Entergy Operations, Inc.
17265 River Road
Killona, LA 70057-3093
Tel 504 739 6685
Fax 504 739 6698
jjarrel@entergy.com

John P. Jarrell III
Manager, Regulatory Assurance
Waterford 3

10 CFR 50.73

W3F1-2018-0012

February 20, 2018

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

Subject: Licensee Event Report (LER) 2018-001-00
Failure to Enter Limiting Condition of Operation Action Statement due to Lack of Procedure Guidance Results in a Condition Prohibited by Technical Specifications
Waterford Steam Electric Station, Unit 3 (Waterford 3)
License No. NPF-38
Docket No. 50-382

Dear Sir or Madam:

The attached report is being sent pursuant to 10 CFR 50.73.

There are no regulatory commitments contained in this correspondence.

Should you have questions regarding this report, please contact John P. Jarrell, Regulatory Assurance Manager, at (504) 739-6685.

Sincerely,

John Jarrell
Regulatory Assurance Manager

JPJ/MMZ

Attachment: LER 2018-001-00

cc: Mr. Kriss Kennedy, Regional Administrator
U.S. NRC, Region IV
RidsRgn4MailCenter@nrc.gov

U.S. NRC Project Manager for Waterford 3
April.Pulvirenti@nrc.gov

U.S. NRC Senior Resident Inspector for Waterford 3
Frances.Ramirez@nrc.gov
Chris.Speer@nrc.gov

Attachment

to

W3F1-2018-0012

Licensee Event Report 2018-001-00

(4 pages)

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

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

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
Waterford Steam Electric Station, Unit 3	05000382	1 OF 4

4. TITLE

Failure to Enter Limiting Condition of Operation Action Statement due to Lack of Procedure Guidance Results 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
12	20	2017	2018	- 001	- 00	2	20	2018	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: *(Check all that apply)*			
1	☐ 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)
100	☐ 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)*
John Jarrell - Manager, Regulatory Assurance	(504) 739-6685

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

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 December 8, 2017, at 1112 CST, Waterford 3 declared Containment Purge and Exhaust Isolation Area Radiation Monitor (ARM) ARM-IRE-5026 inoperable. Redundant instrument ARM-IRE-5025 was already inoperable and Technical Specification (TS) 3.3.3.1, "Radiation Monitoring Instrumentation," action b. was entered due to the minimum instrumentation requirements of the TS were not met. On December 11, 2017 at 1907 CST, ARM-IRE-5025 was returned to service and TS 3.3.3.1 action b. was exited. During the time that ARM-IRE-5025 and -5026 were inoperable (79 hours and 55 minutes), plant personnel believed that they were complying with the appropriate actions per TS 3.3.3.1; however, it was determined on December 20, 2017 that the actions of TS 3.6.3, "Containment Isolation Valves," should also have been complied with, resulting in a condition prohibited by TS.

The cause of this event was personnel failed to realize that TS 3.6.3 actions needed to be applied for the condition. Surveillance Requirement (SR) 4.6.3.2 could not be met with the inoperable instrumentation, requiring application of the TS 3.6.3 actions. Guidance that is included in the TS basis was not incorporated into the plant procedure that exists to assist with applying TS actions. Corrective action to add clarification to plant procedures to comply with TS 3.6.3 actions if the instrument requirements are not met has been completed.

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EVENT DESCRIPTION

A. Plant Status

During the time that both of the Channel 'A' Containment Purge and Exhaust Isolation Area Radiation Monitors (ARMs) were inoperable, Waterford 3 was in Mode 1 at 100% reactor power. There were no other structures, systems or components out of service that contributed to this event.

B. Event Chronology

On December 8, 2017, at 1112 CST, ARM-IRE-5026 [RI] was declared inoperable. ARM-IRE-5025 [RI], the redundant channel 'A' instrument, was already inoperable. Technical Specification (TS) 3.3.3.1, "Radiation Monitoring Instrumentation," action b. was entered due to the minimum instrumentation requirements of the TS were not met. On December 11, 2017 at 1907 CST, ARM-IRE-5025 was returned to service and TS 3.3.3.1 was exited.

On December 20, 2017, it was determined that the actions of TS 3.6.3, "Containment Isolation Valves," should have been complied with (in addition to TS 3.3.3.1). These actions state that with the isolation valve(s) inoperable, maintain at least one isolation valve OPERABLE in each affected penetration that is open and either: e. Restore the inoperable valve(s) to OPERABLE status within 4 hours, or f. Isolate each affected penetration within 4 hours by use of at least one deactivated automatic valve secured in the isolation position and verify the affected penetration flow path is isolated once per 31 days, or g. Isolate each affected penetration within 4 hours by use of at least one closed manual valve or blind flange and verify the affected penetration flow path is isolated once per 31 days, or h. Be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

This condition is reportable pursuant to 10 CFR 50.73(a)(2)(i)(B), Operation or Condition Prohibited by TS, because the condition existed for 79 hours and 55 minutes, which is longer than the TS 3.6.3 total allowed restoration and shutdown outage time of 10 hours.

C. Event Causes

The cause of this event was personnel failed to realize that TS 3.6.3 actions needed to be applied for the condition where both of the channel 'A' Containment Purge and Exhaust Isolation ARMs were inoperable. As currently amended, TS 3.3.3.1 action b. requires that when the minimum Containment Purge and Exhaust Isolation ARMs are not operable, the actions per TS 3.9.4 "Containment Building Penetrations," are to be complied with. TS 3.9.4 is only applicable during CORE ALTERATIONS or load movements with or over irradiated fuel within the containment, therefore personnel believed that they were complying with the actions since the plant was not refueling. However, clarification is provided in the TS 3.9.4 basis, which states that when in Modes 1-4, the operability of the containment is maintained per TS 3.6.1, "Primary Containment." The basis for TS 3.6.1.7, "Containment Ventilation System," includes guidance to apply TS 3.6.3 for the condition that Waterford 3 was in with both channel 'A' Containment Purge and Exhaust Isolation ARMs inoperable. A review of the TS amendment history determined that this guidance for applying the TS was introduced when TS Amendment 231 was implemented. This guidance should have been incorporated into the plant procedure that exists to assist with applying TS actions. Personnel failed to realize that the plant condition required applying Surveillance Requirement (SR) 4.0.1 due to SR 4.6.3.2 could not be met with the inoperable instrumentation. SR 4.0.1 requires that SRs shall be met during the MODES or other specified conditions in the Applicability for individual Limiting Conditions for Operation, unless otherwise stated in the Surveillance.

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SR 4.6.3.2 requires that each containment isolation valve shall be demonstrated OPERABLE by verifying that on a containment Radiation-High test signal, each containment purge valve actuates to its isolation position. Because the channel 'A' Containment Purge and Exhaust Isolation ARMs were both inoperable, this surveillance requirement could not be met, and the related containment isolation valves [CAP-103 (Containment Purge Inlet Inside Annulus), CAP-104 (Containment Purge Inlet Inside Containment), and CAR-200B (Containment Atmospheric Release Exhaust Header 'B' Pressure Control Inlet)] [ISV] should have been declared inoperable and the actions of TS 3.6.3 should have been complied with.

CORRECTIVE ACTIONS

1) Add clarification to plant procedures to add guidance to comply with TS 3.6.3 actions if the Containment Purge and Exhaust Isolation ARMs operability requirement is not met. (Completed)

2) Perform an extent of condition review for any similar TS that need to be entered when applying SR 4.0.1 for related systems. Include additional guidance in procedures to assist with applying TS as needed.

SAFETY EVALUATION

The objectives of the Area Radiation Monitoring System during postulated accidents are to provide the capability to alarm and initiate a Containment Purge Isolation Signal (CPIS) in the event of a loss-of-coolant accident (LOCA), fuel handling accident, or abnormally high radiation inside the containment. The CPIS is generated by the use of three local radiation monitors in each of the safety channels 'A' & 'B'. ARM-IRE-5025 and ARM-IRE-5026 (located inside the containment) and plant stack radiation monitor PRM-IRE-0100.1 [RI] generate the channel 'A' signal. One-out-of- three logic in each channel provides the CPIS, which acts as a permissive input for manual opening and automatic closing of the valves.

In this event, ARM-IRE-5025 and ARM-IRE-5026 were both inoperable. PRM-IRE-0100.1 remained operable and would have generated a channel 'A' CPIS. There was no loss of safety function. Although the action to deactivate the automatic valves was not taken, all valves associated with the channel 'A' CPIS (CAP-103, CAP-104, and CAR-200B) remained closed at all times. CAP-102 (normally closed) [ISV] remained available to automatically isolate the purge inlet line (Note: CAP-102 is not a Containment Isolation Valve and is not required by the TS; however, it receives a channel 'B' CPIS and is tested per plant procedures.) For the containment atmospheric release exhaust header line, CAR-202B (normally closed) [ISV] remained available to automatically isolate the line. In addition, the automatic closure capability of these containment isolation valves on a Containment Isolation Actuation Signal remained available in the event of a Loss-of-Coolant Accident.

Event history for the past three years was reviewed for similar events. It was identified that there was one additional instance where TS 3.3.3.1 was entered for this condition when both containment purge radiation instruments in a single train were inoperable and TS 3.6.3 should have been complied with. The channel 'B' instruments (ARM-IRE-5024 and -5027) [RI] were both inoperable from August 16, 2017 at 1930 to August 17, 2017 at 1340 (18 hours and 10 minutes). For this event, PRM-IRE-0100.2 remained operable and would have generated a channel 'B' CPIS. There was no loss of safety function. Although the action to deactivate the automatic valves was not taken, all valves associated with the channel 'A' CPIS (CAP-203, CAP-204, and CAR-202B) [ISV] remained closed at all times. CAP-205 (normally closed) [ISV] remained available to automatically isolate the purge inlet line (Note: CAP-205 is not a Containment Isolation Valve and is not required by the TS; however, it receives a channel 'B' CPIS and is tested per plant procedures.) For the

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containment atmospheric release exhaust header line, CAR-200B (normally closed) remained available to automatically isolate the line.

In addition, the automatic closure capability of these containment isolation valves on a Containment Isolation Actuation Signal remained available in the event of a Loss-of-Coolant Accident.

There were no actual consequences to general safety of the public, nuclear safety, industrial safety or radiological safety for this event.

PREVIOUS OCCURRENCES

A review of Waterford 3's LERs for previous similar events for the past 5 years was performed. The LERs listed below are examples of Conditions Prohibited by TS where lack of procedure guidance were the cause were identified. Although they are similar to this event in that the reporting criterion and cause were similar, the corrective actions did not prevent this event because they were related to different TS.

LER 2016-001-00: Incorrect Core Protection Calculator Addressable Constant Entered Because of Inadequate Procedure Resulting in a Condition Prohibited by Technical Specifications

LER 2013-004-00: Technical Specification Violation During Operation in Lower Mode with Reduced Channels of Excore Nuclear Instrumentation