Entergy

Entergy Operations, Inc.
River Bend Station
5485 U. S. Highway 61N
St. Francisville, LA 70775
Tel 225 381 4374
Fax 225 381 4872
eolson@entergy.com

Eric W. Olson
Site Vice President

RBG-47643

January 26, 2016

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

Subject: Licensee Event Report 50-458 / 2015-009-00
River Bend Station – Unit 1
Docket No. 50-458
License No. NPF-47

RBF1-16-0007

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. Joseph Clark at 225-381-4177.

Sincerely,

Eric W. Olson

EWO / dhw

Enclosure

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

NRC Sr. Resident Inspector
P. O. Box 1050
St. Francisville, LA 70775

IE22
NRR

INPO
(via ICES reporting)

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
Ji Young Wiley
P.O. Box 4312
Baton Rouge, LA 70821-4312

NRC FORM 366 (02-2014) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 01/31/2017

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, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

(See Page 2 for required number of digits/characters for each block)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
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4. TITLE

Automatic Reactor Scram Due to Partial Loss of Offsite Power Caused by Fault in Local 230kV Switchyard

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
11	27	2015	2015	- 009	- 00	01	26	2016		05000
									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)(i)(C)	☐ 50.73(a)(2)(vii)
	☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
	☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
	☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
10. POWER LEVEL	☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☑ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
	☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
100	☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
	☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ OTHER
	☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT	TELEPHONE NUMBER *(Include Area Code)*
Joseph A. Clark, 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
n/a									

14. SUPPLEMENTAL REPORT EXPECTED	15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
☑ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)* ☐ NO		05	03	2016

ABSTRACT *(Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)*

On November 27, 2015, at 4:31 a.m. CST, with the plant operating at 100 percent power, an automatic reactor scram occurred following the loss of power to both divisions of the reactor protection system (RPS). This condition resulted from a single-phase fault in the local 230kV switchyard. The initial response of the protective relays for the switchyard caused the breakers connected to the north 230kV bus in the switchyard to trip. The fault caused a voltage transient on the in-plant switchgear sufficient to trip the scram relays in the Division 2 RPS, resulting in a half-scram. The action of the protective relays continued, eventually causing the de-energization of reserve station service line no. 1. This lead to the loss of Division 1 RPS and a full reactor scram. The Division 1 and 3 emergency diesel generators started as designed to restore power to their respective safety-related onsite electrical distribution subsystems. Both trains of the standby gas treatment system started, and the primary containment isolation system logic responded as designed. No safety-related systems were out of service at the time of the scram, and reactor pressure and water level were promptly stabilized. All reactor control rods inserted properly. Multiple actuations of the main steam safety-relief valves (SRVs) occurred during the event. The nuclear steam supply system vendor reported this action was likely due to a localized pressure transient in the SRV instrumentation lines. SRV tailpipe temperature recorders indicated that all valves re-seated correctly following the initial transient. This event is being reported in accordance with 10 CFR 50.73(a)(2)(iv)(A) as an automatic actuation of the reactor protection system, the primary containment isolation logic, and the Division 1 and 3 emergency diesel generators. The root cause of this event remains under investigation. The results of that evaluation will be provided in a supplement to this report.

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NARRATIVE

REPORTED CONDITION

On November 27, 2015, at 4:31 a.m. CST, with the plant operating at 100 percent power, an automatic reactor scram occurred following the loss of power to both divisions of the reactor protection system (RPS). This condition resulted from a single-phase fault in the local 230kV switchyard. The initial response of the protective relays for the switchyard caused the breakers connected to the north 230kV bus in the switchyard to trip. The fault caused a voltage transient on the in-plant switchgear sufficient to trip the scram relays in the Division 2 RPS, resulting in a half-scram. The action of the protective relays continued, eventually causing the de-energization of reserve station service line no. 1. This lead to the loss of Division 1 RPS and a full reactor scram.

The main generator remained online until it was tripped, as designed, by the reverse-power relays when reactor steam pressure was insufficient to drive the main turbine. The Division 1 and 3 emergency diesel generators started as designed to restore power to their respective safety-related onsite electrical distribution subsystems. Both trains of the standby gas treatment system started, and the primary containment isolation system logic responded as designed. No safety-related systems were out of service at the time of the scram, and reactor pressure and water level were promptly stabilized. All reactor control rods inserted properly. The "B" reactor recirculation pump should have automatically downshifted to slow speed, but instead tripped off.

Multiple actuations of the main steam safety-relief valves (SRVs) occurred during the event. The nuclear steam supply system vendor reported this action was likely due to a localized pressure transient in the SRV instrumentation lines. SRV tailpipe temperature recorders indicated that all valves re-seated correctly following the initial transient.

This event is being reported in accordance with 10 CFR 50.73(a)(2)(iv)(A) as an automatic actuation of the reactor protection system, the primary containment isolation logic, and the Division 1 and 3 emergency diesel generators.

INVESTIGATION and IMMEDIATE CORRECTIVE ACTION

When power was restored to both divisions of RPS, the primary containment isolation signal was reset, and the affected systems were restored to service. The isolation had caused a partial loss of the normal service water system, resulting in the automatic actuation of the standby service water system. The isolation had also caused the spent fuel pool cooling pump to trip, and operators aligned the alternate pump for service. The plant was taken to cold shutdown in a controlled manner.

CAUSAL ANALYSIS

The root cause of this event remains under investigation. The results of that evaluation will be provided in a supplement to this report.

CORRECTIVE ACTIONS TO PREVENT RECURRENCE

Long-term corrective actions will be specified by the completed root cause evaluation.

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NARRATIVE

SAFETY SIGNFICANCE

Other than the response of the reactor safety-relief valves and the "B" reactor recirculation pump, the plant responded as designed to the reactor scram. The emergency diesel generators responded as designed, and no conditions requiring the actuation of the emergency core cooling systems occurred. The operators were able to quickly stabilize RPV parameters without complication. This event was of minimal significance with regard to the safety of the public.