



Florida Power & Light Company, 6351 S. Ocean Drive, Jensen Beach, FL 34957

December 16, 1999

L-99-278
10 CFR § 50.73

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

Re: St. Lucie Unit 1
Docket No. 50-335
Reportable Event: 1999-008-00
Date of Event: November 17, 1999
As Found Cycle 15 Pressurizer Safety Valve
Setpoint Outside Technical Specification Limits

The attached Licensee Event Report 1999-008 is being submitted pursuant to the requirements of 10 CFR § 50.73 to provide notification of the subject event.

Very truly yours,

A handwritten signature in black ink, appearing to read 'J. A. Stall'.

J. A. Stall
Vice President
St. Lucie Nuclear Plant

JAS/EJW/KWF
Attachment

cc: Regional Administrator, USNRC Region II
Senior Resident Inspector, USNRC, St. Lucie Nuclear Plant

Handwritten initials 'IE22' in black ink.

PDR APOCK 05000335
an FPL Group company

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 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), 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. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

FACILITY NAME (1) St. Lucie Unit 1	DOCKET NUMBER (2) 05000335	PAGE (3) Page 1 of 4
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TITLE (4)
As Found Cycle 15 Pressurizer Safety Valve Setpoint Outside Technical Specification Limits

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	17	1999	1999	008	00	12	16	1999	FACILITY NAME	DOCKET NUMBER
									FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9) 1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more) (11)									
POWER LEVEL (10) 100	20.2201(b)	20.2203(a)(2)(v)	<input checked="" type="checkbox"/>	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)		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 Kenneth W. Frehafer, Licensing Engineer	TELEPHONE NUMBER (Include Area Code) (561) 467 - 7748
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
X	AB	RV	C170	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-

SUPPLEMENTAL REPORT EXPECTED (14)				EXPECTED SUBMISSION DATE (15)			MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE).	<input checked="" type="checkbox"/>	NO	<input type="checkbox"/>						

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

On November 17, 1999, St. Lucie Unit 1 was in Mode 1 at 100 percent reactor power. Wyle Labs informed FPL of unsatisfactory test results for code pressurizer safety valves (PSVs) removed during the cycle 16 refueling outage. Wyle Labs was contracted to perform the offsite pressurizer safety valve testing and the testing was conducted within the required time restraints.

Technical Specification 3.4.2.1 requires the PSVs to lift at 2500 psia (+/-1 percent). The as found settings for two of the removed St. Lucie Unit 1 pressurizer safety valves were 3.0 percent high and 4.0 percent low, outside the Technical Specification tolerance limit of +/- 1 percent.

The cause of the failed pressurizer safety valve tests were setpoint drift and mishandling of the valves during removal or transportation.

The subject pressurizer safety valves were removed and replaced with pre-tested valves during the St. Lucie Unit 1 cycle 16 refueling outage. There was no affect on the health and safety of the public during past St. Lucie Unit 1 cycle 15 power operations because the limiting overpressure analyses remain bounded when actual St. Lucie Unit 1 cycle 15 operational parameters were considered.

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

Description of the Event

On November 17, 1999, St. Lucie Unit 1 was in Mode 1 at 100 percent reactor power. Wyle Labs informed FPL of unsatisfactory test results for code pressurizer safety valves (PSVs) [EIIS:AB:RV] removed during the cycle 16 refueling outage.

In accordance with the inservice testing (IST) program, pressure relief devices are tested per ANSI/ASME OM-1987, Part 1, "Requirements for Inservice Performance Testing of Nuclear Power Plant Pressure Relief Devices." Section 1.3.3, "Test Frequency, Class 1 Pressure Relief Devices," of the code requires testing within 12 months of removal from service when the surveillance requirements are satisfied by installing a full complement of pre-tested valves. Wyle Labs was contracted to perform the testing and the testing was conducted within the required time restraints.

Technical Specification 3.4.2.1 requires the PSVs to lift at 2500 psia (+/-1 percent). The as found setting of two of the Unit 1 PSVs were outside the Technical Specification tolerance limit of +/- 1 percent. As shown below, the deviation range for the valves was -4.0 to 3.0 percent high.

Valve	Serial Number	Set Pressure	As Found Set Pressure	Result
V1200	N84217-00-0006	2485 psig	2559.6 psig	3.0% High
V1202	N84217-00-0002	2485 psig	2388 psig	4.0% Low

No present operability concern exists, as all PSVs were removed and replaced with pre-tested valves during the St. Lucie Unit 1 cycle 16 (SL1-16) refueling outage under work orders (WO) 28018286 (V1200), 28018480 (V1201), and 28018285 (V1202).

Cause of the Event

The ANSI/ASME OM-1987, Part 1, code requires that a cause determination be performed and corrective actions implemented for any valve exceeding its nameplate setpressure by 3 percent or greater. Only one valve, V1200 (S/N N84217-00-0006), met the 3 percent threshold. The cause of the 3.0 percent high pressurizer safety valve setting for valve V1200 was mechanical setpoint drift. Based on the limited historical block body pressurizer safety valve testing data, the actual drift over one operating cycle averages 1.4 percent. Additionally, valve N84217-00-0006 was set on the upper end of the acceptable range when it was installed during the cycle 15 refueling outage. The average as left setting of 2506 psig was 0.85% above the nameplate 2485 psig setting - but within the +/-1% criteria. This also contributed to the high as found setpressure when drift is considered.

The cause of the 4.0 percent low pressurizer safety valve setting for valve V1202 was an internal misalignment problem due to mishandling. The test data for N84217-00-0002 shows that both the second and third test runs are within the +/- 1% criteria. Based on this data, FPL concluded that the alignment problem was corrected by the first actuation. A mechanical shock or not maintaining the valve in an upright vertical position could cause this problem. This misalignment problem most likely occurred during removal or transportation of the valve.

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

Analysis of the Event

FPL reviewed NUREG-1022, Revision 1, "Event Reporting Guidelines 10 CFR 50.72 and 50.73," and determined that this event is reportable under 10 CFR 50.73(a)(2)(i)(B) as "any operation or condition prohibited by the plant's Technical Specifications." Although discrepancies found in Technical Specification surveillance tests should be assumed to occur at the time of the test, the existence of multiple sequential test failures involving safety valves may be an indication that the discrepancies arose over a period of time. Therefore, the condition may have existed during plant operation.

Analysis of Safety Significance

As described in the UFSAR, Section 5.4.13.2, the reactor coolant system (RCS) is protected against overpressure by protective and control devices such as the pressurizer spray system, the power operated relief valves, and the high-pressure reactor trip. In addition to these features, three ASME Code PSVs ensure that RCS piping and components are protected from overpressure in accordance with ASME Code requirements. No present operability concern exists, as the PSVs were all removed and replaced with pre-tested valves during the cycle 16 refueling outage.

FPL and the fuel vendor performed an assessment of the accident analyses to determine if the setpoint deviations could have led to the violation of overpressurization limits during a postulated event during operation of cycle 15. The licensing analyses assume a +3 percent tolerance for all three PSVs in the analysis. Although the -4.0 percent lift setting most likely resulted from mishandling after valve removal and did not exist during the last operating cycle, the impact on the peak primary system pressure of one safety valve lifting at 2400 psia (-4 percent deviation) was conservatively included in the assessment. Although this valve would open prior to the high pressurizer pressure trip setpoint, causing a delay in the reactor scram, the analysis bounds the consequences of a loss of load event with the measured safety valve tolerances.

As discussed above, the limiting overpressure events were bounded once the actual St. Lucie Unit 1 cycle 15 operational parameters were considered in the analyses. Therefore, FPL concludes that the as found PSV setpoints did not adversely affect the health and safety of the public during past cycle 15 operation. Additionally, cycle 16 operation should be bounded by the OM-1987, Part 1, 3% code criteria taking any postulated setpoint drift into consideration.

Corrective Actions

1. All three St. Lucie Unit 1 PSVs were replaced with pre-tested valves during the cycle 16 refueling outage (SL1-16) via work orders (WO) 28018286 (V1200), 28018480 (V1201), and 28018285 (V1202).
2. FPL will revise the Wyle PSV test procedure to provide guidance to set the valves near midrange because setting the valves on the upper end of the acceptance range could challenge the code 3% criteria.
3. FPL is evaluating the transportation and control processes following valve removal from the unit to determine if additional controls are necessary to prevent valve mishandling during movement.

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- FPL is developing a license amendment to adopt the Standard Technical Specifications relaxed as found setpoint test criteria for pressurizer and main steam code safety valves.

Additional Information

Failed Components Identified

Component: pressurizer safety valve

Manufacturer: Crosby

Model: HB-86-BP, forged block body design, size 3K6, assembly N84217

Similar Events

LER 50-389/1999-004, titled "As Found Cycle 10 Pressurizer Safety Valve Setpoint Outside Technical Specification Limits." In this event, the cause of the test failure was determined to be a manufacturing problem and mechanical setpoint drift.