Entergy

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William F. Maguire
Site Vice President

RBG-47754

May 9, 2017

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

Subject: Licensee Event Report 50-458 / 2017-003-00
River Bend Station – Unit 1
Docket No. 50-458
License No. NPF-47

RBF1-17-0053

Dear Sir or Madam:

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.

Sincerely,

WFM / dhw

Enclosure

cc: U. S. Nuclear Regulatory Commission
Region IV
1600 East Lamar Blvd.
Arlington, TX 76011-4511

NRC Sr. Resident Inspector
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St. Francisville, LA 70775

INPO
(via ICES reporting)

IE22
NRR

Central Records Clerk
Public Utility Commission of Texas
1701 N. Congress Ave.
Austin, TX 78711-3326

Department of Environmental Quality
Office of Environmental Compliance
Radiological Emergency Planning and Response Section
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Baton Rouge, LA 70821-4312

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
River Bend Station – Unit 1	05000-458	1 OF 3

4. TITLE

Manual Reactor Scram Initiated in Response to Increase in Steam Pressure During Steam Leak Troubleshooting

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
										05000
03	10	2017	2017	003	00	05	09	2017	FACILITY NAME	DOCKET NUMBER
										05000

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)
15	☐ 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)
	☐ 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)*
Tim Schenk, Manager – Regulatory Assurance	225-381-4177

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
(see text)									

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 March 10, 2017, at approximately 7:14 a.m. CST, the reactor operator manually actuated a reactor scram in response to an abnormal increase in steam pressure. Reactor power was approximately 15 percent at the time. The turbine generator had been synchronized to the grid at 5:13 a.m. on March 10, and was being closely monitored by engineers and operators since a major modification to the turbine electro-hydraulic control (EHC) system had been installed during the recent refueling outage. Approximately 45 minutes prior to the manual scram, a main control room alarm actuated indicating a problem with the EHC system. A few minutes later, it was reported from the turbine building that there was a steam leak in the area of the EHC steam pressure transmitters. Shortly thereafter, reactor pressure began to increase with no demand signal present, at which time the reactor operator initiated the scram. The main feedwater system remained in service, and reactor water level control performed normally as designed. No reactor safety-relief valves actuated. The main turbine bypass valves did not open following the shutdown, and engineering review determined this condition was consistent with the response to the abnormal configuration of the EHC system pressure transmitters created by efforts to isolate the leak locally. Approximately five minutes after the scram, the outboard main steam isolation valves were manually closed to limit the reactor cooldown rate. This event resulted from the incorrect installation of a new compression fitting in the steam pressure instrumentation tubing for the main turbine control system. This event is being reported in accordance with 10 CFR 50.73(a)(2)(iv)(A) as a manual actuation of the reactor protection system.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
River Bend Station – Unit 1	05000-458	2017	003	00

NARRATIVE

REPORTED CONDITION

On March 10, 2017, at approximately 7:14 a.m. CST, the reactor operator manually actuated a reactor scram in response to an abnormal increase in steam pressure. Reactor power was approximately 15 percent at the time, and the turbine generator was on line. The reactor had been taken critical at 4:39 p.m. on March 8 following a refueling outage, and power ascent was in progress. The turbine generator had been synchronized to the grid at 5:13 a.m. on March 10, and was being closely monitored by engineers and operators since a major modification to the turbine electro-hydraulic control (EHC) system [JI] had been installed during the outage.

Approximately 45 minutes prior to the manual scram, a main control room alarm actuated indicating a problem with the EHC system. A few minutes later, it was reported from the turbine building that there was a steam leak in the area of the steam pressure transmitters. The operations shift manager held a briefing with the operators on potential effects of the field observations, the single-point vulnerability of the transmitter configuration, and the possibility of a main turbine trip. Shortly thereafter, reactor pressure began to increase with no demand signal present. This response likely resulted from efforts to isolate the steam leak.

The main feedwater system remained in service, and reactor water level control was performed normally. No reactor safety-relief valves actuated. The main turbine bypass valves did not open following the shutdown, and engineering review determined this condition was consistent with the response to the abnormal configuration of the EHC system pressure transmitters created by efforts to isolate the leak locally. Approximately five minutes after the scram, the outboard main steam isolation valves were manually closed to limit the reactor cooldown rate.

Other than scheduled testing on the Division 1 diesel generator, no safety-related systems were out of service at the time of the scram.

This event is being reported in accordance with 10 CFR 50.73(a)(2)(iv)(A) as a manual actuation of the reactor protection system

INVESTIGATION

During the recent refueling outage, a digital control system had been installed on the main steam turbine bypass / pressure regulation system. Part of that modification involved the installation of a new main turbine steam throttle pressure transmitter (**PT**) near the high pressure turbine. The transmitter was to be installed adjacent to two existing steam pressure transmitters by adding a tee fitting into an existing run of tubing (**TBG**). One of the newly-installed tubing compression fittings separated during efforts to isolate the leak. Examination of the components concluded that the ferrule in the fitting was not fully inserted, and did not compress adequately to engage the surface of the tubing when the nut was tightened.

The tee fitting was installed by two qualified pipefitters who were contracted for the refueling outage, with oversight provided by a contract pipefitter foreman. The field work to complete the fit-up of the tee connection was specified as Quality Control (QC) Hold Point. The contract foreman stated that he was present during the fit-up of the tee connection and that the technicians performed the work as required, fitting each of the three connections and tightening them one at a time starting with the top compression fitting and ending with the bottom connection. When the fittings were tight, he observed the technicians use a gap tool to verify proper gap and engagement of the compression nut on the tee connection body.

CAUSAL ANALYSIS

This event resulted directly from the incorrect installation of the tee compression fitting for the new steam pressure transmitter. A contributing cause was the lack a standard process on how to properly verify compression tubing and fitting engagement is maintained during the tightening process.

CORRECTIVE ACTION TO PREVENT RECURRENCE

A maintenance procedure will be developed to address the proper installation of compression fittings. This action will be tracked in the corrective action program.

PREVIOUS OCCURRENCE EVALUATION

RBS has reported no similar events in the last three years.

SAFETY SIGNIFICANCE

The plant responded as designed to the transient. The response of the main turbine bypass valves resulted from the efforts to isolate the steam leak, and was, by itself, of no consequence to the operators' response to the event. The steam leak was isolated by closure of an instrument valve. The outboard main steam isolation valves were manually closed in accordance with procedures to manage reactor cooldown rate. There were no injuries as a result of the steam leak. This event was, thus, of minimal significance to the health and safety of the public.

(NOTE: Energy Industry Identification System component function identifier and system name of each component or system referred to in the LER are annotated as (**XX**) and [XX], respectively.)