James A. FitzPatrick
Nuclear Power Plant
P.O. Box 41
Lycoming, New York 13093
315 342-3840

NewYorkPower Authority

Harry P. Salmon, Jr.
Resident Manager

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JAFP-94-0453

United States Nuclear Regulatory Commission
Document Control Desk
Mail Station P1-137
Washington, D.C. 20555

SUBJECT: DOCKET NO. 50-333
LICENSEE EVENT REPORT: LER-92-008-02:

PCIV Stem Packing Not Subjected to LLRT

Dear Sir:

This report is submitted in accordance with 10CFR50.73(a)(2)(v)(C) and D.

Questions concerning this report may be addressed to Mr. W. Verne Childs at (315) 349-6071.

Very truly yours,

HARRY P. SALMON, JR.

HPS:WVC:tlc

Enclosure

cc: USNRC, Region I
USNRC Resident Inspector
INPO Records Center

IE22
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NRC FORM 366 (5-92) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
James A. FitzPatrick Nuclear Power Plant	05000333	01 OF 04

TITLE (4) Primary Containment Isolation Valve Stem Packing Not Subjected to Local Leak Rate Testing Following Maintenance on the Valves

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 NAME	DOCKET NUMBER
										05000
01	29	92	92	008	02	09	14	94	FACILITY NAME	DOCKET NUMBER 05000

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
POWER LEVEL (10)	000		20.402(b)		20.405(c)		50.73(a)(2)(iv)		73.71(b)
			20.405(a)(1)(i)		50.36(c)(1)	X	50.73(a)(2)(v)		73.71(c)
			20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)		OTHER
			20.405(a)(1)(iii)		50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		(Specify in Abstract below and in Text, NRC Form 366A)
			20.405(a)(1)(iv)		50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)		
			20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(x)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Mr. W. Verne Childs, Senior Licensing Engineer	(315) 349-6071

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
	YES (If yes, complete EXPECTED SUBMISSION DATE).	X NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

Updated Report - Previous report dates February 28, and June 24, 1992

The plant was shutdown and in the cold condition for maintenance and refuel. On 1/29/92 it was determined that Local leak Rate Testing (LLRT) of two primary containment isolation valves following maintenance, which may have changed the leakage rate of the valve stem packings, did not subject the valve stem packings to test pressure. Design and physical orientation of the valves prevents application of pressure on the valve stem packing during LLRT. The deficiency was discovered as part of review of NRC Information Notice 86-16 and was caused by an inadequate LLRT program and inadequate (not timely) review of operating experience. Corrective actions include an upgrade of the operating experience review program, special LLRT on the packing of these two valves. In addition, primary containment integrated leakage testing during the 1994 refuel outage will subject the packings to test pressure. Valve packing will be modified during the 1997 Refueling Outage.

LER-92-005 describes an event with similar causes.

Updated Report - Previous report dates February 28, and June 24, 1992

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Description

The plant was shutdown and in the cold condition for maintenance and refuel. On January 29, 1992 it was determined that the valve stem packing of two (2) primary containment [NH] isolation valves (27AOV-113 and 27AOV-117) had not been subjected to leakage testing after maintenance performed in August 1990 on the valves, that may have changed the valve stem packing leakage characteristics.

The valves of concern are Fisher 9200 Series butterfly valves and are primary containment vent and purge system inboard isolation valves. The valve design and physical orientation is such that valve stem packing is on the primary containment side of the valve disc. As a result, when Local Leak Rate Testing (LLRT) of the valves is conducted to meet the requirements of 10 CFR 50, Appendix J, by pressurizing the volume contained between the inboard and outboard isolation valves, the valve stem packing is not subjected to test pressure. This LLRT method is in accordance with Technical Specification Table 4.7-2, "Exception to Type C Tests", and is a conservative measure of seat leakage for these valves due to direction independent seating characteristics.

The packing of valves 27AOV-113 and 27AOV-117 was last subjected to leak testing as part of the most recent Primary Containment Integrated Leakage Rate Test (PCILRT) which was completed in June 1990. In August 1990, during a plant maintenance outage, the valve stem to valve disc pins in 27AOV-113 and -117 were replaced. While replacement of the pins did not require removal and replacement of the valve stem packing, the physical forces involved in removal of the old pins and installation of the new pins could have resulted in changes in the packing leakage. Following completion of the pin replacement, the valves were subjected to LLRT as required. This LLRT was inadequate because, as noted above, the test does not subject the valve stem packing to test pressure. During the time period between the modification work performed on these valves in August 1990 and discovery of the deficiency on January 29, 1992, the plant was operated for approximately 311 days.

Potential and actual LLRT program deficiencies were previously noted at other facilities by the NRC and the industry was informed by NRC Inspection and Enforcement Information Notice No. 86-16 issued on March 11, 1986. It was during formal operating experience review of Information Notice 86-16 that potential changes to the valve stem packing leakage on 27AOV-113 and 117 (without an adequate LLRT following the maintenance activities) was discovered. A total of seven (7) primary containment inboard isolation valves in the vent and purge system and the primary containment pressure suppression chamber (torus) to reactor building [NG] vacuum relief [BF] lines are designed and physically oriented in such a manner that the valve stem packing is not subjected to test pressure during LLRT. The valve stem packings are tested during PCILRT.

Cause

The event was caused by inadequacy of the original LLRT program and by the lack of a timely operating experience review. Information Notice 86-16 discussed LLRT program deficiencies at three (3) boiling water reactor plants of approximately the same age and with designs very similar to the FitzPatrick plant. One of the deficiencies noted in the Information Notice concerned the inability (due to design and physical orientation) to subject the torus to reactor building [NG] vacuum relief line isolation valve stem packing to LLRT pressure. The same deficiency on a functionally identical system and isolation valves exists at the FitzPatrick plant. Review of the Information Notice under the operating experience review program was not prompt. The operating experience review of Information Notice 86-16 was not completed until more than five years after issue by the NRC.

Analysis

The primary containment is the primary barrier designed to withstand the pressures and temperatures resulting from a design basis Loss of Coolant Accident (LOCA) and provides hold-up for radioactive decay of any radioactive material released from the reactor coolant system pressure boundary. The leak tightness of primary containment is periodically demonstrated by PCILRT or, on a local basis for individual valves and seals, by LLRT. Since the valve stem leakage on valves 27AOV-113 and -117 could have been changed by the maintenance activity, and the subsequent LLRT did not test the potential leakage path at the valve stems, the ability of the packings to limit leakage was not known.

As a result, the event is reportable under 10 CFR 50.73(a)(2)(v)(C) and (D) as a condition that alone could prevent the fulfillment of the safety function of the primary containment that is needed to control the release of radioactive material and to mitigate the consequences of an accident.

Corrective Action

1. The Operating Experience Review Program was previously noted to contain weaknesses with regard to prioritization and/or timely review of significant review tasks. A comprehensive audit of operating experience was completed and identified a number of other programmatic deficiencies. The plant Results Improvement Program includes actions which will result in timely and thorough review of both internal (in-house) and external (industry-wide) operating experience.

2. A special LLRT was performed on the packing of valves 27AOV-113 and 117 to demonstrate the leaktight integrity of this leak path. The measured leak rates was included in the as-left type B and C totals for demonstration of primary containment integrity.

3. The valve stem packings will be tested during PCILRT during the 1994 refuel outage. Modification of the valve stem packing arrangement to allow LLRT will be scheduled for the 1997 Refuel Outage.

Additional Information

Failed Components: None

Previous Similar Events: LER-92-005 describes an event which involved an operating experience review deficiency and original installation design error. There have not been any other LERs concerning inadequate LLRT at this facility.

Reason for Update

This LER is being updated to reflect a change in the commitment to modify the seven Fisher Series 9200 valves during the 1994 Refuel Outage. During the 1994 Refuel Outage, a Primary Containment Integrated Leakage Rate Test (PCILRT) will be conducted. The PCILRT will subject the valve steam packings of the seven valves to test pressure and satisfy 10CFR50, Appendix J requirements to subject potential primary containment leakage pathways to test.