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 FACIL:50-389 St. Lucie Plant, Unit 2, Florida Power & Light Co. 05000389
 AUTH.NAME AUTHOR AFFILIATION
 MEAD,S.C. Florida Power & Light Co.
 SAGER,D.A. Florida Power & Light Co.
 RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 89-009-01:on 891128,containment purge valve local leak rate exceeded Tech Spec limits.Caused by valve closure stop out of adjustment.Testing frequency increased to once every 6 wks.W/901220 ltr.

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December 20, 1990

L-90-450
10 CFR 50.73

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

Gentlemen:

Re: St. Lucie Unit 2
Docket No. 50-389
Reportable Event: 89-09 Revision 1
Date of Event: November 28, 1989
Containment Purge Valve Local Leak Rate Exceeds Technical
Specification Due to Valve Closure Stop Out of Adjustment

The attached Licensee Event Report revision is being submitted pursuant to the requirements of 10 CFR 50.73 to provide an update on the subject event.

Very truly yours,

A handwritten signature in dark ink, appearing to read "D. A. Sager".

D. A. Sager
Vice President
St. Lucie Plant

DAS:GRM:kw

Attachment

cc: Stewart D. Ebnetter, Regional Administrator, USNRC Region II
Senior Resident Inspector, USNRC, St. Lucie Plant

DAS/PSL #305

9012260091 901220
PDR ADOCK 05000389
S PDR

Handwritten initials in dark ink, possibly "TE" or "TF" with a vertical line to the right.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) St. Lucie Unit 2	DOCKET NUMBER (2) 05000389	PAGE (3) 1 OF 4
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TITLE (4) **Containment Purge Valve Local Leak Rate Exceeds Technical Specifications Due to Valve Closure Stop Out of Adjustment**

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)		
1	1	28	8	9	009	0	1	12	2	0	90	N/A	0510101

OPERATING MODE (9) 1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR : (Check one or more of the following) (11)			
POWER LEVEL (10) 100	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
	20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
	20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	<input checked="" type="checkbox"/> OTHER (Specify in Abstract below and in Text NRC Form 366A)
	20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	VOLUNTARY
	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 Sandra C. Mead, Shift Technical Advisor	TELEPHONE NUMBER AREA CODE 407 465 - 3550
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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) <input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH DAY YEAR
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ABSTRACT (Limit to 1400 spaces. I.e. approximately fifteen single-space typewritten lines)(16)

On November 28, 1989 at 1345, with Unit 2 in Mode 1 at 100% power, a routine local leak rate surveillance test on Containment Penetration 10 revealed an "as found" leakage rate across FCV-25-5 of 908,970 standard cubic centimeters per minute (sccm). This "as found" leakage rate was in excess of the allowable leakage per Technical Specification 4.6.1.7.3.

Revision 0 of this Licensee Event Report stated the valve would be disassembled and inspected during the next Unit 2 refueling outage to determine the reason for the failure of the local leak rate test. However, the root cause of this event was not determined during the 1990 refueling outage due to personnel safety concerns over performing maintenance on the 48 inch butterfly valve without a jacking device for the actuator available to hold the valve open. An attempt was made to obtain this jacking device from the vendor in time to support the outage work, but this was not possible. An Engineering Evaluation was then performed and a blind flange re-installed on the penetration to ensure containment integrity is maintained.

This Licensee Event Report was submitted on a voluntary basis. The corrective actions were: 1) Verify other in-line valves FCV-25-4 and FCV-25-6 were closed and de-energized. 2) Blind flange the penetration to ensure containment integrity is maintained. 3) The blind flange was successfully tested after installation. 4) An Engineering Request has been submitted to make permanent the blind flange installation on Penetration 10. 5) Testing requirements and testing frequency will continue to be on a 6 month frequency in accordance with the St. Lucie Unit 2 Technical Specifications Surveillance requirements.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) St. Lucie Unit 2	DOCKET NUMBER (2) 05000389	LER NUMBER (6)			PAGE (3)	
		YEAR 89	SEQUENTIAL NUMBER 009	REVISION NUMBER 01		
05000389 89 -- 009 -- 01 02 OF 04						

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

DESCRIPTION OF EVENT

On November 28, 1989 at 1345, with Unit 2 in Mode 1 at 100% power, a routine local leak rate surveillance test on Containment Penetration 10 revealed a leakage across FCV-25-5 (EIS-ISV) of 908,970 standard cubic centimeters per minute (sccm). Penetration 10 contains a 48 inch exhaust line for the Containment Purge System, with 3 butterfly valves, of which FCV-25-4 and FCV-25-5 are subject to Type C testing per Unit 2 Technical Specification 3.6.1.2.b, Table 3.6-1 and Surveillance 4.6.1.7.3. Local leak rate testing is performed by pressurizing the piping between the inboard (FCV-25-4) and outboard (FCV-25-5) valves. The "as found" leakage of the penetration was in excess of the allowable leakage of 0.05 La, or 48,568 sccm.

In accordance with Technical Specification 3.6.1.7, action statement "c", action was undertaken to restore the leakage rate to within the specified limit within 24 hours. In accordance with Technical Specification 3.6.3, FCV-25-4 and FCV-25-6, both of which are in series with FCV-25-5, were verified to be closed and de-energized, ensuring containment isolation.

Technical Specification 3.6.1.2 also limits containment leakage rate to a combined leakage rate of less than or equal to 0.60 La for all penetrations and valves subject to Type B and C testing. Based on guidance from ANSI 56.8 for a combined test, one-half of the leakage is assigned to each valve, thus the 0.60 La limit was not exceeded.

Following the adjustment of the valve seat travel stop adjustment screw, the leakage rate across FCV-25-5 was reduced to 400 sccm. Technical Specification 3.6.1.7 was exited within the required time limit at 1720 when the valve was returned to service after the successful retest. The valve was retested on January 5, 1990 and passed its local leak rate test. The valve was subsequently retested on February 15, 1990 and March 28, 1990 and both times failed to pass its initial local leak rate test. The valve stop had to be adjusted in both cases and was successfully retested after doing so.

CAUSE OF THE EVENT

The first time leakage problems were experienced on this valve was following work on the Bettis actuator during the 1989 refueling outage. The work performed was the 5 year overhaul on the Bettis actuator. The valve passed its pre-maintenance test but failed the post-maintenance test following the Bettis actuator work. The valve seat was adjusted and the valve passed its retest. Three months later on June 5, 1989 it failed its leak test again, without having been operated. The seat was adjusted, and the valve passed its retest. LER #389-89-004 was submitted on this event. The valve passed its next test on August 30, 1989, but failed on the next scheduled test on November 28, 1990. The seat was adjusted, and the valve passed its retest. The valve was put on the "frequent failure" list as required by the ASME code. The testing frequency was increased to every 6 weeks to ensure continued tightness. It demonstrated repeated failures, as documented above, and on May 8, 1990 a blind flange was installed because of concern over valve seating reliability.

The root cause of these failures cannot be conclusively determined without disassembly of the valve. The valve and acuator were to be disassembled during the 1990 Unit 2 refueling outage, but due to personnel safety concerns over performing maintenance on the 48 inch butterfly valve without a jacking device for the actuator available to hold the valve open, it was not performed. Attempts were made to obtain a jacking device from the vendor in time to support the outage work but this was not possible. An Engineering Evaluation was performed and a blind flange installed on the penetration to ensure containment integrity is maintained.



LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) St. Lucie Unit 2	DOCKET NUMBER (2) 05000389	LER NUMBER (6)			PAGE (3)	
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		89	009	01	03	OF 04

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

An Engineering Request has been submitted which will make permanent the blind flange installation on Penetration 10.

ANALYSIS OF THE EVENT

This Licensee Event Report was written on a voluntary basis. This event is not considered reportable per 10CFR50.73 because the time limitations of the applicable Technical Specification action statements were not exceeded. The integrity of the penetration was maintained at all times.

Technical Specification 3.6.1.2 limits containment leakage rates for combined leakage of less than or equal to 0.60 La for all penetrations and valves subject to Type B and C testing. Based upon guidance from ANSI 56.8, for a combined test one-half of the leakage is assigned to each valve, thus the 0.60 La limit was not exceeded.

The LCO for Technical Specification 3.6.1.7 was entered at 1345 on November 28, 1989 due to the excessive leakage found after performing the local leak rate test. The valve was successfully retested following adjustment of the valve stop. Action statement "c" of Technical Specification 3.6.1.7 was exited within the required time limit at 1720 on November 28, 1989, when the valve was returned to service.

The limits for containment leakage rates in the Technical Specifications are from the requirements of 10CFR50 Appendix J. The leakage rate measured from testing is higher than that which could actually occur under hypothetical accident conditions due to the conservative manner in which the test results are evaluated. When calculating local leak rates, it is assumed that for a given pair of isolation valves, the valve having the lower leakage rate fails fully open. Thus the leakage across the penetrations is governed by the valve having the higher leakage rate. In reality, with both FCV-25-4 and FCV-25-6 closed and de-energized, which are both in series with FCV-25-5, the integrity of the penetration was maintained. The satisfactory test result (leakage rate: 400 sccm) for FCV-25-4 was an assurance that containment integrity for Penetration 10 was maintained at all times during the degraded condition of FCV-25-5. Therefore, at no time was the health and safety of the public endangered.

This same valve failed its local leak rate test 6 months earlier (June 5, 1989) due to the valve closure stop out of adjustment due to personnel error. LER #389-004 was written on this event. The same valve also failed its local leak rate test 3 months prior (March 5, 1989) when the post-maintenance/surveillance test was performed. With this most recent failure of the valve, it has been speculated that the correct root cause of the problem may not have been determined. Due to this, corrective actions are being undertaken which will ensure the continued tightness of the valve seat until the valve can be disassembled and the root cause for these failures determined with certainty or blind flanges are permanently installed. The installation of the blind flange was determined to be the most effective way to ensure the continued integrity of the penetration. Operating with the blind flange (passive barrier) installed on Penetration 10 is superior to using flow control valves (active components) from a containment isolation standpoint. A Engineering Request has been submitted which will make permanent blind flange installation on Penetration 10.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) St. Lucie Unit 2	DOCKET NUMBER (2) 05000389	LER NUMBER (6)			PAGE (3)	
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TEXT (If more space is required, use additional NRC Form 366A's)(17)

CORRECTIVE ACTIONS

- 1) The series redundant valves for Penetration 10, FCV-25-4 and FCV-25-6, were verified to be closed and de-energized.
- 2) FCV-25-4 was verified to have a leakage rate well within the acceptance criteria for the Technical Specifications.
- 3) Instrument & Controls personnel adjusted the valve seat travel stop adjustment screw for the closing of the valve.
- 4) Technical Staff Test Group personnel retested FCV-25-5.
- 5) Prior to installation of the blind flange, the testing frequency on FCV-25-5 was increased to once every 6 weeks to ensure continued tightness. With the blind flange installed, the testing frequency of the valve has been returned to once per 6 months in accordance with the St. Lucie Unit 2 Technical Specification Surveillance requirements.
- 6) An Engineering Request has been submitted which will make permanent the blind flange installation on Penetration 10.

ADDITIONAL INFORMATION

Component Identification:

Manufacturer: Henry Pratt Co.
 Valve Model: NR1A
 Valve Size/Type: 48 inch Carbozinc 11/Butterfly
 Actuator Type: Bettis Cylinder Air Operated
 Actuator Model: T-520B-SR2

Previous Similar Events:

For the most recent similar event, see Licensee Event Report #389-89-004, which pertains to excessive penetration leakage across FCV-25-5 on Unit 2 due to valve closure stop out of adjustment due to personnel error. For another similar event, see LER #335-87-005 which pertains to excessive leakage discovered during performance of a local leak rate test on a containment purge valve on Unit 1.

