Entergy

Entergy Operations, Inc.
River Bend Station
5485 U.S. Highway 61N
St. Francisville, LA 70775

RBG-47669

March 29, 2016

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

Subject: Licensee Event Report 50-458 / 2016-004-00
River Bend Station – Unit 1
Docket No. 50-458
License No. NPF-47

RBF1-16-0037

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,

William F. Maguire
Site Vice President

Enclosure

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

IE22
NRR

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

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

Actuation of the Division 1 Emergency Diesel Generator and Primary Containment Isolation Logic Due to Partial Loss of Offsite Power

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
01	29	2016	2016	004	00	03	29	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)*			
4	☐ 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)
0	☐ 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
na									

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 January 29, 2016, at 1518 CST, with the plant in cold shutdown, power was lost on reserve station service (RSS) line no. 1. This is one of two sources of offsite power required by Technical Specifications. The power loss de-energized the Division 1 onsite AC safety-related switchgear, causing an automatic start of the Division 1 emergency diesel generator (EDG). The Division 1 reactor protection system (RPS) bus was also de-energized, causing a half-scram signal. Approximately 8 minutes later, a full actuation of the RPS occurred due to high water level in the control rod drive hydraulic system scram discharge volume header. All reactor control rods were already fully inserted. The loss of Division 1 RPS also caused the actuation of the Division 1 primary containment isolation logic. The Division 1 isolation valves in the balance-of-plant systems closed as designed. Both trains of the standby gas treatment system actuated. The loss of RSS No. 1 was caused when company transmission department personnel working in the local 230kV switchyard executed a deficient work instruction while modifying relay settings. This event is being reported in accordance with 10 CFR 50.73(a)(2)(iv)(A) as the automatic actuation of the Division 1 EDG, the Division 1 primary containment logic, and the reactor protection system (while subcritical). At the time of the event, the shutdown cooling system was operating on the Division 2 subloop, which was unaffected. The Division 1 EDG performed as designed. This event was, thus, of minimal significance to the health and safety of the public.

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NARRATIVE

REPORTED CONDITION

On January 29, 2016, at 1518 CST, with the plant in cold shutdown, power was lost on reserve station service (RSS) line no. 1. This is one of two sources of offsite power required by Technical Specifications. The power loss de-energized the Division 1 onsite AC safety-related switchgear [EB], causing an automatic start of the Division 1 emergency diesel generator (EDG)(**DG**). The Division 1 reactor protection system (RPS)[JC] bus was also de-energized, causing a half-scram signal. Approximately 8 minutes later, a full actuation of the RPS occurred due to high water level in the control rod drive hydraulic system scram discharge volume header. All reactor control rods were already fully inserted. The loss of Division 1 RPS also caused the actuation of the Division 1 primary containment isolation logic. The Division 1 isolation valves in the balance-of-plant systems closed as designed. Both trains of the standby gas treatment system actuated. This event is being reported in accordance with 10 CFR 50.73(a)(2)(iv)(A) as the automatic actuation of the Division 1 EDG, the Division 1 primary containment logic, and the reactor protection system (while subcritical).

INVESTIGATION AND IMMEDIATE CORRECTIVE ACTIONS

At the time of the event, technicians from the company's transmission department were working in the local 230kV switchyard. A modification was being performed on relay setpoints to implement corrective actions stemming from a reactor scram that occurred on November 27, 2015, caused by a transient on a nearby 230kV transmission line. The investigation of that scram determined that one of two circuit breakers supplying RSS No. 1 tripped too soon during the transient. In developing the final corrective action, a change was made to the work package on the previous day regarding a specific relay setpoint. During the post-modification testing, a current signal was applied to the affected circuits without taking the necessary precautions to prevent an actuation of the protection logic, resulting in the unanticipated trip of the circuit breaker. This caused the loss of power to RSS No. 1.

This investigation determined that the late change in the as-left relay setpoint caused the work to proceed without the development of step-by-step instructions that conformed to nuclear industry standards for such documents.

As an interim measure, all work at the 230kV switchyard must be approved by the plant manager.

CORRECTIVE ACTIONS TO PREVENT RECURRENCE

The following actions are planned in response to this event.

1. Revise the operating agreement between the station and the transmission department to identify and communicate respective responsibilities with regard to all switchyard work and work package detail during outage and online activities.

2. Based on the specific revisions to the nuclear operating agreement, revise transmission department procedure(s) to provide detailed step by step work instructions, evaluation of risk, and clarification of ownership.

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NARRATIVE

PREVIOUS OCCURRENCE EVALUATION

A similar event occurred at River Bend Station on March 7, 2015, when site electricians were working in the 230kV switchyard. The electricians were conducting post-modification testing inside a termination cabinet, when the RSS No. 2 was unexpectedly de-energized. The investigation determined that the likely cause of that event was the inadvertent contact with an adjacent terminal with meter probes, which initiated a trip of the circuit breakers supplying RSS No. 2. Contributing factors were a cramped work environment and poor lighting.

That prior event, however, did not involve transmission department technicians implementing deficient work instructions. These factors differentiate the two events, such that the latter was not the result of inadequate corrective actions from the prior event.

SAFETY SIGNIFICANCE

Prior to the start of the work, the residual heat removal system had been aligned such that the operating shutdown cooling loop was in the division unaffected by the switchyard work. The Division 1 EDG responded as designed to the loss of power on its switchgear. The reactor was already in cold shutdown, so the RPS safety function was already met. 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.)