10 CFR 50.73
L-2021-229
December 2, 2021

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

RE: Turkey Point Unit 3
Docket No. 50-250
Reportable Event: 2021-003-00
Date of Event: October 9, 2021
Title: Auxiliary Feedwater Actuation due to Feedwater Isolation During Plant Shutdown

The attached Licensee Event Report 05000250/2021-003-00 is submitted pursuant to 10 CFR 50.73 (a)(2)(iv)(A), due to automatic actuation of the Auxiliary Feedwater System.

If there are any questions, please call Mr. Robert Hess at 305-246-4112 or e-mail Robert.Hess@fpl.com.

Sincerely,

M.D. Pearce

Michael Pearce
Site Vice President – Turkey Point Nuclear Plant
Florida Power & Light Company

Attachments: USNRC Forms 366 and 366A, current revision

cc: USNRC Senior Resident Inspector, Turkey Point Plant
USNRC Regional Administrator, Region II

NRC FORM 366 (08-2020) | U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

(See Page 3 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/)

APPROVED BY OMB: NO. 3150-0104 **EXPIRES: 08/31/2023**

1. Facility Name	2. Docket Number	3. Page
Turkey Point Unit 3	05000 250	1 OF 3

4. Title

Auxiliary Feedwater Actuation due to Feedwater Isolation During Plant Shutdown

5. Event Date			6. LER Number			7. Report Date			8. Other Facilities Involved	
Month	Day	Year	Year	Sequential Number	Revision No.	Month	Day	Year	Facility Name	Docket Number
10	09	2021	2021	- 003 -	00	12	02	2021		05000
									Facility Name	Docket Number
										05000

9. Operating Mode	10. Power Level
Mode 3	0

11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: *(Check all that apply)*

10 CFR Part 20	☐ 20.2203(a)(2)(vi)	☐ 50.36(c)(2)	☑ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(A)	**10 CFR Part 73**
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.69(g)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(4)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(i)	**10 CFR Part 21**	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	☐ 73.77(a)(1)(i)
☐ 20.2203(a)(2)(ii)	☐ 21.2(c)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)	☐ 73.77(a)(2)(i)
☐ 20.2203(a)(2)(iii)	**10 CFR Part 50**	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)	☐ 73.77(a)(2)(ii)
☐ 20.2203(a)(2)(iv)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)	
☐ 20.2203(a)(2)(v)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)	

☐ **OTHER** (Specify here, in abstract, or NRC 366A).

12. Licensee Contact for this LER

Licensee Contact	Phone Number (Include area code)
David Stoia - Licensing Engineer	305-246-6538

13. Complete One Line for each Component Failure Described in this Report

Cause	System	Component	Manufacturer	Reportable to IRIS		Cause	System	Component	Manufacturer	Reportable to IRIS
B	SJ	FCV		Y						

14. Supplemental Report Expected		15. Expected Submission Date	Month	Day	Year
☑ No	☐ Yes (If yes, complete 15. Expected Submission Date)				

16. Abstract (Limit to 1560 spaces, i.e., approximately 15 single-spaced typewritten lines)

On 10/9/2021 at 03:00, with Unit 3 in Mode 3 at 0% power, an actuation of the Auxiliary Feedwater (AFW) system occurred when level in the 3A Steam Generator increased to 80%, causing a Feedwater isolation signal, which tripped the running Steam Generator Feedwater Pump. The AFW system automatically started in response to the trip of the last running feedwater pump. All systems responded as designed to the 3A S/G high level condition. This event is reportable pursuant to 10 CFR 50.73(a)(2)(iv)(A) as a condition that resulted in the auto-start of the AFW system.

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.
Turkey Point Unit 3	05000- 250	2021	- 003	- 00

NARRATIVE

EVENT DESCRIPTION

On 10/9/21, while Unit 3 was in Mode 3 during a planned shutdown to commence the Cycle 32 refueling outage, with the 3B Steam Generator Feedwater Pump (SGFP) [SJ, P] in service, high level in the 3A Steam Generator (S/G) [SJ, SG] caused a feedwater isolation signal that tripped the 3B SGFP. The AFW [BA] system automatically actuated as designed in response to the trip of the last running SGFP.

Since Unit 3 was in Mode 3 and reactor subcritical, feedwater supply to the S/Gs was aligned through the bypass feedwater flow control valves [SJ, FCV], with the 3B SGFP in operation. The 3A S/G main feedwater regulating valve FCV-3-478 [SJ, FCV] and the upstream motor-operated isolation valve MOV-3-1407 [SJ, 20] were fully closed. The bypass flow control valves were maintained in manual control as directed by the operating procedure. In response to a gradually increasing level trend in the 3A S/G that was initially identified at approximately 02:40am, adjustments were made to the 3A feedwater bypass flow control valve FCV-3-479 to reduce feedwater flow to the 3A S/G. By 02:50am, the feedwater bypass flow control valve was fully closed and feedwater flow and 3A S/G level continued to increase. At 02:54am the feedwater bypass isolation valve POV-3-477 [SJ, ISV] was fully closed to ensure that 3A S/G feedwater flow was positively secured through the bypass line. Feedwater flow and 3A S/G level continued to increase. At 02:56am level in the 3A S/G reached 80% narrow range, initiating a feedwater isolation signal that tripped the 3B SGFP. AFW automatically actuated in response to the trip of the last running SGFP.

All systems responded as designed to the elevated level condition in the 3A S/G. The AFW system was subsequently secured and plant cooldown was continued in accordance with operating procedures.

CAUSE

The cause of the increasing level trend in the 3A S/G was seat leakage past the 3A S/G main feedwater regulating valve FCV-3-478 and upstream isolation valve MOV-3-1407.

FCV-3-478 was overhauled. The plug, seat adapter, and seals were found degraded, consistent with extended service wear. The normal overhaul PM frequency for the feedwater regulating valves is every 4 refueling outages; however, the frequency for FCV-3-478 had been one-time extended to a 5th outage the previous cycle. The remaining feedwater regulating valves have remained on a 4-outage overhaul PM frequency.

To support its primary function of feedwater isolation (no SGFP in operation), MOV-3-1407 closing torque is set up for condensate pump discharge pressure, which yields a significantly lower differential pressure across the valve seat than SGFP discharge pressure. This can result in the seating surface being less than fully sealed during normal Mode 3 operation when a SGFP is in service. Thus, seat leakage past MOV-3-1407 is expected given the deficiencies identified with FCV-3-478.

SAFETY SIGNIFICANCE

This safety significance of this event was low. All systems and equipment operated as designed in response to high level in the 3A S/G. Reactor Coolant System cooldown remained within procedural limits.

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APPROVED BY OMB: NO. 3150-0104 EXPIRES: 08/31/2023

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
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NARRATIVE

CORRECTIVE ACTIONS

1. FCV-3-478 was overhauled to correct the excessive seat leakage. PM frequency returned to every 4 outages.
2. Performed borescope inspection of MOV-3-1407 seating surfaces and verified no visible deficiencies.
3. Maintenance strategies and valve overhaul PM frequencies will be reviewed for adequacy.
4. A revision to the Operating Procedure was issued that provides guidance to Operations for closing the manual isolation valves if excessive seat leakage becomes evident during plant startup and shutdown.

ADDITIONAL INFORMATION

EIIS Codes are shown in the format [IEEE system identifier, component function identifier, second component function identifier (if appropriate)].

SIMILAR EVENTS

A review of automatic AFW start events over the previous 5 years was performed to identify similar events or patterns. Although automatic AFW actuation normally occurs in Mode 3 after a trip from higher power levels due to S/G level shrink, these events are not caused or influenced by valve seat leakage. No events were identified that involved an automatic AFW actuation that was potentially caused by feedwater flow control valve seat leakage.