Leia Milster
Manager
Regulatory Assurance
504-739-6250

W3F1-2023-0030 10 CFR 50.73

May 1, 2023

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

Subject: Licensee Event Report 50-382/2023-001-00, Non-Compliance with Technical Specifications Due to pico-ammeter circuit board fluctuations in Containment High Range Radiation Monitor B
Waterford Steam Electric Station, Unit 3
NRC Docket No. 50-382
Renewed Facility Operating License No. NPF-38

Entergy Operations, Inc. (Entergy) submits the enclosed Licensee Event Report (LER) 50-382/2023-001-00 for Waterford Steam Electric Station, Unit 3 (Waterford 3). The event is reportable in accordance with 10 CFR 50.73(a)(2)(i)(B), for any operation or condition which was prohibited by the plant's Technical Specifications.

The LER describes non-compliance with TS 3.3.3.1, Containment High Range Radiation Monitor B exceeded the allowable outage time required by TS table 3.3-6, Action 27.

This letter contains no new commitments.

Should you have any questions concerning this issue, please contact Leia Milster, Manager, Regulatory Assurance, at 504-739-6250.

Respectfully,

Leia Milster

LEM/mrp

Enclosure: Licensee Event Report 50-382/2023-001-00

cc: NRC Region IV Regional Administrator
NRC Senior Resident Inspector – Waterford Steam Electric Station, Unit 3
NRC Project Manager – Waterford Steam Electric Station, Unit 3
Louisiana Department of Environmental Quality

Enclosure

W3F1-2023-0030

Licensee Event Report 50-382/2023-001-00

NRC FORM 366 (03-14-2023) | U.S. NUCLEAR REGULATORY COMMISSION | APPROVED BY OMB: NO. 3150-0104 | EXPIRES: 08/31/2023

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	☒ 050 ☐ 052	00382	1 OF 3

4. Title

Non-Compliance with Technical Specifications due to pico-ammeter circuit board fluctuations in Containment High Range Radiation Monitor B

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	☐ 050	Docket Number
03	02	2023	2023	- 001 -	00	05	01	2023	Facility Name	☐ 052	Docket Number

9. Operating Mode	10. Power Level
1	100

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)	**10 CFR Part 50**	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)	☐ 73.1200(a)
☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)	☐ 73.1200(b)
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)	☐ 73.1200(c)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)	☐ 73.1200(d)
☐ 20.2203(a)(2)(i)	**10 CFR Part 21**	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(A)	**10 CFR Part 73**	☐ 73.1200(e)
☐ 20.2203(a)(2)(ii)	☐ 21.2(c)	☐ 50.69(g)	☐ 50.73(a)(2)(v)(B)	☐ 73.77(a)(1)	☐ 73.1200(f)
☐ 20.2203(a)(2)(iii)		☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ 73.77(a)(2)(i)	☐ 73.1200(g)
☐ 20.2203(a)(2)(iv)		☑ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	☐ 73.77(a)(2)(ii)	☐ 73.1200(h)
☐ 20.2203(a)(2)(v)		☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)		

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

12. Licensee Contact for this LER

Licensee Contact	Phone Number (Include area code)
Leia Milster / Manager, Regulatory Assurance	(504) 739-6250

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	IL	RI	G063	Y	N/A	N/A	N/A	N/A	N/A

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

16. Abstract (Limit to 1326 spaces, i.e., approximately 13 single-spaced typewritten lines)

On March 2, 2023, while operating in Mode 1, at 100% power, Waterford 3 Steam Electric Station Unit 3 (WF3) discovered the Containment High Range Radiation Monitor B (ARMIRE5400B) pico-ammeter circuit board fluctuations could potentially affect operability. Operations removed ARMIRE5400B from service for analysis and testing.

A past operability evaluation determined the cause of ARMIRE5400B pico-ammeter circuit board fluctuations occurred due to a deficiency in the temperature compensating circuit. ARMIRE5400B was inoperable from May 14, 2022, to March 9, 2023, and exceeded its allowable outage time. The pico-ammeter circuit board was replaced, and operability was restored on March 9, 2023.

WF3 Technical Specification (TS) 3.3.3.1, Action b. and pursuant TS Table 3.3-6, require the minimum number of Effluent Accident Monitor channels to be operable in Modes 1, 2, 3, and 4. TS Table 3.3-6, Action 27, require that the radiation monitors be restored to operable status within 72 hours, or initiate the preplanned alternate method of monitoring the appropriate parameter(s).

This condition is reportable under 10CFR 50.73(a)(2)(i)(B), any operation or condition which was prohibited by the plant's Technical Specifications.

1. FACILITY NAME		2. DOCKET NUMBER	3. LER NUMBER		
			YEAR	SEQUENTIAL NUMBER	REV NO.
Waterford Steam Electric Station, Unit 3	■ 050 ☐ 052	00382	2023	- 001	- 00

NARRATIVE

PLANT STATUS

On March 2, 2023, Waterford Steam Electric Station, Unit 3 (WF3) was operating at 100% power in Mode 1. There were no other structures, systems, or components that were inoperable at the time that contributed to the event.

EVENT DESCRIPTION

On March 2, 2023, during an engineering review of Containment High Range Radiation Monitor [RI] B (ARMIRE5400B) performance monitoring data request, it was identified that ARMIRE5400B log pico-ammeter circuit board [CBD] data outputs potentially fluctuated outside acceptance criteria. ARMIRE5400B was declared inoperable 16:24 CST on March 2, 2023 for testing and analysis.

ARMIRE5400B is used to detect and indicate containment radiation levels following an accident. This monitor is capable of detecting a maximum range of 10E8 R/hour. This extended range of activity is monitored during normal and post-accident operations to comply with NUREG-0737 and Regulatory Guide 1.97, Revision 3.

The log pico-ammeter board was removed from ARMIR5400B on March 4, 2023 in order to perform past operability testing. At 11:41 CST on March 9, 2023, a new log pico-ammeter circuit board was installed, calibrated and ARMIRE5400B was returned to service. During testing, the circuit board's environment was intentionally altered while monitoring the output. The output voltage and the monitors output slowly decreased as the temperature increased. The analysis of the as found data of the digital outputs for nearly all decades was outside of the calibration tolerance between 10% to 43%. Testing revealed that the compromised log pico-ammeter temperature compensation circuit [TM] would have previously prevented ARMIRE5400B from performing its specified safety function and was inoperable for the period of May 14, 2022 to March 9, 2023.

Waterford Technical Specification (TS) 3.3.3.1 requires the minimum number of Effluent Accident Monitor channels shown in TS Table 3.3-6 to be operable in Modes 1, 2, 3, and 4. TS 3.3.3.1, Action b, pursuant TS Table 3.3-6 Action 27, require that, with the number of operable channels less than required by the minimum channels operable requirement, either restore the inoperable channel(s) to operable status within 72 hours, or initiate the preplanned alternate method of monitoring the appropriate parameter(s), and if the monitor is not restored to operable status within 7 days after the failure, a special report is required to be submitted in accordance with TS 6.9.2 within 14 days after the failure outlining the actions taken, the cause of the inoperability and the plans and schedule for restoring the system to operable status.

A special report was not submitted due to the condition being corrected.

This event is being reported under 10 CFR 50.73(a)(2)(i)(B) which requires submittal of a Licensee Event Report within 60 days after the discovery for any operation or condition that was prohibited by the plant's technical specifications.

EXTENT OF CONDITION

ARMIRE5400A and B trends were reviewed for the preceding 20 days from the date of discovery, ARMIRE5400A was not displaying the same trends as the B unit. This condition is isolated to ARMIRE5400B. An equipment outage review of ARMIRE5400A and ARMIRE5400B determined the monitors were concurrently inoperable, in aggregate, totaling less than 6 hours for the duration of ARMIRE5400B's inoperability.

SAFETY ASSESSMENT

The actual consequence of the inoperability of ARMIRE5400B was that this radiation monitor was indicating outside of its allowable tolerance. The inoperability condition of ARMIRE5400B resulted in monitor being incapable of performing its TS 3.3.3.1 specified function. This radiation monitor is not described in Chapter 6 or Chapter 15 of the Waterford 3 UFSAR for accident mitigation.

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/)

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

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 FOIA, Library, and Information Collections Branch (T-6 A10M), U. S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by email to Infocollects.Resource@nrc.gov, and the OMB reviewer at: OMB Office of Information and Regulatory Affairs, (3150-0104), Attn: Desk Officer for the Nuclear Regulatory Commission, 725 17th Street NW, Washington, DC 20503; email: oira_submission@omb.eop.gov. The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless the document requesting or requiring the collection displays a currently valid OMB control number.

1. FACILITY NAME		2. DOCKET NUMBER	3. LER NUMBER		
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Waterford Steam Electric Station, Unit 3	■ 050 ☐ 052	00382	2023	- 001	- 00

NARRATIVE

The potential consequence to general safety of the public, nuclear safety, industrial safety, and radiological safety of the inoperability of ARMIRE5400B is the impact on emergency planning. The inoperability of ARMIRE5400B resulted in the inability to enter applicable emergency action levels (EALs) when those criteria are met. The safety significance of an inability to enter an EAL and take appropriate action varies depending on the EAL severity, and the risk if no action is taken is considered Low based on the multiple mitigating or overlapping EALs incorporated in the emergency planning procedures and requirements.

EVENT CAUSES

The ARMIRE5400B log pico-ammeter circuit board fluctuations occurred due to a deficiency in the temperature compensating circuit. The temperature compensating circuit maintains constant current by compensating for internal circuit board temperature.

CORRECTIVE ACTIONS

The ARMIRE5400B log pico-ammeter circuit board was replaced on March 4, 2023. ARMIRE5400B was declared operable on March 9, 2023.

PREVIOUS SIMILAR EVENTS

None.