



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

September 14, 2000

L-2000-186  
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: 2000-004-00  
Date of Event: August 16, 2000  
As-Found Cycle 11 Pressurizer Safety Valve  
Setpoints Outside Technical Specification Limits

The attached Licensee Event Report 2000-004 is being submitted pursuant to the requirements of 10 CFR § 50.73 to provide notification of the subject event.

Very truly yours,

  
Rajiv S. Kundalkar  
Vice President  
St. Lucie Nuclear Plant

RSK/EJW/KWF  
Attachment

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

IE22

**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.

<b>FACILITY NAME (1)</b> St. Lucie Unit 2	<b>DOCKET NUMBER (2)</b> 05000389	<b>PAGE (3)</b> Page 1 of 4
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**TITLE (4)**  
As Found Cycle 11 Pressurizer Safety Valve Setpoints 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	
08	16	2000	2000	- 004	- 00	09	14	2000	FACILITY NAME	DOCKET NUMBER	
<b>OPERATING MODE (9)</b>			<b>THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)</b>								
1			20.2201(b)	20.2203(a)(2)(v)			X	50.73(a)(2)(i)	50.73(a)(2)(viii)		
<b>POWER LEVEL (10)</b>			20.2203(a)(1)	20.2203(a)(3)(i)				50.73(a)(2)(ii)	50.73(a)(2)(x)		
100			20.2203(a)(2)(i)	20.2203(a)(3)(iii)				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)	
<b>NAME</b> Kenneth W. Frehafer, Licensing Engineer	<b>TELEPHONE NUMBER (Include Area Code)</b> (561) 467 - 7748

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	C710	YES	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	

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

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

On August 16, 2000, St. Lucie Unit 2 was in Mode 1 at approximately 100 percent reactor power. Wyle Labs informed FPL of unsatisfactory test results for two of the three code pressurizer safety valves removed during the cycle 12 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 of two St. Lucie Unit 2 pressurizer safety valves were 1.51 and 2.98 percent high, outside the Technical Specification tolerance limit of +/- 1 percent.

The cause of the failed pressurizer safety valve tests was due to mechanical setpoint drift over the operating cycle.

There is no past or present operability concern as the subject pressurizer safety valves were removed and replaced with pre-tested valves during the St. Lucie Unit 2 cycle 12 refueling outage. There was no affect on the health and safety of the public during past St. Lucie Unit 2 cycle 11 power operations because the limiting overpressure analyses remain bounding for the as-found condition.

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

**Description of the Event**

On August 16, 2000, St. Lucie Unit 2 was in Mode 1 at approximately 100 percent reactor power. Wyle Labs informed FPL of unsatisfactory test results for two of the code pressurizer safety valves (PSVs) [EIIS:AB:RV] removed during the cycle 12 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 settings of two of the Unit 2 PSVs were outside the Technical Specification tolerance limit of +/- 1 percent. As shown below, the deviation was 1.51 and 2.98 percent high for the two failed valves.

Valve	Serial Number	Set Pressure	Acceptable Range	As-found Set Pressure	Result
V1201	N84217-00-0004	2500 psia	2475-2525 psia	2537.7 psia	+1.51%
V1202	N84217-00-0003	2500 psia	2475-2525 psia	2574.4 psia	+2.98%

No present operability concern exists, as the PSVs were all removed and replaced with pre-tested valves during the St. Lucie Unit 2 cycle 12 (SL2-12) refueling outage under work orders (WO) 29014034, 29014035, and 29014036.

**Cause of the Event**

ANSI/ASME OM-1987, Part 1, code requires a cause determination and corrective actions for any safety or relief valve that exceeds its nameplate setpressure by 3 percent or greater. The as-found setpressure of Unit 2 PSV V1202, S/N N84217-00-0003, was 2559.7 psig. This exceeds its 2485 psig nameplate by 3.0 percent and is only 0.15 psig above the 3 percent threshold of 2559.55 psig. The root cause was determined to be mechanical setpoint drift.

The as-found setpressure for V1201, S/N N84217-00-0004, was 2523 psig. This is 1.53 percent above the nameplate 2485 psig setting. Based on the 1.47 percent historical drift inherit to the design, the apparent cause is also setpoint drift.

**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.

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**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 12 refueling outage.

The function of pressurizer safety valves in the safety analysis is to mitigate the consequences of overpressurization events to limit the peak pressure below the acceptance limits. The limiting overpressurization events are in the category of "Decrease in Heat Removal by the Secondary System." The limiting events in this category, pertaining to deviations in PSV setpoints, are the feedline break and the loss of condenser vacuum. In addition to these "Decrease in Heat Removal" events, PSV setpoints are used in the control element assembly withdrawal (CEAW) event. The key parameter inputs (other than PSV setpoint which is discussed below) used in the analyses of these events bound the values for cycle 11.

CEA Withdrawal

The current analysis of the CEAW event assumes the opening of the PSVs at 2500 psia +3 percent tolerance. Since the as-found setpoints for all the three valves are within this analysis assumption, this event analysis remains bounding for the as-found PSV conditions.

Feedline Break

The feedline break analysis of record, updated recently and documented in PCM 99163, "St. Lucie Unit 2 Cycle 12 Reload," used a conservative PSV setpoint of 2575 psia and showed acceptable results with respect to the overpressurization criteria for primary and secondary systems. Since the average as-found setpressure of the PSVs, to be evaluated here, is 2541.7 psia (<2575 psia), the results of the cycle 12 reload analysis bound cycle 11 operation with these as-found setpoints. (A lower PSV setpoint would open the valves earlier helping in the mitigation of the overpressurization event.)

Loss of Condenser Vacuum

This is the limiting pressurization event for St. Lucie Unit 2. Similar to the feedline break analysis, a revised loss of condenser vacuum analysis has been recently performed for St. Lucie Unit 2 as part of the Reload Process Improvement (RPI), implemented for cycle 12. This analysis, which used a PSV setpoint of 2550 psia (a 2 percent tolerance), showed acceptable results with respect to the overpressurization criteria for primary and secondary systems. Since the average as-found setpressure of the PSVs is 2541.7 psia (<2550 psia), the cycle 12 reload analysis remains bounding for the as-found setpressure condition of the PSVs. The cycle 12 reload analysis performed by W-CE, therefore, bounds the operation of cycle 11.

Although one PSV tested outside the analysis setpoint of 2550 psia, the average setpressure of the three valves remained within the analysis assumption. The use of the average value of the valve setpoints is acceptable for this event analysis.

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Conclusion

Based on the evaluation performed, it is concluded that no safety analysis limits would have been violated for any of the UFSAR analyzed events during the operation of cycle 11. The operation of cycle 11 would have remained within the design basis of the plant.

**Corrective Actions**

1. All three St. Lucie Unit 2 PSVs were replaced with pre-tested valves during the cycle 12 refueling outage (SL2-12) via work orders (WO) 29014034, 29014035, and 29014036. The removed valves will be overhauled and retested at Wyle Labs.
2. The FPL proposed license amendment that will change the allowed as-found setpressures of the main steam safety valves and PSVs is currently under review by the NRC.

**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 50-389/1999-04-01, "As-Found Cycle 10 Pressurizer Safety Valve Setpoints Outside Technical Specification Limits."