

Entergy Operations, Inc. River Bend Station 5485 U.S. Highway 61N St. Francisville, LA 70775 Tel 225-381-4374

Kent Scott Site Vice President

10 CFR 50.73

RBG-48140

December 16, 2021

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

Subject: Licensee Event Report 50-458 / 2021-05-00, "Potential Loss of Safety Function due to Inoperable Reactor Core Isolation Cooling Steam Flow Transmitter"

> River Bend Station – Unit 1 NRC Docket No. 50-458 Renewed Facility Operating License No. NPF-47

In accordance with 10 CFR 50.73, enclosed is the subject Licensee Event Report. This document contains no commitments. If you have any questions, please contact Mr. Tim Schenk at 225-381-4177.

Respectfully,

KCS/twf

- Enclosure: Licensee Event Report 50-458 / 2021-05-00, "Potential Loss of Safety Function due to Inoperable Reactor Core Isolation Cooling Steam Flow Transmitter"
- cc: NRC Regional Administrator Region IV NRC Project Manager - River Bend Station NRC Senior Resident Inspector - River Bend Station Louisiana Department of Environmental Quality Public Utility Commission of Texas

Enclosure

RBG-48140

Licensee Event Report 50-458 / 2021-05-00, "Potential Loss of Safety Function due to Inoperable Reactor Core Isolation Cooling Steam Flow Transmitter"

NRC FORM 366 (08-2020) U.S. NUCLEAR REGULATORY LICENSEE EVENT REPORT (See Page 3 for required number of digits/characters (See NUREG-1022, R.3 for instruction and guidance for con https://www.nrc.gov/reading-rm/doc-collections/nuregs						PORT (aracters for e on complete for comple	RY COMMISSION RT (LER) ers for each block) r completing this form egs/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 Collection Branch (T-6 A10M), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail 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; e-mail: <u>oira_submission@omb.eop.gov</u> . 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. Facili River	1. Facility Name River Bend Station – Unit 1								2. Docket Number 3. Page 05000 458 1 ∩ F 3					F3			
4. Title Poter	ntial	_oss of Sa	afety Fu	nction due	to Inop	perable I	Reactor	·Co	ore Is	olation Coolir	ng Steam	Flow	Transm	itter			
5.	Even	t Date	6.	LER Numbe	r	7. Re	eport Dat	te			8	. Other	Facilities	Involved			
Month	Day	Year	Year	Sequential Number	Rev No.	Month	Day	Y	ear	Facility Name NA			05000	Docket	Numbe NA		
10	19	2021	2021	005	00	12	16	20	021	Facility Name		0500		05000	Docket	Numbe	
9. Operat	9. Operating Mode 1							10.	10. Power Level 100%								
A Martinez Al Carto	17 AD-1035		11.	This Report is	Submitte	d Pursuan	at to the R	equir	emen	s of 10 CFR §:	(Check all	hat ap	oly)				
10	CFF	Part 20		20.2203(a)(2	2)(vi)	50.3	36(c)(2)			50.73(a)(2)	iv)(A)	50	0.73(a)(2)(x)			
20.2	201(b)		20.2203(a)(3)(i)			50.46(a)(3)(ii)			50.73(a)(2)(v)(A)		10 CFR Par			rt 73		
20.2	201(d)		20.2203(a)(3)(ii)			50.69(g)			50.73(a)(2)(v)(B)			73.71(a)(4)				
20.2	203(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) □		073	3.77(a)(1)(i	i)			
20.2203(a)(2)(ii)				21.2(c)	50.7	50.73(a)(2)(i)(C)			50.73(a)(2)(vii) 73			/3.77(a)(2)(i)					
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20.2203(a)(2)(iv)				50.36(c)(1)(i)(A)			50.73(a)(2)(ii)(B			50.73(a)(2)(viii)(B)							
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Tim Sc	henl	k, Manage	er – Reg	ulatory As	surance	Э			Phone Number (Include Area Code) 225-381-4177								
				13. Cor	nplete Or	e Line for e	each Com	pone	ent Fai	lure Described in	this Report						
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X		JM	PDT	R36	9	Υ	Y		NA	NA NA		NA			NA		
		14. Supple	mental Re	eport Expect	ed				15 Employed Alexandre Date				Month	Day	<u> </u>	'ear	
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16. Abstr On Oo the Ro degra supply	act (Lir ctobe eacto ded y line	nit to 1560 spa er 19, 202 or Core Is wire insul isolation	aces, i.e., ap 1 at 13: olation (ation co s from c	pproximately 15 40 Centra Cooling (R puld have o occurring.	single-spa I Time CIC) S aused	ced typewrit (CT) wit team Flo a fault v	tten lines) h the ut ow Trai which w	nit in nsm voule	n Mo nitters d hav	de 1 at 100% s was found ve prevented	6 power, in a degra one of th	wire i aded o ne red	nsulation condition lundant	n inside n. The RCIC s	one o team	f	
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most probable cause of the wire insulation degradation is moisture intrusion.

NRC FORM 366A	U.S. NUCLEAR REGUL	ATORY COMMISSION	APPROVED BY OMB: NO. 3150-010		EXPIRES:	08/31/2023			
(See NUREG-102 https://www.nrd	LICENSEE EVENT R CONTINUATION 22, R.3 for instruction and guidance 2.gov/reading-rm/doc-collections/nu	EPORT (LER) SHEET for completing this form aregs/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 FOIA, Library, and Information Collection Branch (T-6 A10M), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail 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 2050; e-mail: <u>oira submission@omb.eop.gov</u> . 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.			NUMBER	3. LER NUMBER					
River Bend Sta	ation – Unit 1	05000- 458		YEAR 2021	SEQUENTIAL NUMBER	REV NO.			

NARRATIVE

EVENT DESCRIPTION

Surveillance test STP-207-4249 performs a channel calibration of the Reactor Core Isolation Cooling (RCIC) [BN] Steam Flow Transmitter [PDT] E31-PDTN084B as required by Technical Specification Surveillance Requirement 3.3.6.1.5-3.i. This Surveillance Test is performed on a 2-year frequency with the last completion documented on 04/21/2019.

On 10/19/2021 transmitter E31-PDTN084B was calibrated, and its performance was determined to be satisfactory by the performance of STP-207-4249. During the performance of the Surveillance Test, Maintenance Technicians identified insulation falling off of the negative wire terminated in the transmitter. The insulation on the positive wire was intact; however, it was discolored. These wires are terminated inside the transmitter and routed through a conduit seal mounted on the transmitter.

This condition could have prevented fulfilment of one of the RCIC steam supply high flow isolation functions. The specified safety function of the transmitter is to detect a break in the common RCIC / Residual Heat Removal (RHR) steam supply line and initiate inboard isolation valve closure. The transmitter provides a 4-20 mA signal to its associated trip unit. The isolation occurs on high steam flow. The degraded insulation did not affect the 4-20 mA signal; however, the transmitter was considered inoperable based on the potential for the bare wire to contact the transmitter housing (ground) during a seismic event. This could result in the signal failing downscale which would prevent the detection of a line break.

A gross failure alarm is received if the signal from the transmitter fails downscale. There were no documented gross failures of E31-PDTN084B over the past three years. There is no work history listed against the transmitter over the past three years other than the surveillance test STP-207-4249 performed on 04/21/2019. Therefore, the only opportunity to observe the wire insulation over the past three years was during the field portion of STP-207-4249 performed on 04/21/2019. STP-207-4249 was satisfactorily completed on 04/21/2019 without any documented degradation of the wiring insulation.

The redundant isolation function, as triggered from RCIC Steam Flow Transmitter E31-PDTN084A, was rendered inoperable for planned surveillance testing on 09/1/2020 from 13:20 to 15:00 CT and again from 15:20 to 16:25 CT. Therefore, this condition could have prevented fulfillment of the safety function for the for the duration of the time the redundant isolation function was rendered inoperable for testing on 09/1/2020. This issue is reportable in accordance with 10 CFR 50.73(a)(2)(v)(C) as any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to control the release of radioactive material.

The degraded wiring insulation on the negative wire was corrected with qualified material on 10/21/2021 08:38 CT.

After the time of discovery, one of the RCIC steam supply high flow isolation functions was determined to be inoperable for 43 hours. The Technical Specifications allow 37 hours of operation in this condition. Therefore, this condition is also reported as an operation prohibited by Technical Specifications in accordance with 10 CFR 50.73(a)(2)(i)(B).

Although this event could have prevented the fulfillment of a safety function, engineering analysis has shown that this condition did not actually prevent fulfillment of a safety function. Therefore, this event is not reportable as a Safety System Functional Failure (SSFF) under the Regulator Assessment Performance Indicator Guideline, NEI 99-02.

NRC FORM 366A U.S. NUCLEAR REGULA	TOBY COMMISSION	APPROVED BY OMB: NO. 3150-010	<u>.</u>	EVDIDES	08/31/0000			
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			2021	- 005	- 00			
SAFETY ASSESSMENT The actual consequence of this event was the potential inability to isolate supply steam to the RCIC system with a high steam flow indication on one channel and a concurrent failure of the redundant isolation system. In this case, the essential safety actions are carried out by equipment of sufficient redundancy so that no single failure of active components can prevent the required actions. The assumption is that the nonaffected channel would perform its safety function during a Design Basis Accident concurrent with a RCIC System Steam Supply Line break. The plant response to this event is bounded by the Updated Safety Analysis Report analysis of a RCIC System Steam Supply Line break concurrent with a Design Basis Accident. There were no actual Nuclear or Radiological safety consequences due to this event. Thus, this event was of minimal significance to the health and safety of the public. EVENT CAUSE The wire insulation degradation was most likely caused by moisture intrusion. CORRECTIVE ACTIONS Complete: The degraded wire insulation condition was corrected with qualified material. Planned Actions Tracked in Corrective Action Program: Validate torque on transmitter conduit bolt. Replace transmitter E31-PDTN084B and document results. Update Surveillance Test Procedure to include a visual inspection of internal wiring insulation for E31-PDTN084B and all EQAR qualified transmitters during channel calibration. PREVIOUS SIMILAR EVENTS None								