



Entergy Operations, Inc.
P.O. Box 756
Port Gibson, MS 39150

GNRO-2016/00057

March 27, 2017

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

James Nadeau
Manager, Regulatory Assurance
Grand Gulf Nuclear Station
Tel. (601) 437-2103

SUBJECT: Licensee Event Report (LER) 2016-006-01, Multiple Valid Engineered Safety Feature Actuations
Grand Gulf Nuclear Station, Unit 1
Docket No. 50-416
License No. NPF-29

Dear Sir or Madam:

Attached is Licensee Event Report (LER) 2016-006-01, a supplement to LER 2016-006-00, which was submitted to the US Nuclear Regulatory Commission (NRC) on August 29, 2016. The original LER reported that on June 30, 2016, Grand Gulf Nuclear Station (GGNS) experienced an electrical power supply loss that resulted in Engineered Safety Feature actuations. The events were reportable under Title 10 Code of Federal Regulations 50.73(a)(2)(iv)(A) for any event or condition that resulted in manual or automatic actuation of Engineered Safety Features.

Because the Apparent Cause Evaluation had not been completed at the time the original LER was submitted, this supplement is being submitted in accordance with NUREG-1022, revision 3, Section 5.1.5, "Supplemental Information and revised LERs." It contains the final causes and corrective actions as determined by the Apparent Cause Evaluation.

This letter contains no new Regulatory Commitments.

If you have any questions or require additional information, please contact James Nadeau at 601-437-2103.

Sincerely,

A handwritten signature in cursive script that reads "James Nadeau".

JJN/sas

Attachment: Licensee Event Report (LER) 2016-006-01

cc: U.S. Nuclear Regulatory Commission
ATTN: Mr. Siva Lingam, NRR/DORL (w/2)
Mail Stop OWFN 8 B1
11555 Rockville Pike
Rockville, MD 20852-2738

U.S. Nuclear Regulatory Commission
ATTN: Mr. Kriss M. Kennedy (w/2)
Regional Administrator, Region IV
1600 East Lamar Boulevard
Arlington, TX 76011-4511

U.S. Nuclear Regulatory Commission
ATTN: Mr. Kriss M. Kennedy, NRR/DORL (w/2)
Regional Administrator, Region IV
1600 East Lamar Boulevard

NRC Senior Resident Inspector
Grand Gulf Nuclear Station
Port Gibson, MS 39150

Attachment to GNRO 2016/00057
Licensee Event Report (LER) 2016-006-01



LICENSEE EVENT REPORT (LER)
(See reverse for required number of digits/characters for each block)

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 Section (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, NEOF-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.

1. FACILITY NAME Grand Gulf Nuclear Station, Unit 1	2. DOCKET NUMBER 05000 416	3. PAGE 1 OF 3
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4. TITLE
Multiple Valid Engineered Safety Feature Actuations

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
06	30	2016		2016-006-01		03	27	2017	N/A	05000 N/A
									FACILITY NAME	DOCKET NUMBER
									N/A	05000 N/A

9. OPERATING MODE 4	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)									
	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)						
10. POWER LEVEL 0	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)						
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<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)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)						
	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)						
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)						
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)						
	<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER						
	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A						

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME James Nadeau / Manager, Regulatory Assurance	TELEPHONE NUMBER (Include Area Code) (601) 437-2103
---------------------------------------------------------------	--------------------------------------------------------

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

14. SUPPLEMENTAL REPORT EXPECTED <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	15. EXPECTED SUBMISSION DATE	MONTH N/A	DAY N/A	YEAR N/A
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On June 30, 2016 at 1715 CDT, Grand Gulf Nuclear Station (GGNS) experienced an electrical power supply loss from Service Transformer 21 which resulted in power supply being lost to Division 2 (16AB Bus) and Division 3 (17AC Bus) ESF buses. This resulted in a valid actuation of Division 2 and Division 3 Diesel Generators on bus under voltage. They both automatically started and energized their respective ESF buses as designed. During this event, the loss of power to the Division 2 (16AB Bus) resulted in a Division 2 RPS bus power loss, which actuated a Division 2 RPS half SCRAM signal.

The power loss also resulted in a loss of the Instrument Air pressure resulting in some Control Rod Scram Valves to drift open. This in turn caused the Scram Discharge Volume to fill to the point where a Division 1 RPS half SCRAM signal was initiated from Scram Discharge Volume level high on Channel 'A'. This resulted in a valid full RPS Reactor SCRAM while not critical. Instrument Air pressure was restored and the SCRAM signal was reset at 1733 CDT. Appropriate off normal event procedures were entered to mitigate the transient. All safety systems performed as expected.

The Direct Cause was a failure of the taped insulation on the 'C' phase 34.5 kV Service Transformer power supply cable to the BOP 23 Transformer. The Apparent Cause was an outer tape wrap insulation failure that left a moisture path between the braid, connecting the splice, and the center conductor. A temporary three phase overhead line was installed to bypass the faulted 34.5 kV cable section. A planned corrective action to install a permanent underground replacement was generated.



LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 10/31/2018
 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.

1. FACILITY NAME	2. DOCKET	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV. NO.
Grand Gulf Nuclear Station, Unit 1	05000 416		2016-006-01	

NARRATIVE

PLANT CONDITIONS PRIOR TO THE EVENT

At the time of the event, Grand Gulf Nuclear Station (GGNS) Unit 1 was in Mode 4, Cold Shutdown, with Main Steam Isolation Valves (MSIVs) [SB] closed. Reactor Water Level was maintained in the normal water level band by the Control Rod Drive System (CRDS) [AA]. Residual Heat Removal (RHR) A [BO] was maintained in Shutdown Cooling operation and it was not affected by this event.

DESCRIPTION

On June 30, 2016 at 17:15, Grand Gulf Nuclear Station experienced an electrical power supply loss from Service Transformer 21 (ST21) [XFMR] which resulted in power supply being lost to Division 2 (16AB Bus) and Division 3 (17AC Bus) Engineered Safety Feature (ESF) buses [BU]. This resulted in a valid actuation of Division 2 and Division 3 Standby Diesel Generators (SDGs) [EK] on under-voltage. Both SDGs automatically started and energized their respective ESF buses as designed.

During this event, the loss of power to the Division 2 (16AB bus) resulted in a Division 2 Reactor Protection System (RPS) [JE] bus power loss, which actuated a Division 2 RPS half SCRAM signal. The Division 2 power loss also resulted in a loss of Instrument Air pressure resulting in some Control Rod Scram Valves to drift open. This in turn caused the Scram Discharge Volume to fill to the point where a Division 1 RPS half SCRAM signal was initiated from Scram Discharge Volume level high on Channel A. This resulted in a valid full RPS Reactor SCRAM while not critical. Instrument Air pressure was restored and the SCRAM signal was reset at 1733 hrs.

Appropriate off normal event procedures were entered to mitigate the transient. No Emergency Core Cooling System (ECCS) [BM] initiation signals were reached. All safety systems performed as expected.

REPORTABILITY

Event Notification No. 52057 was made to the NRC Operations Center. This LER is being submitted pursuant to Title 10 Code of Federal Regulations 10 CFR 50.73(a)(2)(iv)(A) for the actuation of Engineered Safety Features. Telephonic notification was made to the U.S. Nuclear Regulatory Commission (NRC) Emergency Notification System on June 30, 2016, within 8 hours of the event, pursuant to 10 CFR 50.72(b)(3)(iv) for multiple valid specified system actuations.

CAUSE

The Direct Cause was a failure of the taped insulation on the 'C' phase 34.5 kV Service Transformer 21 power supply cable to the BOP 23 Transformer.

The Apparent Cause was an outer tape wrap insulation failure between the braid, connecting the splice, and the center conductor. Disassembly and visual inspection of the cable splice showed that the insulation had voids and a moisture path through the split in the outer tape wrap.

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)
CONTINUATION SHEET

1. FACILITY NAME	2. DOCKET	3. LER NUMBER		
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Grand Gulf Nuclear Station, Unit 1	05000 416		2016-006-01	

NARRATIVE

CORRECTIVE ACTIONS

A temporary three phase overhead line was installed to bypass the faulted 34.5 kV cable section. A corrective action, to install a permanent underground replacement, is planned for April 2018.

SAFETY SIGNIFICANCE

The event posed no threat to the health and safety of the general public or to nuclear safety as safety-systems performed as designed. No Technical Specification safety limits were violated. Industrial safety was not challenged, and there was no potential or actual radiological release during the event.

PREVIOUS SIMILAR EVENTS

The INPO ICES search tool was used to find industry Operating Experience similar to this event. The search identified cable failures and partial loss of offsite power at both Grand Gulf and other stations. There were no specific learnings however that would have helped to prevent this event.