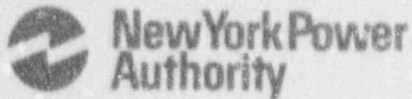


James A. FitzPatrick
Nuclear Power Plant
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315 342-3840



Harry P. Salmon, Jr.
Resident Manager

July 17, 1992
JAFP-92-0543

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

SUBJECT: DOCKET NO. 50-333
LICENSEE EVENT REPORT: 92-033-00 - Local Leak Rate
Test Program Deficiencies

Dear Sir:

This report is submitted in accordance with 10 CFR 50.73(a)(2)(i) and (v).

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:tmk

Enclosure

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

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LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-630), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20545, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) James A. FitzPatrick Nuclear Power Plant DOCKET NUMBER (2) 050003331 PAGE (3) 1 OF 06

TITLE (4) Local Leak Rate Test Program deficiencies as a result of personnel errors.

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)
06	17	92	92	033		00	07	92			050000
											050000

OPERATING MODE (9) N

POWER LEVEL (10) 000

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

20.402(b)	20.405(e)	50.73(a)(2)(v)	73.71(b)
20.406(a)(1)(i)	50.36(e)(1)	X 50.73(a)(2)(v)	73.71(c)
20.405(a)(1)(ii)	50.36(e)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
20.405(a)(1)(iii)	X 50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
20.406(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
20.406(a)(1)(v)	50.73(a)(2)(iii)	70.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME W. Verne Childs, Senior Licensing Engineer TELEPHONE NUMBER 315 349-6071

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) X NO

EXPECTED SUBMISSION DATE (15)

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

EIIS Codes are in []

The plant was shutdown and in the cold condition for maintenance and refuel with all irradiated fuel in the spent fuel pool. During a review of the Local leak Rate Test (LLRT) program, in response to NRC Information Notice 92-20, two program deficiencies were found. On 6/17/92 it was determined that 16 Primary Containment [NH] drywell to suppression chamber (torus) vent line expansion bellows were of a 2-ply design and had not been subjected to LLRT since installation during plant construction. On 6/25/92 it was determined that Residual Heat Removal/Low Pressure Coolant Injection (RHR/LPCI) [BO] Torus Spray line A and B spray flow elements which were installed in 1988 were not subjected to LLRT after installation or included in the LLRT program as a result of mis-application of an ASME Section XI Code Case. The apparent cause of both deficiencies was personnel error. The test program procedure has been corrected and the flow elements were tested with satisfactory results. The bellows will be tested prior to plant startup. LER-92-008 reported an additional LLRT program deficiency.

LICENSEE EVENT REPORT (LER)
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 (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) James A. FitzPatrick Nuclear Power Plant	DOCKET NUMBER (2) 0 5 0 0 0 3 3 3	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		9 2	-- 0 3 3	-- 0 0	0 2	OF	0 6

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

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Description

The plant was shutdown and in cold condition with all irradiated fuel in the spent fuel pool.

On June 17 and 25, 1992 it was determined that the Type B Local Leak Rate Testing (LLRT) program required by 10CFR50, Appendix J, and Technical Specification 4.7.A.2.b.1 for Primary Containment [NH] penetrations contained deficiencies.

A systematic review of the LLRT program was initiated as part of the industry operating experience review program in response to NRC Information Notice 92-20. During the review process two deficiencies were found and are described below.

1. A review of plant drawings and a physical examination of the eight primary containment drywell to pressure suppression chamber (torus) vent line penetrations revealed that each line has two expansion bellows of a 2-ply design and are provided with connections for LLRT of the bellows. A review of plant records indicates the bellows were tested by the manufacturer prior to installation during plant construction. No testing of the bellows under the LLRT program had been conducted since installation. However, the bellows are subjected to test pressure during each Primary Containment Integrated Leakage Rate Test (PCILRT). The test connections for LLRT of the bellows are physically located in the torus air space.
2. A walkdown of the Residual Heat Removal/Low Pressure Coolant Injection (RHR/LPCI) [BO] containment spray mode lines revealed mechanical joints on the torus spray flow element which were not in the LLRT program.

In November 1988, during a refuel outage, flow elements 10FE-137A & B were installed in torus spray lines A and B to provide an indication of spray flow to meet the requirements of Regulatory Guide 1.97. The flow elements are installed in the torus spray lines between the inboard primary containment isolation valves and the primary containment penetrations. That is, at a point where the flow elements are exposed to primary containment pressure at all times and thus are part of the primary containment pressure boundary. During the design phase of the modification one of the factors involved in selecting the flow element was the consideration of the leakage testing which would be necessary to meet 10CFR50, Appendix J and Technical Specification requirements. A flow element which would require

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

boring a nominal one inch diameter hole in the torus spray lines was selected to allow application of American Society of Mechanical Engineers (ASME), Section XI Code Case N-236-1 which permits non-destructive examination of welds rather than pressure testing. It was desirable to avoid pressure testing (by selecting a design which allowed application of the Code Case N-236-1) because pressure testing would require each spray nozzle in the torus air space to be removed and plugged to establish a pressure test boundary. Removal of the nozzles to allow pressure testing and replacement after testing is estimated to result in a cumulative radiation exposure of approximately 100 millirem.

No LLRT was performed after installation of the flow elements. However, a PCILRT was conducted during the 1990 refuel outage. Successful completion of the PCILRT demonstrated that the flow element installation did not result in significant leakage.

Examination of the installed flow elements revealed an as built design which made application of Code Case N-236-1 improper. The installation of each flow element includes two field welds which are larger than the nominal one inch diameter and six mechanical (rather than welded) joints. None of the mechanical joints are designed to permit local leak rate testing. (See Figure 1)

Cause

1. The cause of the failure to periodically subject the 16 bellows to Local Leak Rate Testing (LLRT) was personnel error. Testing of the bellows was not included in the preoperational LLRT conducted near the end of construction in 1974. The bellows and test connections are physically located within the torus. The existence of the test connections can not be detected by visual examination of the exterior surface of the torus or vent lines. Inspection of the bellows, in response to NRC Information Notice 92-20 revealed the test connections.
2. Torus Spray Flow Elements
The cause of the failure to periodically subject torus spray flow elements A & B to LLRT was the result of a personnel error in the application of Code Case N-236-1. While the holes cut in the torus spray line for the flow element were nominally one inch in diameter the actual attachment weld, and an additional field weld, which are part of the torus pressure retaining boundary are nominally one and one-half inches in diameter. In addition, the flow element assembly contains 5 mechanical (threaded) joints and one gasketed joint that are potential leakage paths that were not subjected to LLRT.

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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 the Local Leak Rate Test (LLRT) Program, which is intended to implement the requirements of 10CFR50, Appendix J and Technical Specification 4.7.A.2.b.1. The LLRT program was deficient as a result of personnel errors. This resulted in violation of the Technical Specification and 10CFR50, Appendix J requirements and requires a report under 10CFR50.73(a)(2)(i)(B). While significant potential leakage of the bellows or torus spray flow elements would be detected during performance of a Primary Containment Integrated Leak Rate Test (PCILRT), these tests are generally performed three times in a 10 year period (that is, once approximately every 40 months during refuel outages). Local Leak Rate Testing (LLRT) is conducted once each operating cycle during refuel outages (that is, once approximately every 18 months). Significant potential leakage that should be detected during the more frequent LLRT would not be detected until a PCILRT was conducted. As a result, the potential existed for significant leakage to exist without detection for a time period of approximately 18 or 36 months (depending on the actual PCILRT and refuel outage schedule). Accordingly the event also requires a report under 10CFR50.73(a)(2)(v)(C) and (D). That is, the LLRT program deficiency resulted in a condition that could have prevented the fulfillment of the safety function of a system (Primary Containment) that is needed to control the release of radioactive material, or mitigate the consequences of accidents described in the Final Safety Analysis Report (FSAR).

Corrective Actions

- 1) Procedures for LLRT have been changed to include test of drywell to torus vent line bellows and torus spray flow elements. Completed July 13, 1992.
- 2) Both torus spray flow elements were subjected to LLRT. The combined test of both flow elements (and the plugs installed in place of the spray nozzles) resulted in a detected leak rate of 0.1843 standard cubic feet per day (SCFD), Completed July 15, 1992.
- 3) Each of the 16 drywell to torus vent line expansion bellows will be subjected to a Local Leak Rate Test (LLRT) prior to plant startup. Currently scheduled for August 15, 1992.

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- 4) Prior to the next scheduled PCILRT, the torus spray flow element assembly will be modified as necessary to result in a configuration which can be tested without plugging the spray nozzles. This will minimize radiation dose associated with future testing.

Additional Information

Failed Components: None

Similar Events: LER-92-008 reported an additional LLRT program deficiency .

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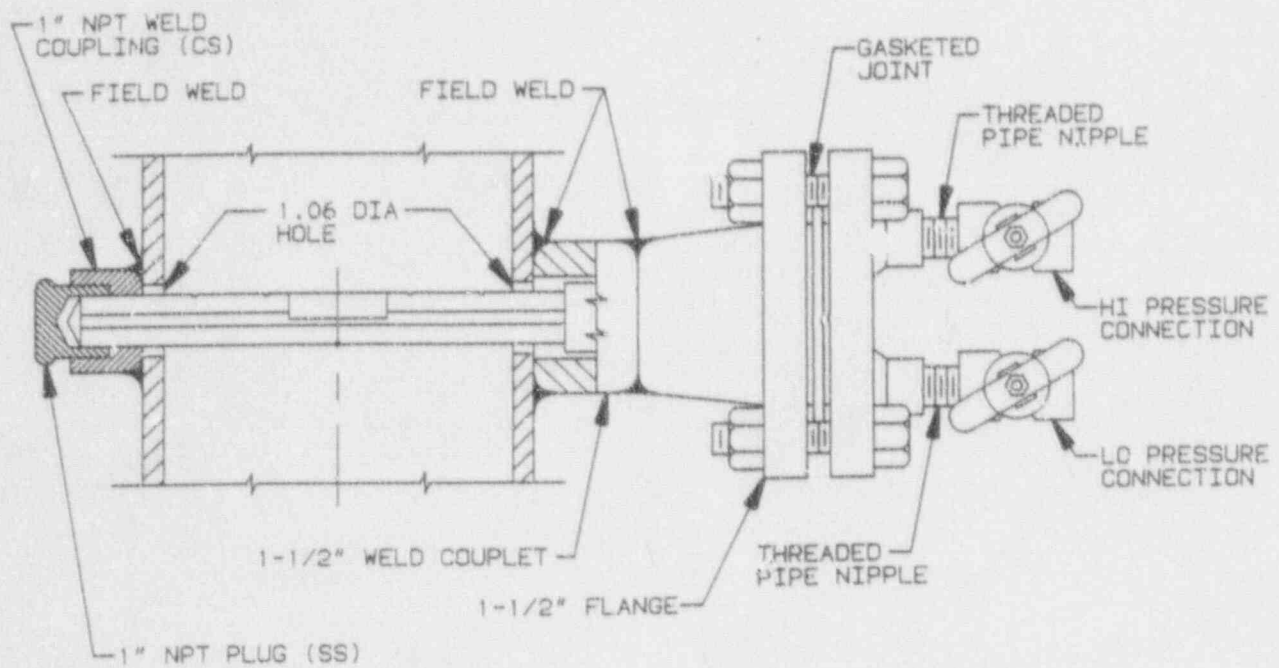


FIGURE 1
TORUS SPRAY FLOW ELEMENT
10FE-137A & B