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Docket No.: 50-364

NL-17-2123

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

Joseph M. Farley Nuclear Plant – Unit 2
Licensee Event Report 2017-004-00
Turbine-Driven Auxiliary Feedwater Pump Steam Admission Valve Air Leak Resulted in a Condition Prohibited by Technical Specifications

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,

D.R. Madison
Vice President - Farley

DRM/mml/cbg

Enclosure: Unit 2 Licensee Event Report 2017-004-00

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

IE22
NRR

Joseph M. Farley Nuclear Plant – Unit 2
Licensee Event Report 2017-004-00
Turbine-Driven Auxiliary Feedwater Pump Steam Admission Valve Air Leak Resulted in a Condition Prohibited by Technical Specifications

Enclosure

Unit 2 Licensee Event Report 2017-004-00

NRC FORM 366 (04-2017) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 03/31/2020

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, 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.

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/)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Joseph M. Farley Nuclear Plant, Unit 2	05000 364	1 OF 3

4. TITLE

Turbine-Driven Auxiliary Feedwater Pump Steam Admission Valve Air Leak Resulted in a Condition Prohibited by Technical Specifications

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
										05000
10	31	2017	2017	- 004 -	00	12	22	2017	FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)			
6	☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
	☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
	☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
	☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
10. POWER LEVEL	☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
	☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
	☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(C)	☐ 73.77(a)(1)
000	☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(D)	☐ 73.77(a)(2)(i)
	☐ 20.2203(a)(2)(vi)	☑ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(vii)	☐ 73.77(a)(2)(ii)
		☐ 50.73(a)(2)(i)(C)	☐ OTHER Specify in Abstract below or in NRC Form 366A	

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT	TELEPHONE NUMBER (Include Area Code)
Mandy Ludlam, Licensing Engineer	(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	FCV	V085	Y					

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

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

On October 31, 2017, while in Mode 6 and at 0% power level, the Turbine-Driven Auxiliary Feedwater (TDAFW) pump B-Train steam admission valve from the 2C Steam Generator failed to meet Technical Specification (TS) Surveillance Requirement (SR) 3.7.5.5. This SR requires that the valve's associated air accumulator provide sufficient air to ensure operation of the TDAFW pump during a loss of power or other failure of the normal air supply.

During the performance of a flow scan analysis it was identified that the air-operated actuator piston was leaking by the actuator o-ring. Although the steam admission valve would stroke open, the 2-hour acceptance criteria could not be met. It is likely that the steam admission valve was inoperable longer than allowed by the Required Action Statement (7 days) following the spring 2016 refueling outage when it passed its last associated surveillance. Therefore, this condition is being reported in accordance with 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by TS.

Corrective actions included actuator repair during the outage and further evaluating the preventive maintenance frequency.

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/)

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Joseph M. Farley Nuclear Plant, Unit 2	05000- 364	2017	- 004	- 00

NARRATIVE

EVENT DESCRIPTION:

On October 31, 2017, while in Mode 6 and at 0% power, with the Reactor Coolant System (RCS) at atmospheric pressure and 83 degrees Fahrenheit, the Turbine-Driven Auxiliary Feedwater (TDAFW) pump B-Train steam admission valve (EIIS: SB/FCV) from the 2C Steam Generator failed to meet Technical Specification (TS) Surveillance Requirement (SR) 3.7.5.5. This SR verifies that the air stored in TDAFW pump steam admission valve accumulators is sufficient to open their associated train's steam admission valves. Each steam admission valve has an air accumulator associated with it. The accumulators provide sufficient air to ensure the operation of the steam admission valves for the TDAFW pump during a loss of power or other failure of the normal air supply for a period of two hours.

During the performance of a flow scan analysis it was identified that the B-Train steam admission valve actuator was leaking by the o-ring. Although the steam admission valve would stroke open, the 2-hour acceptance criteria for using only the associated accumulator could not be met. It is likely that the steam admission valve was inoperable longer than allowed by the Required Action Statement (7 days) following the spring 2016 refueling outage when it last passed its associated surveillance.

EVENT ANALYSIS:

While performing a flow scan of the TDAFW pump steam admission valve during the fall 2017 refueling outage, the actuator piston cylinder was discovered to be leaking >10 psig per minute with acceptance criteria of <3 psig per minute. An actuator rebuild was completed on November 8, 2017. The steam admission valve actuator o-ring was replaced as part of the actuator rebuild. The o-ring failure was determined to be a cause of the event.

REPORTABILITY AND SAFETY ASSESSMENT:

During the performance of a flow scan analysis it was identified that the B-Train steam admission valve actuator was leaking by the o-ring. Although the steam admission valve would stroke open, the 2-hour acceptance criteria for using only the associated accumulator could not be met. Therefore, this condition is being reported in accordance with 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by TS.

The Auxiliary Feedwater (AFW) system trains are configured into two flow paths, one for the motor-driven pumps and one for the turbine-driven pump. The AFW system is considered OPERABLE when the components and flow paths providing redundant AFW flow to the steam generators are OPERABLE. In addition, the TDAFW pump is required to be OPERABLE with redundant steam supplies from each of two main steam lines upstream of the main steam isolation valves and shall be capable of supplying AFW to any of the steam generators via its associated flow path.

Although the B-Train steam admission valve accumulator was incapable of maintaining the steam admission valve open for two hours, the redundant A-Train steam admission valve was capable of performing the required function. During the previous cycle, there were no instances where both motor-driven AFW trains were rendered INOPERABLE at the same time. To further support continued operation of AFW, both trains of steam admission valves to the TDAFW pump have emergency air compressors capable of being aligned by operations to support motive operation of the steam admission valves. With the ability to operate the TDAFW pump from the A-Train steam admission valve, and having a redundant train of AFW (motor-driven), the safety function of the AFW system was met.

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/)

1. FACILITY NAME	2. DOCKET NUMBER		3. LER NUMBER		
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Joseph M. Farley Nuclear Plant, Unit 2	05000-	364	2017	- 004	- 00

NARRATIVE

CORRECTIVE ACTIONS:

The actuator repair began on October 31, 2017, and was completed by maintenance work order on November 8, 2017. Further investigation of the preventive maintenance (PM) for diagnostic testing and actuator rebuild of the steam admission valves identified the current PM frequency was 6 years. This PM was last completed in November 2014. Based on the failure of the actuator piston o-ring, the site is evaluating frequency changes per the PM change process.

Following repair, the valve as-left testing acceptance criteria was per ASME OM Code 2001 Edition-2003 Addenda, Section ISTC-3310, "When a valve or its control system has been replaced, repaired, or has undergone maintenance that could affect the valves performance, a new reference value shall be determined or the previous value re-confirmed." The steam admission valve was functionally tested per plant procedures and was left in the acceptable range in accordance with the In-Service Testing (IST) program.

PREVIOUS SIMILAR EVENTS:

No similar events were identified related to the accumulators or steam admission valves.

OTHER SYSTEMS AFFECTED:

No other systems were affected, other than those listed in this LER.