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DEC 19 2017

Docket No.: 50-364

NL-17-2107

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D. C. 20555-0001

Joseph M. Farley Nuclear Plant – Unit 2  
Licensee Event Report 2017-002-00  
Main Steam Safety Valve Lift Pressure Outside of  
Technical Specifications Limits

Ladies and Gentlemen:

In accordance with the requirements of 10 CFR 50.73(a)(2)(i)(B), Southern Nuclear Company is submitting the enclosed Licensee Event Report for Unit 2.

This letter contains no NRC commitments. If you have any questions regarding this submittal, please contact Mandy Ludlam at (334) 814-4930.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Dennis R. Madison".

D.R. Madison  
Vice President - Farley

DRM/mml/cbg

Enclosure: Unit 2 Licensee Event Report 2017-002-00

Cc: Regional Administrator, Region II  
NRR Project Manager – Farley Nuclear Plant  
Senior Resident Inspector – Farley Nuclear Plant  
RTYPE: CFA04.054

**Enclosure**

**Joseph M. Farley Nuclear Plant**

**Unit 2 Licensee Event Report 2017-002-00**

**Main Steam Safety Valve Lift Pressure Outside of  
Technical Specifications Limits**

**LICENSEE EVENT REPORT (LER)**

(See Page 2 for required number of digits/characters for each block)

(See NUREG-1022, R.3 for instruction and guidance for completing this form)

<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/>

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Information Services Branch (T-2 F43), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to [InfoCollects.Resource@nrc.gov](mailto:InfoCollects.Resource@nrc.gov), and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose 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.

**1. FACILITY NAME**

Joseph M. Farley Nuclear Plant, Unit 2

**2. DOCKET NUMBER**

05000 364

**3. PAGE**

1 OF 3

**4. TITLE**

Main Steam Safety Valve Lift Pressure Outside of Technical Specifications Limits

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
11	01	2017	2017	002	00	12	19	2017	FACILITY NAME	DOCKET NUMBER
9. OPERATING MODE										
11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)										
6			<input type="checkbox"/> 20.2201(b)		<input type="checkbox"/> 20.2203(a)(3)(i)		<input type="checkbox"/> 50.73(a)(2)(ii)(A)		<input type="checkbox"/> 50.73(a)(2)(vii)(A)	
			<input type="checkbox"/> 20.2201(d)		<input type="checkbox"/> 20.2203(a)(3)(ii)		<input type="checkbox"/> 50.73(a)(2)(ii)(B)		<input type="checkbox"/> 50.73(a)(2)(viii)(B)	
			<input type="checkbox"/> 20.2203(a)(1)		<input type="checkbox"/> 20.2203(a)(4)		<input type="checkbox"/> 50.73(a)(2)(iii)		<input type="checkbox"/> 50.73(a)(2)(ix)(A)	
			<input type="checkbox"/> 20.2203(a)(2)(i)		<input type="checkbox"/> 50.36(c)(1)(i)(A)		<input type="checkbox"/> 50.73(a)(2)(iv)(A)		<input type="checkbox"/> 50.73(a)(2)(x)	
10. POWER LEVEL			<input type="checkbox"/> 20.2203(a)(2)(ii)		<input type="checkbox"/> 50.36(c)(1)(ii)(A)		<input type="checkbox"/> 50.73(a)(2)(v)(A)		<input type="checkbox"/> 73.71(a)(4)	
			<input type="checkbox"/> 20.2203(a)(2)(iii)		<input type="checkbox"/> 50.36(c)(2)		<input type="checkbox"/> 50.73(a)(2)(v)(B)		<input type="checkbox"/> 73.71(a)(5)	
			<input type="checkbox"/> 20.2203(a)(2)(iv)		<input type="checkbox"/> 50.46(a)(3)(ii)		<input type="checkbox"/> 50.73(a)(2)(v)(C)		<input type="checkbox"/> 73.77(a)(1)	
			<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)(D)		<input type="checkbox"/> 73.77(a)(2)(i)	
			<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)(vii)		<input type="checkbox"/> 73.77(a)(2)(ii)	
			<input type="checkbox"/> 50.73(a)(2)(i)(C)		<input type="checkbox"/> OTHER		Specify in Abstract below or in NRC Form 366A			

**12. LICENSEE CONTACT FOR THIS LER**

## LICENSEE CONTACT

Mandy Ludlam, Licensing Engineer

## TELEPHONE NUMBER (Include Area Code)

(334) 814-4930

**13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT**

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
E	SB	RV	D245	Y					

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

MONTH	DAY	YEAR

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

On November 1, 2017, while in Mode 6 and at 0% power level, one of the C Loop Main Steam Safety Valves (MSSV) as-found lift pressure did not meet the acceptance criteria of +/- 3% of the setpoint (1129 psig) as required by Technical Specifications (TS) Surveillance Requirement (SR) 3.7.1.1. The MSSV lifted at 1171 psig which is 9 psig outside of its acceptance range of 1096 to 1162 psig and 3.72% above its setpoint. The apparent cause of exceeding the MSSV upper acceptance limit is degradation of the valve spring and/or valve spindle compression screw. The as-found settings remained within analytical bounds; therefore, operation of the facility in this condition had no impact on the health and safety of the public.

TS Limiting Condition for Operation (LCO) 3.7.1, MSSVs, requires five MSSVs per steam generator to be operable in Modes 1, 2, and 3. Since the failure affected the lift pressure over a period of time, it is assumed that the C Loop MSSV was inoperable for a time greater than allowed by TS. Therefore, this occurrence is considered reportable per 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by TS.

The C Loop MSSV was replaced on November 5, 2017, while in Mode 5.



**LICENSEE EVENT REPORT (LER)  
CONTINUATION SHEET**

(See NUREG-1022, R.3 for instruction and guidance for completing this form  
<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/>)

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1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
Joseph M. Farley Nuclear Plant, Unit 2	05000- 364	YEAR 2017	SEQUENTIAL NUMBER - 002	REV NO. - 00

**NARRATIVE****EVENT DESCRIPTION:**

On November 1, 2017, while in Mode 6 and at 0% power level for refueling outage 2R25, with the Reactor Coolant System (RCS) at atmospheric pressure and 84 degrees Fahrenheit, one of the C Loop Main Steam Safety Valves (MSSV) as-found lift pressure did not meet the acceptance criteria of +/- 3% of setpoint (1129 psig) as required by Technical Specifications (TS) Surveillance Requirement (SR) 3.7.1.1 when tested by an off-site testing facility per their testing guidelines and in accordance with plant procedures. The MSSV lifted high at 1171 psig which is 9 psig outside of its acceptance range of 1096 to 1162 psig and 3.72% above its setpoint. The +/- 3% as-found lift pressure requirement is an ASME Section III, 1971 edition, and Farley Technical Specification (TS) requirement to ensure that the MSSV provides adequate protection by preventing the steam pressure from exceeding 110 percent of the main steam system design pressure.

**EVENT CAUSE ANALYSIS:**

Evaluation of failures of a B Loop MSSV in 2010 and 2013 concluded there was inadequate preventive maintenance inspections on the MSSVs. As a result, a 10.5-year inspection and refurbishment preventative maintenance task was created with a comprehensive plan to inspect and replace the subcomponent in all MSSVs. Each MSSV was scheduled for inspection and replacement of valve disk/material and spindle compression screw assembly with dampened vibration. The C Loop MSSV was the last remaining valve to be inspected and rebuilt as part of this comprehensive plan. The valve removed from the C Loop MSSV location had been tested satisfactorily prior to refueling outage 2R24 and was not part of the In-Service Testing (IST) scope for 2R25. It was removed and tested in 2R25 as part of the comprehensive plan. The apparent cause of exceeding the MSSV upper acceptance limit is degradation of the valve spring and/or valve spindle compression screw. The as-found settings remained within analytical bounds; therefore, operation of the facility in this condition had no impact on the health and safety of the public.

**REPORTABILITY AND SAFETY ASSESSEMENT:**

This event is reportable in accordance with 10CFR50.73(a)(2)(i)(B). The applicable accident/transient analyses requires five MSSVs per Steam Generator (SG) to provide overpressure protection for design basis transients occurring at 102% Rated Thermal Power. The MSSVs also provide a heat sink for the RCS if the main condenser is unavailable and the atmospheric dump valves cannot relieve steam line pressure. Operability of the MSSVs is defined as the ability to open within the setpoint range, relieve SG overpressure, and re-seat when pressure has been reduced, and is determined by periodic surveillance testing. On November 1, 2017, a C Loop MSSV was found outside of its required setpoint range; therefore, it failed its as-found testing criteria and was declared inoperable. The apparent cause determined that the failure was due to degradation of the valve spring and/or valve spindle compression screw. This degradation is not normal drift; therefore, the valve may have been inoperable during past operation. As it is not possible to determine when the valve would have exceeded the setpoint range, the C Loop MSSV was determined to be inoperable for greater than the TS allowed completion time. Based on the MSSV as-found lift setpoint being less than 110% of design Steam Generator pressure (1194 psig), this one MSSV failure would not have resulted in a loss of safety function. Therefore, this condition is not reportable under 10CFR50.73(a)(2)(v) as a safety system functional failure.

**CORRECTIVE ACTIONS:**

The C Loop MSSV was replaced on November 5, 2017, while in Mode 5.



# **LICENSEE EVENT REPORT (LER) CONTINUATION SHEET**

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Joseph M. Farley Nuclear Plant, Unit 2	05000- 364	YEAR 2017	SEQUENTIAL NUMBER - 002	REV NO. - 00

## **NARRATIVE**

### **PREVIOUS SIMILAR EVENTS:**

One of the B Loop MSSVs lifted low outside of the +/- 3% lift pressure requirement in 2010 and lifted high outside of +/- 3% lift pressure requirement in 2013. An analysis of both failures identified inadequate preventive maintenance inspections on the MSSVs. Refurbishment of the C Loop MSSV was initiated as a corrective action from the analysis of the previous events on the B Loop MSSV.

### **OTHER SYSTEMS AFFECTED:**

No other systems were affected by this event.