



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

May 14, 2000

L-2000-118
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: 2000-001-00
Date of Event: April 16, 2000
Cycle 11 Main Steam Safety Valves
Surveillance Outside Technical Specification Requirements

The attached Licensee Event Report 2000-001 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 'Rajiv S. Kundalkar', is written over the typed name.

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.

FACILITY NAME (1)

St. Lucie Unit 2

DOCKET NUMBER (2)

05000389

PAGE (3)

Page 1 of 4

TITLE (4)

Cycle 11 Main Steam Safety Valves Surveillance Outside Technical Specification Requirements

| 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 |
| 04 | 16 | 2000 | 2000 | - 001 | - 00 | 05 | 14 | 2000 | FACILITY NAME | DOCKET NUMBER |

| OPERATING MODE (9) | POWER LEVEL (10) | THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11) | | | | | | | | |
|--------------------|------------------|---|-------------------|---|------------------|-------------------|-------------------|------------------|------------------|---|
| 1 | 068 | 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) | | 50.73(a)(2)(v) | | 20.2203(a)(2)(iv) | 50.36(c)(2) | 50.73(a)(2)(vii) | Specify in Abstract below or in NRC Form 366A |

LICENSEE CONTACT FOR THIS LER (12)

| | |
|---|--------------------------------------|
| NAME | TELEPHONE NUMBER (Include Area Code) |
| Kenneth W. Frehafer, Licensing Engineer | (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 | SB | RV | V710 | YES | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - |

SUPPLEMENTAL REPORT EXPECTED (14)

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

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

On April 16, 2000, St. Lucie Unit 2 was in Mode 1 at 68 percent power and the main steam safety valves were being lift tested in accordance with procedure 2-MSP-08.07, "Main Steam Safety Valve Setpoint Surveillance." During the surveillance testing the tested main steam safety valves lifted outside the ± 1 percent Technical Specifications (TS) limits. Three of the tested valves were adjusted and successfully retested in the field. One valve was left out of service since the as found lift setting exceeded 3 percent low and will be removed, overhauled, retested, and reinstalled during the ongoing SL2-12 refueling outage.

The cause of this event was determined to be setpoint drift.

There was no impact on the out of specification lift settings on the St. Lucie accident analyses. Additionally, FPL recently submitted a license amendment to expand the range of allowed as found code safety valves lift setpoints consistent with the St. Lucie accident analyses.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

| FACILITY NAME (1) | DOCKET NUMBER (2) | LER NUMBER (6) | | | PAGE (3) |
|-------------------|-------------------|----------------|-------------------|-----------------|-------------|
| | | YEAR | SEQUENTIAL NUMBER | REVISION NUMBER | |
| St. Lucie Unit 2 | 05000389 | 2000 | - 001 | - 00 | Page 2 of 4 |

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

Description of the Event

On April 16, 2000, St. Lucie Unit 2 was in Mode 1 at 68 percent power. The main steam safety valves [EIIS:SB:RV] (MSSVs) were in the process of being lift tested in accordance with procedure 2-MSP-08.07, "Main Steam Safety Valve Setpoint Surveillance." As a precautionary measure, the reactor protection system (RPS) power level high trip setpoint were adjusted to accommodate two inoperable MSSVs per train in accordance with procedure 2-IMP-63.04, "Power Level-High Setpoint Adjustment for Inoperable MSSVs," prior to the MSSV lift testing. During the surveillance testing the following valves lifted outside the ± 1 percent Technical Specifications (TS) limits.

| Unit 2 Valve Tag | As Found Setting (psia) | Technical Spec. Setting (psia) | Deviation (%) |
|------------------|-------------------------|--------------------------------|---------------|
| V8203 | 957.6 | 1000 \pm 1% | - 4.2 |
| V8204 | 981.8 | 1000 \pm 1% | - 1.8 |
| V8205 | 982.9 | 1000 \pm 1% | - 1.7 |
| V8206 | 987.1 | 1000 \pm 1% | - 1.3 |

TS limiting condition for operation (LCO) 3.7.1.1 requires all MSSVs to be operable in modes 1, 2, and 3 with a lift setting in accordance with Table 3.7-2. Table 3.7-2 requires a lift setting of 1000 psia (+/- 1 percent) for valves V8203, V8204, V8205, and V8206. LCO 3.7.1.1 allows operation with one or more inoperable valves provided the RPS power level high trip setpoints are reduced in accordance with Table 3.7-1. This table specifies a maximum allowable reactor trip setpoint of 92.8 percent with one valve inoperable per steam generator train and 79.6 percent with two valves inoperable per steam generator train.

Valves V8204, V8205, and V8206 were adjusted and successfully retested in the field. Valve V8203 was left out of service since the as found lift setting exceeded 3 percent low. Valve V8203 will be removed during the ongoing outage per work order (WO) 30007410 01, overhauled, retested, and reinstalled during the ongoing SL2-12 refueling outage.

Cause of the Event

FPL determined that the cause of the low as found MSSV lift settings was setpoint drift. V8203 was refurbished by Crosby Valves, and no apparent cause for the excessively low as found lift setting could be determined by the vendor. This valve was overhauled, retested, and will be reinstalled.

Analysis of the Event

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. FPL determined that the low as found MSSV lift settings was caused by gradually drifting setpoints, a condition that may have existed during the past operating cycle. FPL submitted a license amendment that will relax the Technical Specification as found setpoint tolerances for the St. Lucie Unit 1 and 2 MSSVs and pressurizer safety valves, consistent with the accident analyses.

The ANSI/ASME OM-1987, Part 1, Code requires that a cause determination be performed and corrective actions implemented for any safety or relief valve that exceeds its

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

| FACILITY NAME (1) | DOCKET NUMBER (2) | LER NUMBER (6) | | | PAGE (3) |
|-------------------|-------------------|----------------|-------------------|-----------------|-------------|
| St. Lucie Unit 2 | 05000389 | YEAR | SEQUENTIAL NUMBER | REVISION NUMBER | Page 3 of 4 |
| | | 2000 | - 001 | - 00 | |

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

nameplate setpressure by 3 percent or greater. None of the tested valves exceeded this criterion - all the valves lifted low. Thus, the Code does not require a cause determination for any of the valves tested. In accordance with FPL Quality Instruction (QI) 11-PR/PSL-7, "Control of Code Safety and Relief Valves," FPL evaluated the as found test pressure, valve inspection, system requirements, and historical records for the low lift failure and concluded that no additional valve sampling was required.

Analysis of Safety Significance

The safety functions of the MSSVs include:

1. Removing heat from the RCS.
2. Preventing uncontrollable blowdown of both steam generators (SGs) in a steam line rupture event.
3. Providing overpressure protection for the SGs and main steam supply system.
4. Providing steam for the auxiliary feed pump turbine.

The low as found setting of valves V8203, V8204, V8205, and V8206 are conservative with respect to overpressure protection for the SGs. The valves were not challenged during unit operation (i.e. adequate margin remained between the setting and operating pressure) and no pre-test seat leakage was present. None of the valves were stuck closed and all lifted during the tests. Therefore, the MSSV safety functions were not negatively impacted or degraded.

Since the actual lift pressures of these valves were outside the TS tolerance limit (TS Table 3.7-2), an evaluation is required to assess the potential impact on plant safety analysis and operation during Cycle 11.

For the steam generator tube rupture, asymmetric steam generator transient, and feedwater line break, the analyses of these events use a valve tolerance of +3 percent and support any tolerance value of $\leq +3$ percent, since a lower value would produce less adverse consequences. For tube rupture event, a lower valve opening setpoint will slightly change the valve opening time and release characteristics. The change in the integrated steam release through the safety valve however will be insignificant from the dose consequence viewpoint. Since the analyses with +3 percent tolerance meet all the safety analysis acceptance criteria, the as-found setpoints of the listed valves would not result in violation of any safety limits for these events.

For the loss of condenser vacuum, control element assembly (CEA) withdrawal, and small break LOCA, the analyses of these events use a valve tolerance of +1 percent and support any tolerance value of $\leq +1$ percent, since a lower value would produce less adverse consequences. Since the analyses with +1 percent tolerance meet all the safety analysis acceptance criteria, the as-found setpoints of the listed valves would not result in violation of any safety limits.

An assessment of the setpoint drift was also performed. The recent Unit 2 MSSV setpoint trend is negative (i.e., in the conservative direction). The assessment shows that the valves are capable of complying with the 3 percent ANSI/ASME OM-1987, Part 1 threshold.

Based on the above, 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

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

| FACILITY NAME (1) | DOCKET NUMBER (2) | LER NUMBER (6) | | | PAGE (3) |
|-------------------|-------------------|----------------|-------------------|-----------------|-------------|
| St. Lucie Unit 2 | 05000389 | YEAR | SEQUENTIAL NUMBER | REVISION NUMBER | Page 4 of 4 |
| | | 2000 | - 001 | - 00 | |

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operation of Cycle 11 remained within the design basis of the plant. Additionally, the MSSV safety functions were not negatively impacted or degraded. Therefore, this condition had no adverse impact on the health and safety of the public.

Corrective Actions

1. V8203 was removed, shipped offsite, reworked by Crosby, recertified by Wyle, and will be reinstalled during the ongoing SL2-12 outage via WO 30007410 01.

Additional Information

Failed Components Identified

Manufacturer: Crosby

Model Number: Style HA-55-FN, size 6R10, direct acting, spring loaded, open bonnet valves

Component: main steam safety relief valves

Similar Events

LER 50-335/1999-008, "As Found Cycle 15 Pressurizer Safety Valve Setpoint Outside Technical Specification Limits."

LER 50-335/1999-004, "Main Steam Safety Valves Surveillance Outside Technical Specification Requirements."

LER 50-389/1999-004, " As-Found Cycle 10 Pressurizer Safety Valve Setpoints Outside TS Limits."