tests Result in Exceeding Allowable Secondary Containment Bypass Leakage

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NUMBER(S)
03	26	92	92	005	000	04	24	92		0500054410

OPERATING MODE (9) 5 THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5 (Check one or more of the following) (11)

20.402(b)	20.406(a)	60.73(a)(2)(iv)	73.71(b)
20.406(a)(1)(ii)	60.38(a)(1)	X 60.73(a)(2)(v)	73.71(c)
20.406(a)(1)(iii)	60.38(a)(2)	60.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 306A)
20.406(a)(1)(iii)	60.73(a)(2)(ii)	60.73(a)(2)(vii)(A)	
20.406(a)(1)(iii)	X 60.73(a)(2)(ii)	60.73(a)(2)(vii)(B)	
20.406(a)(1)(iii)	60.73(a)(2)(iii)	60.73(a)(2)(viii)	

LICENSEE CONTACT FOR THIS LER (12)

NAME Henry L. Hegrat, Compliance Engineer, Extension 5185 TELEPHONE NUMBER 2116 2591-1373

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRRDS
C4	LID	TISIV	D121413	Y					
C4	SIB	371	L121010	Y					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (15) MONTH 06 DAY 01 YEAR 92

ABSTRACT (Limit to 1400 spaces, i.e., approx. 450 characters; use fifteen single-space typewritten lines) (16)

Between March 26, 1992 and April 8, 1992, during the third refueling outage, three containment penetrations exceeded Local Leak Rate Test (LLRT) failure criteria for leakage, as defined by Technical Specification 3.6.1.2.b, 3.6.1.2.d, and 3.6.1.2.e.

The causes for two of these events were component failures. A faulty torque switch prevented one valve from closing completely. Leakage between the seat insert and the valve body caused another valve to exceed its LLRT failure criteria. The cause of the third failure has not yet been determined.

The faulty torque switch was replaced and adjusted in accordance with plant procedures. The second valve was repaired by replacing its internals (spring, disc, and valve seat insert), carefully lapping the disc and valve seat insert, and using grafoil gasket tape as a sealant between the valve seat insert and the valve body in accordance with manufacturer's recommendations. Engineering personnel are considering a design modification to allow the installation of a gasket between the valve seat insert and the valve body. A supplemental report will be issued to detail the results of the troubleshooting on the third penetration failure, document further corrective actions, and report any additional LLRT failures which meet 10CFR50.73 reporting criteria.

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TEXT CONTINUATION

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TEXT (if more space is required, use additional NRC Form 386A's) (17)

I. Introduction

On March 26, 1992, at 0630, the total combined Secondary Containment [NH] bypass leakage rate as defined by Technical Specification 3.6.1.2.d was determined to have been exceeded during testing of the Instrument Air Header Containment Isolation Valves. On April 5, 1992, at 1630, the total combined Secondary Containment bypass leakage rate as well as the combined leakage rate for all penetrations and all valves as defined by Technical Specification 3.6.1.2.b was determined to have been exceeded when the test volume between the Main Steam Line Before Seat Drain Isolation Valves could not be pressurized during testing. On April 8, 1992, at 1430, the combined leakage rate of less than or equal to 1 gallon per minute times the total number of containment isolation valves in hydrostatically tested lines as defined by Technical Specification 3.6.1.2.e was determined to be exceeded during the testing of Main Feedwater Injection Check Valves.

All of the leakage rates were found during Local Leak Rate Test (LLRT) activities in the third refueling outage, and all appropriate notifications to the NRC Operations Center were made via the Emergency Notification System in accordance with the requirements of 10CFR50.72(b)(2)(i) and 10CFR50.72(b)(2)(iii). These events are being reported under the requirements of 10CFR50.73(a)(2)(ii) and 10CFR50.73(a)(2)(v).

II. Description of Events

Penetration P306

On March 26, 1992 at 0630, during the performance of Surveillance Instruction (SVI-P52-T9306) "Type C Local Leak Rate Test Of P52 Instrument Air Penetration P306," the Instrument Air [LD] Supply Header Containment Inboard Check Valve [ISV] (1P52-F0550) was determined to have caused the total combined Secondary Containment bypass leakage rate to have exceeded the Technical Specification 3.6.1.2.d limit of 0.0504 La for Secondary Containment bypass leakage paths. This valve is manufactured by Dresser Industries, Model 5580W-1-F316. The leak rate for the valve was determined to be 3500 standard cubic centimeters per minute (sccm), which caused the total combined Secondary Containment bypass leakage to increase to 8,094.55 sccm. The 0.0504 La Technical Specification limit equates to 5,051.74 sccm for all penetrations bypassing Secondary Containment. The valve was reworked, successfully tested in accordance with SVI-P52-T9306, and returned to service on March 31, 1992.

Penetration P423

On April 5, 1992 at 1630, during the performance of Surveillance Instruction (SVI-B21-T9423) "Type C Local Leak Rate Test Of 1B21 Penetration P423," test personnel were unable to pressurize the test volume to 11.31 psig (Pa). Because leakage through Penetration P423 could not be quantified at that time, it was determined that the combined leakage rate prescribed by Technical Specification

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3.6.1.2.b of less than or equal to 0.60 La had been exceeded. Additionally, the Secondary Containment Bypass combined leakage rate of less than or equal to 0.0504 La was exceeded.

On April 7, 1992, at 0630, using test equipment which was capable of quantifying higher leakage rates, the leakage through the penetration was quantified as being in excess of 200 standard liters per minute (slm). The 0.60 La Technical Specification limit equates to 60.140 slm. A faulty torque switch [33] manufactured by Limitorque Corporation, Model Number 10717, prevented the Main Steam [SB] Line Drain and Bypass Outboard Isolation Valve [ISV] (1B21-F0019) from closing completely and this valve was the source of the leakage. The torque switch was replaced and adjusted in accordance with plant procedures, and the penetration was successfully tested in accordance with SVI-B21-T9423 on April 14, 1992.

Penetration P121

On April 8, 1992, at 1430, during the performance of Surveillance Instruction (SVI-N27-T9121), "Type C Local Leak Rate Test Of 1N27 Penetration P121," test personnel could not pressurize the penetration to 1.10 Pa (12.44 psig) as required by the SVI. The Controlled Closure Antivaterhammer Lift Check Valve [ISV] (1B21-F0032A) was discovered to be leaking at least 7.883 gallons per minute (gpm) and the Reactor Feed [SJ] Check Valve [ISV] (1N27-F0559A) was discovered to be leaking at least 12.39 gpm. When these leakages were added to previously identified leakage, the total of 24.280 gpm exceeded the 23.0 gpm limit required by Technical Specification 3.6.1.2.e. A work order was generated to troubleshoot the cause of the valve leakage.

III. Cause of Events

Penetration P306

The cause of the Instrument Air Supply Header Containment Inboard Check Valve failure is component failure. The leakage in the valve was identified to be between the seat insert and the body of the valve. A thread sealing compound is applied to the seat insert threads to minimize leakage. The seat insert is threaded into the valve body and torqued in accordance with manufacturers recommendations. However, leakage developed between the threaded areas of the two pieces.

Penetration P423

The cause of the Main Steam Line Drain and Bypass Outboard Isolation Valve leakage is component failure. Troubleshooting efforts revealed that the valve was not fully seated when closed electrically and the torque switch could not be adjusted to allow the valve to seat properly. The faulty operation of the torque switch caused the valve to not close completely.

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Penetration P121

The cause of the Reactor Feedwater Penetration leakage has not yet been determined. Troubleshooting for both the 1B21-F0032A and 1N27-F0559A valves is scheduled to be completed during the present refueling outage. The cause for the leakage and appropriate corrective actions will be determined when the valves are worked.

IV. Analysis of Events

Primary Containment integrity ensures that the release of radioactive material from the containment atmosphere will be restricted to those leakage paths and associated leak rates assumed in the accident analyses. Technical Specification limitations on containment leakage rates ensure that the total containment leakage volume will not exceed the value assumed in the accident analyses at the peak accident pressure of 11.31 psig, Pa. Secondary Containment is designed to collect the Primary Containment leakage during and following a design basis accident, delaying release to the environment until after processing through the Annulus Exhaust Gas Treatment System [VC]. This assures that the resultant offsite doses are less than the values set forth in 10CFR100 and 10CFR50, General Design Criterion 19.

Containment design basis accident leakage is 0.2 percent, by weight, of the contained atmosphere in 24 hours. The maximum permitted leakage rate from Secondary Containment bypass leakage sources is 6.72 percent of the total containment leakage. The maximum allowable combined test leakage rate from potential Secondary Containment bypass leakage sources is 5.04 percent (0.75 times 6.72 percent) of the total containment leakage. This value is the Technical Specification commitment of leakage bypassing the containment Annulus Exhaust Gas Treatment System. The 1P52-F0550 and 1B21-F0019 valves identified in this report are part of the Secondary Containment bypass leakage pathway. Because the leakage rates identified during the performance of these LLRTs were in excess of that assumed in the accident analysis, these events are considered to be safety significant.

The 1B21-F0032A and 1N27-F0559A check valves identified in this report are not part of the Secondary Containment bypass leakage pathway. These valves are on a feedwater line which is sealed post-LOCA with water from the Feedwater Leakage Control System [SJ]. Safety significance of this leakage will be assessed upon completion of troubleshooting activities.

Previous non-MSiV LLRT failures have been documented by LERs 86-080, 88-004, 89-006-01, and 90-026-01. The 1P52-F0550 valve has previously failed LLRTs on November 10, 1986 and January 16, 1988. The 1B21-F0019, 1B21-F0032A, and 1N27-F0559A valves listed in this report do not have a history of LLRT failure.

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V. Corrective Actions

The Instrument Air Supply Header Containment Inboard Check Valve was repaired by replacing its internals (spring, disc, and valve seat insert), carefully lapping the disc and valve seat insert, and using grafoil gasket tape as a sealant between the valve seat insert and the valve body in accordance with manufacturer's recommendations. Engineering personnel are considering a design modification to allow the installation of a gasket between the valve seat insert and the valve body. The closure torque switch on the Main Steam Line Drain and Bypass Isolation Valve was replaced and adjusted in accordance with plant procedures. A supplemental report will be issued to detail the results of the troubleshooting on the Main Feedwater Injection Valve Penetration P121, document further corrective actions, and report any additional LLRT failures which meet 10CFR50.73 reporting criteria.

Energy Industry Identification System Codes are identified in the text as [XX].