

James A. FitzPatrick
Nuclear Power Plant
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315-342-3840



Michael J. Colomb
Plant Manager

December 11, 1996
JAFP-96-0494

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Station P1-137
Washington, D.C. 20555

SUBJECT: **James A. FitzPatrick Nuclear Power Plant**
Docket No. 50-333
Licensee Event Report: LER-96-012

**Primary Containment Accumulative Leakage In Excess of
Maximum Allowed By Technical Specifications**

Dear Sir:

This report is being submitted in accordance with 10 CFR 50.73(a)(2)(i)(B), "Any operation or condition prohibited by the plant's Technical Specifications" and 10 CFR 50.73(a)(2)(v)(C), "Any event or condition that alone could have prevented the fulfillment of the safety function of structures or systems that are needed to control the release of radioactive material".

There are no commitments contained in this report.

Questions concerning this report may be addressed to Mr. Gordon Brownell at (315) 349-6360.

Very truly yours,

A handwritten signature in cursive script, appearing to read 'Michael J. Colomb'.

MICHAEL J. COLOMB

MJC:GJB:las
Enclosure

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

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PDR ADOCK 05000333
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LICENSEE EVENT REPORT (LER)

(See reverse for required number of
digits/characters for each block)ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY
INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS
LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED
BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN
ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH
(T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC
20565-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-
0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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TITLE (4)

Primary Containment Accumulative leakage In Excess Of Maximum Allowed By Technical Specifications

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
11	11	96	96	012	00	12	11	96	NA	05000
									NA	05000
OPERATING MODE (9)		N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 6: (Check one or more) (11)							
POWER LEVEL (10)		0	20.2201(b)			20.2203(a)(2)(v)		X	50.73(a)(2)(i)	50.73(a)(2)(viii)
			20.2203(a)(1)			20.2203(a)(3)(i)			50.73(a)(2)(ii)	50.73(a)(2)(x)
			20.2203(a)(2)(i)			20.2203(a)(3)(ii)			50.73(a)(2)(iii)	73.71
			20.2203(a)(2)(ii)			20.2203(a)(4)			50.73(a)(2)(iv)	OTHER
			20.2203(a)(2)(iii)			50.36(c)(1)		X	50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A
			20.2203(a)(2)(iv)			50.36(c)(2)			50.73(a)(2)(vii)	

LICENSEE CONTACT FOR THIS LER (12)

NAME

Mr. Gordon J. Brownell, Licensing Engineer

TELEPHONE NUMBER (Include Area Code)

(315) 349-6360

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
X	CE	ISV	D020	Y	X	SB	ISV	E095	Y
X	SJ	ISV	D020	Y	X	NH	ISV	F130	Y

SUPPLEMENTAL REPORT EXPECTED (14)

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

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

The plant entered Refuel Outage 12 on October 26, 1996. Type B and Type C Local Leak Rate Testing (LLRT) activities on Primary Containment penetrations and isolation valves commenced shortly after plant cooldown in accordance with Technical Specifications (T.S.) Primary Containment Leakage Rate Testing Program. On November 11, 1996, it was determined that the as-found running total Primary Containment leakage rate was in excess of T.S. equated maximum allowable limit of 105.3 standard liters per minute (SLM). The as-found running total leakage rate was conservatively totalled to be equal to or greater than 122 SLM.

Causes for the excessive valve leakage rates were attributed to valve sealing failures due to wear and corrosion product build up on valve seat areas.

Failed valves were repaired and retested satisfactorily prior to plant restart. Equipment failure evaluations (EFEs) were completed for each failed valve.

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

NRC FORM 366B (4-95)

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EIIIS Codes are in []

EVENT DESCRIPTION

The plant entered Refuel Outage 12 on October 26, 1996. Type B and Type C Local Leak Rate Testing (LLRT) activities on Primary Containment [NH] penetrations and isolation valves commenced shortly after plant cooldown in accordance with Technical Specifications (T.S.) Section 6.20, "Primary Containment Leakage Rate Testing Program". On November 11, 1996, following notification of failed LLRT results for the Reactor Water Cleanup System (RWCU) [CE] inboard (12MOV-15) and outboard (12MOV-18) supply isolation valves, it was determined that the as-found running total Primary Containment leakage rate was in excess of T.S. maximum allowable limit.

T.S. Section 6.20 requires that the peak Primary Containment internal pressure (Pa) for the design basis loss of coolant accident is 45 pounds per square inch gauge (psig). The maximum allowable Primary Containment accident leakage rate (La) at Pa shall be less than or equal to 0.5 percent of Primary Containment air weight per day.

The maximum T.S. allowable leakage per day equates to 105.3 standard liters per minute (SLM). The as-found running total leakage rate, based on Type B and Type C LLRT results, was conservatively totalled at 122 SLM at the time of the RWCU valve LLRT failures.

Additionally, at the conclusion of LLRTs for the Main Steam Isolation Valves (MSIVs) [SB], it was identified the leakage rates for valves 29AOV-80A, 29AOV-80B, 29AOV-80D, 29AOV-86A, and 29AOV-86D had exceeded T.S. limits for individual valves. T.S. Section 4.7.A.2.b, "Surveillance Requirements - Containment Systems" requires verification (in accordance with the Primary Containment Leakage Rate Testing Program) that leakage rate through each MSIV is less than or equal to 11.5 scfh (5.422 SLM) when tested at equal to or greater than 25 psig.

Inservice Testing (IST) Program "Alarm Limits" are defined as T.S. leakage rate limits or leakage rates which exceed 0.1 La (10.53 SLM). Test results which exceed "Alarm Limits" are considered performance failures and require repair. Detailed below is information concerning LLRT failures whose as-found leakage rates exceeded IST Program "Alarm Limits" and contributed to the initiation of this report.

Penetration 16X-14

Penetration X16-14 configuration consists of Reactor Water Cleanup System supply line inboard and outboard isolation valves (12MOV-15 and 12MOV-18 respectively). Failed as-found test results for 12MOV-15 and 12MOV-18 were leakage rates of 69 SLM and 212 SLM respectively. Repairs were completed and valves successfully re-tested to IST Program leakage rate acceptance limits.

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EVENT DESCRIPTION (cont.)Penetration 16X-7D

Penetration 16X-7D configuration consists of inboard and outboard MSIVs (29AOV-80D and 29AOV-86D respectively) on one of four main steam lines. The combined as-found test results for 29AOV-80D and 29AOV-86D were a leakage rate of 32.4 SLM. Repairs and a re-test were completed on each valve with re-test leakage rates within T.S. and IST Program acceptance limits.

Penetration 16X-7A

Penetration 16X-7A configuration consists of inboard and outboard MSIVs (29AOV-80A and 29AOV-86A respectively) on one of four main steam lines. The combined as-found test results for 29AOV-80A and 29AOV-86A were a leakage rate of 16.5 SLM. Repairs and a re-test were completed on each valve with re-test leakage rates within T.S. and IST Program acceptance limits.

Penetration 16X-7B

Penetration 16X-7B configuration consists of inboard and outboard MSIVs (29AOV-80B and 29AOV-86B respectively) on one of four main steam lines. The combined as-found test results for 29AOV-80B and 29AOV-86B was a leakage rate of 12.37 SLM. Repairs were completed on valve 29AOV-80B, a retest was completed on both valves. The re-test leakage rates were within T.S. and IST Program acceptance limits.

The following listed Primary Containment penetrations and isolation valves are those which were tested and also found to have exceeded IST Program "Alarm Limits" but were identified subsequent to surpassing the T.S. limit of 0.5 percent (La).

Penetration 16X-9B

Penetration 16X-9B configuration consists of the outboard Feedwater System (FWS) [SJ] isolation (non-return) valve (34NRV-111B), High Pressure Coolant Injection System [BJ] pump discharge to reactor outboard isolation valve (23MOV-19), and Feedwater System "B" reactor Feedwater supply inboard isolation valve 34FWS-28B. During the LLRT, test pressure could not be maintained due to excessive leakage through 34NRV-111B. Repairs and a retest were completed on the valve. The LLRT result was within IST Program acceptance limits.

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EVENT DESCRIPTION (cont.)Penetration 16X-205

Penetration 16X-205 configuration consists of inboard isolation valve 27AOV-117 and outboard isolation valve 27AOV-118. The valves are for primary containment vent and/or purge outlet of the suppression chamber (torus) air space. Arrangement of the valves requires a combined LLRT of both valves. The combined as-found LLRT leakage rate was 67.1 SLM. Repairs were completed on 27AOV-118 and a retest was completed on both valves. IST Program leakage rate acceptance criteria were met for both valves.

Penetration 16X-65

Penetration 16X-65 configuration consists of the Reactor Building Closed Loop Cooling System (RBCLC) [CC] to the primary containment Drywell equipment sump [WD] cooler outlet piping. Primary containment isolation consists of outboard isolation valve 15AOV-134A. As-found LLRT leakage rate was 150 SLM. Repairs and a retest were completed on 15AOV-134A. The LLRT leakage rate was within IST Program acceptance limits.

EVENT CAUSE

Each failed valve received an equipment failure evaluation (EFE). The results of these evaluations identified the following causes for the excessive as-found leakage rates:

Penetration 16X-14	12MOV-15	- Rust and scale were found built up on the valve disc and seat ring.
	12MOV-18	- Same as valve 12MOV-15
Penetration 16X-7D	29AOV-80D	- Normal internal valve wear from valve cycling.
	29AOV-86D	- Same as valve 29AOV-80D
Penetration 16X-7A	29AOV-80A	- Damaged backseat found on valve bonnet.
	29AOV-86A	- Normal internal valve wear from valve cycling.
Penetration 16X-7B	29AOV-80B	- Normal internal valve wear from valve cycling.
Penetration 16X-9B	34NRV-111B	- Check valve disc misalignment, contamination, particle accumulation found on valve seat.

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EVENT CAUSE (cont.)

Penetration 16X-205 27AOV-118 - Loss of sealing integrity between valve disc and valve soft seat.

Penetration 16X-65 15AOV-134A - Internal valve corrosion contributing to soft seat wear out.

EVENT ANALYSIS

This event is reportable in accordance with 10 CFR 50.73(a)(2)(i)(B), "Any operation or condition prohibited by the plant's Technical Specifications" and 10 CFR 50.73(a)(2)(v)(C), "Any event or condition that alone could have prevented the fulfillment of the safety function of structures or systems that are needed to....control the release of radioactive material."

The function of all Primary Containment isolation valves is to provide necessary isolation of the containment in the event of accidents or similar conditions when the release of containment atmosphere cannot be permitted.

An event analysis is provided below for each valve whose as-found LLRT leakage rate was found to exceeded IST Program "Alarm Limits".

Penetration 16X-14 (RWCU):

Leakage from penetration isolation valves 12MOV-15 and 12MOV-18 would result in leakage of reactor water or steam to the RWCU system. System leakage is small and release of radioactive materials from the RWCU would be predominately within the Reactor Building (secondary containment) [NG]. Radioactive materials released to the Reactor Building atmosphere would be processed via the Standby Gas Treatment System (SGTS) [BH] to the elevated Main Stack. Releases from SGTS would be expected to have a very small impact on off site dose when considering the filtration, radioactive decay during delays, dilution and elevated release point.

Penetrations 16X-7A, 7B and 7D (Main Steam Lines)

The MSIVs are fitted with a leakage collection system designed to collect disc to seat leakage through the inboard isolation valves and valve stem leakage on the outboard isolation valves. The leakage collection system would be initiated by operators after an accident to route the small volume of steam, gases and particulate material to the Standby Gas Treatment

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EVENT ANALYSIS (cont.)

System. The SGTS contains High Efficiency Particulate Air (HEPA) filters and activated charcoal filters designed to remove or delay release of materials expected to be present in the main steam line after an accident. Materials that are not trapped by the SGTS filters are routed to the Main Stack for elevated release. With the main steam leakage collection system operating, the pressure in the piping between the inboard and outboard valves would be very low. Leakage past the outboard valve would also be very low. In any event, leakage (steam, gases and particulate materials) from the outboard MSIVs would be routed to the large volume of the Turbine Building or the Main Condenser. Release of leakage from the MSIVs that is processed by the leakage collection system and SGTS would be expected to have a very small impact on off site dose when considering the filtration, radioactive decay during delays, dilution and elevated release point. Release of the small amount of leakage past the outboard MSIVs would also be expected to have a very small impact on off site dose when considering the additional barriers presented by the intact main steam lines, and the large volume and surface areas of the Main Condenser and Turbine Building. These barriers, surface areas and large volumes would effectively delay and dilute the small portion of leakage which is not collected by the leakage collection system.

Penetration 16X-65 (RBCLC from Drywell Discharge)

RBCLC is a closed system within the Primary Containment. Potential accident condition leakage could occur if RBCLC piping within primary containment is breached. Primary containment gases, steam or particulate material could enter the breached piping. Leakage from the penetration outboard isolation valve would permit the gases, steam or particulate material to enter the piping within the secondary containment, travel to the system make-up tank and eventually be vented to the secondary containment atmosphere. Releases would be processed by the SGTS. Releases processed by the SGTS would be expected to have a very small impact on off site dose when considering the filtration, radioactive decay during delays, dilution and elevated release point.

Penetrations 16X-205 (Suppression Chamber Purge and Vent)

The leakage past the seats of the primary containment suppression chamber purge and vent isolation valves would enter the Reactor Building (secondary containment). During accident conditions, the Reactor Building Ventilation System [VA] would be isolated. When the normal ventilation is isolated, the SGTS maintains the Reactor Building at a slightly negative pressure with respect to the environment. Any leakage from the vent or purge piping would be diluted by the large volume of the Reactor Building and be filtered by the SGTS prior to elevated release from the Main Stack. Due to the dilution, filtration and elevated release, any effect on the off site dose would be expected to be very small.

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EVENT ANALYSIS (cont.)Penetration 16X-9B ("B" Feedwater Supply)

Feedwater System primary containment outboard isolation for the "B" Feedwater supply piping consists of a non-return check valve. Leakage (containment gases, steam or particulate materials) passing the FWS outboard valve would be routed to the Feedwater heaters and piping or to the large volume of the Turbine Building. Leakage would also be expected to have a very small impact on off site dose when considering the additional barriers presented by the intact FWS supply lines, and the large volume and surface area of the Turbine Building. These barriers, surface areas and large volumes would effectively delay and dilute the leakage.

CORRECTIVE ACTIONS

1. Work Requests were generated and repairs completed for each penetration isolation valve which failed its Local Leak Rate Test. **(Complete)**
2. Each failed valve, upon completion of repair activities, was retested. Test results were within T.S. and IST Program acceptance limits. **(Complete)**
3. Equipment Failure Evaluations were completed for each valve whose measured as-found LLRT leakage rate exceeded T.S. and IST Program acceptance limits. **(Completed)**
4. A program for the comprehensive review of each failure and maintenance history of plant components including primary containment isolation valves has been established. This program develops preventive maintenance recommendations and identifies components such as valves that require excessive maintenance as candidates for replacement in order to meet the objectives of other programs such as LLRT. As a result of reviews conducted on the failed valves, the following action has been taken:
 - Based on present and previous valve performance (LLRT) data, a Problem Identification Report was initiated to evaluate a contingency modification for the replacement RWCU outboard isolation valve 12MOV-18. **(Complete)**

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CORRECTIVE ACTIONS (CONT.)

5. The Primary Containment Leakage Rate Testing Program (per 10 CFR 50, Appendix J, Option B), requires that when Type C test results are unacceptable, the test frequency is returned to 30 months. Acceptable performance tests must be re-established prior to returning the component to an extended test interval. The isolation valves identified in this report will remain on the higher frequency test schedule until satisfactory test results are achieved. **(Complete)**
6. The results of all Type B and Type C test performed during the recently completed outage will be documented in a post-outage test report in accordance with IST Program requirements.

ADDITIONAL INFORMATION

A. Failed Component Identification:

PENETRATION

VALVE NUMBER

VENDOR

VALVE TYPE

NPRDS CODE

MODEL NUMBER

16X-14

12MOV-15

Double Disc Gate

Anchor Darling

D020

W8822747

16X-14

12MOV-18

Double Disc Gate

Anchor Darling

D020

W8822747

16X-7D

29AOV-80D

Globe

Edwards Valves, Inc.

E095

1612 JMMNY

16X-7D

29AOV-86D

Globe

Edwards Valves, Inc.

E095

1612 JMMNY

16X-7A

29AOV-80A

Globe

Edwards Valves, Inc.

E095

1612 JMMNY

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ADDITIONAL INFORMATION

A. (cont.)

PENETRATION

VALVE NUMBER

VALVE TYPE

VENDOR

NPRDS CODEMODEL NUMBER

16X-7A

29AOV-86A

Globe

Edwards Valves, Inc.

E095

1612 JMMNY

16X-7B

29AOV-80B

Globe

Edwards Valves, Inc.

E095

1612 JMMNY

16X-9B

34NRV-111B

Non-Return Check

Anchor Darling

D020

W8822744-C

16X-205

27AOV-118

Butterfly

Fisher Controls Co.

F130

9222

16X-65

15AOV-134A

Globe

Hammel Dahl/Neles Jamesbury

H035

V-500

B. Previous Similar Events:

LER-87-001

Excessive Leakage of Primary Containment Isolation
Valves

LER-95-011

Excessive Leakage of Primary Containment Isolation
Valves