

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-330) U.S. NUCLEAR REGULATORY COMMISSION WASHINGTON, DC 20545 AND TO THE PAPERWORK REDUCTION PROJECT (1500-104) OFFICE OF MANAGEMENT AND BUDGET WASHINGTON, DC 20503

FACILITY NAME (1) Perry Nuclear Power Plant, Unit 1 DOCKET NUMBER (2) 0500004401 OF 04 PAGE (3) 1

TITLE (4) Local Leak Rate Test Results Exceed Allowable Primary Containment Leakage for Main Steam Lines A, B, and D

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 (5)
03	28	92	92	006	0	04	24	92			050000
											050000

OPERATING MODE (9) THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 2 (Check one or more of the following) (11)

20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
20.405(a)(1)(i)	50.38(a)(1)	50.73(a)(2)(iv)	73.71(c)
20.405(a)(1)(ii)	50.38(a)(2)	50.73(a)(2)(iv)	OTHER (Specify in Abstract below and in Text: NRC Form 366A)
20.405(a)(1)(iii)	50.73(a)(2)(ii)	50.73(a)(2)(iv)(A)	
20.405(a)(1)(iv)	50.73(a)(2)(iv)	50.73(a)(2)(iv)(B)	
20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(iv)	

LICENSEE CONTACT FOR THIS LER (12)

NAME: Henry L. Hegrat, Compliance Supervisor, Extension 5185 TELEPHONE NUMBER: 216 259-3737

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (15) 05 29 92

ABSTRACT (Limit to 1400 spaces - i.e., approximately fifteen single-space typewritten lines) (16)

During the period March 28-29, 1992, following plant shutdown and cooldown for the third refueling outage (RFO-3), Local Leak Rate Testing of the four Main Steam Line (MSL) penetrations was performed. Three of the four MSL penetrations were found to have leakage in excess of the Technical Specification 3.6.1.2.c limit of 25 standard cubic feet per hour (scfh).

Additional troubleshooting and testing will be required to determine which penetration boundary valves are primary contributors to the excessive leakage rates so that appropriate corrective actions can be prescribed. For Main Steam Isolation Valves (MSIVs) identified as requiring rework, a modification to enhance proper seating of the valves will be implemented prior to startup from the present refueling outage (RFO-3). A supplemental report will be issued to document the results of troubleshooting/testing and specific corrective actions taken. The supplementary report will additionally update the safety analysis to include the contribution to the offsite dose based on individual leakage rates from the MSIVs in each MSL penetration.

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TEXT CONTINUATION

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 (F-330) U.S. NUCLEAR REGULATORY COMMISSION WASHINGTON, DC 20555 AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104) OFFICE OF MANAGEMENT AND BUDGET WASHINGTON, DC 20503.

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
		9 2	0 0 1 6	0 0	

TEXT (if more space is required, use additional NRC Form 388A's (17))

I. Introduction

During the period March 28-29, 1992, it was determined by Local Leak Rate Testing (LLRT) that the primary containment leakage rate for three (3) of the four (4) Main Steam Lines (MSL) exceeded the acceptance criteria of Technical Specification 3.6.1.2(c). A separate four-hour NRC notification was made to report each event pursuant to the requirements of 10CFR50.72(b)(2)(iii)(D) and 10CFR50.72(b)(2)(i):

<u>Main Steam Line</u>	<u>Notification Time/Date</u>
MSL A (P124)	0435/03-29-92
MSL B (P416)	1636/03-28-92
MSL D (P415)	2120/03-18-92

These events are additionally being reported under the requirements of 10CFR50.73(a)(2)(ii) and 10CFR50.73(a)(2)(v)(D). At the time of the events, the plant was in Operational Condition 5 (Refueling) with a planned refueling outage in progress. Reactor temperature ranged between 78 and 80 degrees Fahrenheit at atmospheric pressure.

II. Description of the Event

During the period March 28-29, 1992, following plant shutdown and cooldown for the third refueling outage (RFO-3), Local Leak Rate Testing of the four MSL penetrations (122, 124, 415, and 416) was performed. Three of the four MSL penetrations were found to have leakage in excess of the Technical Specification 3.6.1.2(c) limit of 25 standard cubic feet per hour (scfh), which is equivalent to 11.8 standard liters per minute (SLM), when tested at the design basis accident pressure (Pa) of 11.31 psig. The results of the preliminary leak rate testing were as follows: MSL A-1608 scfh, MSL B-1641.6 scfh, and MSL D-601.8 scfh. Prior to testing, the Main Steam Isolation Valves (MSIVs) [ISV] were fast closed at approximately 75 psig. The LLRT was subsequently performed by pressurizing the volume between the 2 MSIVs in each penetration to determine the total leakage for the penetration. Due to the MSL physical constraints, pressure testing of the individual MSIVs in the accident direction is not feasible. Although this is the preferred method, 10CFR50, Appendix J contains provisions for more conservative test methods to be utilized. The test method used at Perry to obtain the as found values for the penetrations conservatively uses the combined leakage from the penetration boundary valves with pressure applied in a non-design direction. If excessive penetration leakage is identified, troubleshooting is performed to determine which valve(s) may be major contributors to the as-found leakage. Suspected valves are selected for rework/repair. Followup testing is then performed to quantify the approximate contribution of each of the boundary valves to the total leakage rate for the penetration. The additional testing to quantify individual leakage rates has not been completed. Final results will be reported in a supplement to this LER.

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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 (F530) U.S. NUCLEAR REGULATORY COMMISSION WASHINGTON DC 20555 AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104) OFFICE OF MANAGEMENT AND BUDGET WASHINGTON DC 20503

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TEXT IF MORE SPACE IS REQUIRED, USE ADDITIONAL NRC FORM 366A (11/77)

III. Cause Analysis

The causes for the excessive MSL penetration leakage rates have not been identified to date. This information will be obtained during the troubleshooting process and documented in a supplement to this LER.

IV. Safety Analysis

Primary containment integrity ensures that the release of radioactive materials from the containment atmosphere will be restricted to those leakage paths and associated leakage rates at the peak pressure of 11.31 psig assumed in the Updated Safety Analysis Report (USAR) accident analysis; thereby limiting the site boundary radiation does to within the limits of 10CFR Part 100. The design basis analysis of the leakage resulting from a loss of coolant accident (LOCA), which is presented in the USAR, will be re-evaluated using the final MSIV leakage values once obtained. The results of that evaluation will be factored in to a revision to this Safety Analysis and additionally reported in a supplement to this LER. Based on the preliminary information obtained from LLRT activities to date, this event is considered to be safety significant pending final results from the aforementioned analysis.

V. Similar Events

Four previous LERs were submitted to report excessive MSIV seat leakage which resulted in the Technical Specification limits for the MSL penetrations being exceeded. On July 5, 1987, unacceptable leakage was identified for the inboard and outboard MSIVs for MSLs A and B, and through the inboard MSIV and the Leakage Control System (LCS) Steam Tunnel Isolation Valve for MSL D (LER 87-051). The cause of the MSIV seat leakage was attributed to seat wear. The cause of the MSIV-LCS valve leakage was inadequate mating and sealing of the bonnet pressure seal ring. Appropriate corrective actions were taken to rectify those problems. On September 6, 1987 primary containment leakage through the outboard MSIV on MSL B exceeded its Technical Specification limit (LER 87-067). The cause was due to deformation in the lower part of the valve seating surface which had not been removed by lapping during the prior maintenance outage in July 1987. On February 24, 1989, during refueling outage (RFO)-1, it was determined that leakage exceeded Technical Specification limits through all four MSLs (LER 89-06). Many factors contributed to the degraded condition of the MSIVs and other isolation valves for the respective MSL penetrations. Of the MSIVs only the inboard and outboard MSIVs in the A and C and the outboard MSIV in MSL D required corrective maintenance. Following corrective maintenance, the resulting leakage rates were within Technical Specification limits. During the period September 16-17, 1990, during RFO-2, all four MSLs penetrations exhibited leakage in excess of Technical Specification requirements (LER 90-25). All MSIVs with the exception of the MSL B and C inboard required rework to restore them to an acceptable status. All four MSLs were satisfactorily tested following repairs.

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ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 900 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20545, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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TEXT (if more space is required, use additional NRC Form 366A's) (17)

VI. Corrective Actions

The corrective actions for LER 90-25 Rev. 1 discussed modifications to improve the seating characteristics of the MSIVs. These modifications include a poppet anti-rotation device, an improved nose guide and a cover for the top seat of the poppet to minimize vibration of the poppet when the MSIV is open. As part of the LER 90-025 corrective actions Perry committed to install these modifications during RPO-3 on any MSIVs requiring post-LLRT rework at that time.

As stated therein, those commitments identified in LER 90-25, regarding the modifications, will be implemented for all MSIVs identified as requiring rework as a result of the March-April 1992 LLRT/troubleshooting efforts. Any additional corrective actions required will be addressed in the aforementioned supplement to this LER.

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