



FPL

April 17, 2006

L-2006-105
10 CFR § 50.73

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

Re: St. Lucie Unit 2
Docket No. 50-389
Reportable Event: 2006-002-00
Date of Event: February 15, 2006
Containment Purge Supply Isolation Valve Failure

The attached Licensee Event Report 2006-002-00 is being submitted pursuant to the requirements of 10 CFR § 50.73 to provide notification of the subject event.

Very truly yours,

Christopher R. Costanzo for SVP

Gordon L. Johnston
Acting Vice President
St. Lucie Nuclear Plant

GLJ/dlc

Attachment

JE22

1. FACILITY NAME St. Lucie Unit 2	2. DOCKET NUMBER 05000389	3. PAGE Page 1 of 3
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4. TITLE
Containment Purge Supply Isolation Valve Failure

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
02	15	2006	2006	- 002	- 00	04	17	2006		
									FACILITY NAME	DOCKET NUMBER
									FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE 1	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)															
10. POWER LEVEL 100	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)	<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER
	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)					Specify in Abstract below or in NRC Form 366A								

12. LICENSEE CONTACT FOR THIS LER

NAME Donald L. Cecchett - Licensing Engineer	TELEPHONE NUMBER (include Area Code) (772) 467 - 7155
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13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
-	BF	FCV	C630	YES	-	-	-	-	-

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

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

On February 15, 2006, with St. Lucie Unit 1 and Unit 2 in Mode 1 at 100 percent power, the St. Lucie Unit 2 inboard 8-inch containment purge supply isolation valve FCV-25-36 failed its local leak rate test (LLRT). The LLRT was being performed as required by Technical Specification (TS) surveillance requirement 4.6.1.7.4. Valve FCV-25-36 is the Containment side isolation valve for penetration P-56. Failure of the leak test caused entry in TS Action 3.6.1, requiring the penetration to be restored to operable status within 24 hours, or be in hot shutdown within 6 hours. As a result of the suspected failure mode of the isolation valve, and obstacles involved in repairing the valve within the TS required 24 hours, St. Lucie requested and received a Notice of Enforcement Discretion (NOED) from the NRC. As support for NOED-06-2-01, the valve was removed, a blank flange installed, and the LLRT successfully performed.

The valve has since been repaired and returned to service. Additionally, an exigent TS change has been approved to adopt the Improved Standard Technical Specification which allows operation to continue with a blank flange installed or the upstream valve closed and de-energized.

LICENSEE EVENT REPORT (LER)
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TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

Description of the Event

While performing a Local Leak Rate Test (LLRT) on Unit 2's penetration P-56 (Mini Purge), using Operation procedure "Purge Valve Leak Rate Test," leakage exceeded the TS defined limits. Initial troubleshooting determined that FCV-25-36 [EII:BF:JM], the inside 8-inch containment isolation valve, was not fully closed. Given the suspected failure mode of the isolation valve, and the obstacles to repair the valve within TS limits, a NOED (NOED-06-2-01) was pursued and granted. The valve was removed from the system, a blind flange installed, and the LLRT successfully performed.

Cause of the Event

Following removal of the valve, an Apparent Cause Evaluation (ACE) was conducted. The apparent cause of the failure was attributed to inadequate corrective maintenance. Investigation of the valve indicated FCV-25-36 failed to close as a result of binding between the valve stem and body bushings caused by galling and "balling" of material. This restriction lead to an increase in friction that could not be overcome by the actuator spring to provide a leak-tight seal for the LLRT, but closed enough to indicate closure to the Operators.

Analysis of the Event

A review of the valve's history showed the valve had been inspected and overhauled during the previous outage (SL2-15). At that time, a new disk and stem were scheduled to be installed, however, like-for-like replacements were not available. Although the stem had signs of wear damage, the decision was made to the repair and reuse the existing stem.

Further investigation indicates the galling between the valve stem and body bushings was most likely initiated by damage that occurred during the SL2-15 overhaul of the valve or ineffective repair of the valve during the overhaul. Reuse of the refurbished stem and/or damaged body bushings may have contributed to the failure.

This event is reportable under 10 CFR 50.73(a)(2)(i)(B) as "any operation or condition which was prohibited by the plant's Technical Specifications..." because the valve could not be returned to service within TS allowable limits.

Analysis of Safety Significance

The containment purge valves are part of the containment purge and the continuous purge/hydrogen purge systems. The 8-inch purge (or mini-purge) system is not required for safe shutdown of the reactor or to mitigate the consequences of a design basis accident. The containment purge system is designed to reduce the level of radioactive contamination in the containment atmosphere below the limits of 10 CFR 20 so as to permit personnel access to the containment during shutdown and refueling. It is also used to relieve the building of pressure in the containment caused by leak-by of instrument air-operated components. The continuous purge/hydrogen purge system can be used as a not-nuclear-safety backup to the redundant safety-related hydrogen recombiners, which maintain containment hydrogen concentration below 4 percent after a postulated accident. The only portions of the mini-purge system that are safety-related are the containment penetrations and the isolation valves.

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Corrective Actions

The proposed corrective actions and supporting actions listed below are entered into the site corrective action program. Any changes to the proposed actions will be managed under the commitment management change program.

- Replace the valve stem and body bushings and reinstall the valve (Complete)
- Exigent Technical Specification Change Amendment Number 142 for Unit 2, approved March 17, 2006. (Implemented)
- Will develop a repair procedure for the FCV-25-36 valve prior to the next scheduled valve overhaul.

Similar Events

A review of industry Operating Experience (OE) identified no common failure issues. The review identified only one similar OE, regarding a Contromatics Motor Operated Valve (MOV) that failed to fully close as a result of seat degradation and wear of bronze bearings. However, because of differences in materials and failure mode (seat vs. stem galling), this OE is not considered relevant to this event.

Failed Components

Contromatics Valve, Tag Number, FCV-25-36, Model, Control-Seal Type II valve with SRMSV Actuator and Mastergear MCF-60 manual operator.