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Kent Scott  
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10 CFR 50.73

RBG-48095

May 28, 2021

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

Subject: Licensee Event Report 50-458 / 2021-02-00, "Automatic Reactor Scram due to Turbine Control System Communication Fault"

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,

A handwritten signature in black ink, appearing to be "G. J. Schenk", is written over the word "Respectfully,".

KCS/dmw

Enclosure: Licensee Event Report 50-458 / 2021-02-00, "Automatic Reactor Scram due to Turbine Control System Communication Fault"

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-48095**

**Licensee Event Report 50-458 / 2021-02-00, "Automatic Reactor Scram due to Turbine  
Control System Communication Fault"**

<b>NRC FORM 366</b> (08-2020)		<b>U.S. NUCLEAR REGULATORY COMMISSION</b>			<b>APPROVED BY OMB: NO. 3150-0104</b>		<b>EXPIRES: 08/31/2023</b>			
 <b>LICENSEE EVENT REPORT (LER)</b> (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 <a href="https://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/">https://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/</a> )										
<b>1. Facility Name</b> River Bend Station – Unit 1					<b>2. Docket Number</b> 05000 458		<b>3. Page</b> 1 OF 2			
<b>4. Title</b> Automatic Reactor Scram due to Turbine Control System Communication Fault										
<b>5. Event Date</b>			<b>6. LER Number</b>			<b>7. Report Date</b>			<b>8. Other Facilities Involved</b>	
Month	Day	Year	Year	Sequential Number	Rev No.	Month	Day	Year	Facility Name	Docket Number
04	02	2021	2021	- 002 -	00	05	28	2021	NA	05000 NA
								Facility Name NA		Docket Number 05000 NA
<b>9. Operating Mode</b>						<b>10. Power Level</b>				
1						86				
<b>11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: (Check all that apply)</b>										
<b>10 CFR Part 20</b>		<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)		<b>10 CFR Part 73</b>		
<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)		<b>10 CFR Part 21</b>		<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)		<b>10 CFR Part 50</b>		<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)				
<input type="checkbox"/> <b>Other</b> (Specify here, in Abstract, or in NRC 366A).										
<b>12. Licensee Contact for this LER</b>										
Licensee Contact Tim Schenk, Manager – Regulatory Assurance								Phone Number (Include Area Code) 225-381-4177		
<b>13. Complete One Line for each Component Failure Described in this Report</b>										
Cause	System	Component	Manufacturer	Reportable To IRIS	Cause	System	Component	Manufacturer	Reportable To IRIS	
D	JJ	SC	E558	Y	NA	NA	NA	NA	NA	
<b>14. Supplemental Report Expected</b>								<b>15. Expected Submission Date</b>		
<input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes (If yes, complete 15. Expected Submission Date)						Month	Day	Year
								NA	NA	NA
<b>16. Abstract</b> (Limit to 1560 spaces, i.e., approximately 15 single-spaced typewritten lines)										
<p>On April 2, 2021 at 1017 CT, River Bend Station was operating at 86% reactor power when a turbine trip signal caused a Main Turbine trip and an automatic reactor scram. All control rods fully inserted and there were no complications. All systems responded as designed.</p> <p>The Main Turbine trip and reactor scram were caused by a random, spurious communication error within the Ovation Turbine Control System. The condition was repaired by replacing a communication module in the remote panel.</p>										

**LICENSEE EVENT REPORT (LER)  
CONTINUATION SHEET**

(See NUREG-1022, R.3 for instruction and guidance for completing this form  
<https://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/>)

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1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
River Bend Station – Unit 1	05000-458	YEAR	SEQUENTIAL NUMBER	REV NO.
		2021	- 002	- 00

**NARRATIVE****EVENT DESCRIPTION**

On April 2, 2021 at 1017 CT, while operating at 86% reactor power, a random, spurious communication error within the Ovation Turbine Control System (referred to as Ovation) (JJ) caused a Main Turbine (TA) trip and an automatic reactor scram. All control rods fully inserted and there were no complications. All systems responded as designed.

Following the scram, reactor pressure was maintained by the Turbine Bypass Valves (JI) and reactor water level was maintained by the Feedwater (SJ) system.

This event was reported under 10 CFR 50.72(b)(2)(iv)(B), as any event or condition that results in actuation of the Reactor Protection System when the reactor is critical and 10 CFR 50.72(b)(3)(iv)(A) Specified System Actuation as a result of expected post scram level 3 isolations. (EN 55169)

This report is made pursuant to 10 CFR 50.73(a)(2)(iv)(A), any event or condition that resulted in manual or automatic actuation of the Reactor Protection System.

**SAFETY ASSESSMENT**

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. The plant response to this event was bounded by the Updated Safety Analysis Report analysis of a Main Turbine Trip with Steam Bypass Valves/Pressure Regulators in service. Post scram reactor level and pressure control functioned as expected.

**EVENT CAUSE**

This event was caused by a remote communications module that erroneously sent a turbine front standard manual pushbutton trip signal by making the normally energized input appear de-energized.

Investigation into this event identified that communication errors were coming into Ovation from a remote panel following RF-21. These communication errors were causing random, spurious alarms to come in on Ovation. The condition was not detected because the Ovation alarms did not last long enough to trigger a main control room annunciator and there was no procedural guidance to periodically review the Ovation alarm log. After the faulty remote communication module was replaced, system operation returned to normal. This was also determined to be a single point vulnerability.

**CORRECTIVE ACTIONS**

- The defective remote communication module was replaced.
- A temporary modification was installed to eliminate the Front Standard Ovation push button inputs (single point vulnerability) as Turbine trip signals.
- Procedure revisions are planned to provide the following (tracked by Corrective Action Process):
  - Improved Ovation system shutdown and restoration instructions. (Prevents damage to modules)
  - Improved guidance for Ovation alarm monitoring.
  - Direction to place Ovation controllers in service before Turbine shell and chest warming to allow monitoring prior to plant startup.

**PREVIOUS SIMILAR EVENTS**

None