



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

Steve Vercelli
Site Vice President

10 CFR 50.73

RBG-48048

October 19, 2020

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

Subject: Licensee Event Report 50-458 / 2020-02-00, "Manual Reactor Scram Due to Reactor Recirculation Pump Trip"

River Bend Station – Unit 1
NRC Docket Nos. 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, Regulatory Assurance Manager, at 225-381-4177.

Respectfully,

A handwritten signature in black ink, appearing to read "Steve Vercelli".

SPV/blj

Enclosure: Licensee Event Report 50-458 / 2020-02-00, "Manual Reactor Scram Due to Reactor Recirculation Pump Trip"

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-48048

**Licensee Event Report 50-458 / 2020-02-00, "Manual Reactor Scram Due to Reactor
Recirculation Pump Trip"**



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/>)

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 e-mail to Infocollcts.Resource@nrc.gov, and the OMB reviewer at: OMB Office of Information and Regulatory Affairs, (3150-0104), Attn: Desk ail: oir_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 River Bend Station	2. Docket Number 05000 458	3. Page 1 OF 2
---	--------------------------------------	--------------------------

4. Title
MANUAL REACTOR TRIP DUE TO REACTOR RECIRCULATION PUMP TRIP

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
08	21	2020	2020	- 02 -	00	10	19	2020	N/A	05000 N/A
									Facility Name	Docket Number
									N/A	05000 N/A

9. Operating Mode 1	10. Power Level 100
-------------------------------	-------------------------------

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

10 CFR Part 20	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.36(c)(2)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	10 CFR Part 73
<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.69(g)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(4)
<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> 73.71(a)(5)
<input type="checkbox"/> 20.2203(a)(2)(i)	10 CFR Part 21	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	<input type="checkbox"/> 73.77(a)(1)(i)
<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 21.2(c)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 73.77(a)(2)(i)
<input type="checkbox"/> 20.2203(a)(2)(iii)	10 CFR Part 50	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	<input type="checkbox"/> 73.77(a)(2)(ii)
<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	
<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)	

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

12. Licensee Contact for this LER

Licensee Contact Tim Schenk, Regulatory Assurance Manager	Phone Number (include area code) 225-381-4177
---	---

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	NA	NA	NA	Yes	NA	NA	NA	NA	NA

14. Supplemental Report Expected				15. Expected Submission Date		
<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes (If yes, complete 15. Expected Submission Date)			Month	Day	Year
				NA	NA	NA

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

On August 21, 2020 at 0908 CT, River Bend Station (RBS) was operating at 100% reactor power when Reactor Recirculation Pump 'B' tripped. At 0918 CT, a manual reactor scram was inserted at 67% reactor power after receiving indications of flux oscillations on the Period Based Detection System (PBDS) and Average Power Range Monitors (APRMs). All control rods fully inserted and there were no complications. All systems responded as designed.

This report is made in accordance with 10 CFR 50.73(a)(2)(iv)(A) for the manual reactor trip.



**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/>)

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 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: oir_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 River Bend Station	2. DOCKET NUMBER 05000- 458	3. LER NUMBER		
		YEAR 2020	SEQUENTIAL NUMBER 02	REV NO. 00

NARRATIVE

EVENT DESCRIPTION

On August 21, 2020 at 0908 hours CT the Reactor Recirculation Pump B tripped. Power lowered to approximately 66% and operators entered GOP-0004, "Single Loop Operation," and AOP-0024, "Thermal Hydraulic Stability Controls."

At 0911 hours extraction steam isolated, leading to lowering level in the 3rd point Feedwater Heater B which caused Heater Drain Pump C to trip on low heater level. This condition led to colder Feedwater temperature being sent to the Reactor. At 0913 hours recirculation flow was lowered to maintain recirculation loop A flow in accordance with Single Loop Operations and Technical Requirement 3.4.1.1.1. The operators began inserting control rods at 0916 hours due to unexpected entry into the Restricted Region of the power to flow map as directed by AOP-0024.

While inserting control rods, alarms were received for Division 1 Period Based Detection System Hi Decay Ratio, Division 2 Period Based Detection System Hi Decay Ration alarm, and Division 2 Period Based Detection System Hi-Hi Decay Ratio. APRM power was observed fluctuating between 62% and 68%.

The Licensed Operator manually tripped the reactor due to indication of rising counts on PBDS.

SAFETY ASSESSMENT

The actual consequence was the initiation of a manual SCRAM. All core responses were as expected and the RBS power to flow map continued to meet the licensing acceptance criteria parameters. There were no actual consequences to general safety of the public, nuclear safety, industrial safety and radiological safety for this event.

EVENT CAUSE

While in single loop operation, slow response of the high-level dump valve, due to debris identified in the air relays, led to low water level in the 3rd point 'B' heater. The low water level in the 3rd point 'B' heater resulted in the trip of the 'C' Heater Drain Pump resulting in colder Feedwater temperature being sent to the Reactor. This condition, combined with being in the Restricted Region of the power to flow map, led to power oscillations.

CORRECTIVE ACTION TO PREVENT RECURRENCE:

- Implement a modification to install air filters upstream of the regulator feeding the positioner to each of the affected AOVs.
- Complete dynamic tuning of the Feedwater Heater Drain System control valves to reduce unnecessary cycling of the AOVs to improve response to changing level demands in the various heaters.

PREVIOUS SIMILAR EVENTS

None.