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P. O. Box 756  
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Eric A. Larson  
Site Vice President  
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10CFR50.73

GNRO-2018-00003

February 5, 2018

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

SUBJECT: Licensee Event Report 2017-007-00, Engineered Safety Feature System  
Actuations due to the loss of loss of Engineered Safety Features  
Transformer 11  
Grand Gulf Nuclear Station, Unit 1  
Docket No. 50-416  
License No. NPF-29

Dear Sir or Madam:

Attached Licensee Event Report 2017-007-00, Engineered Safety Feature System Actuations  
due to the loss of loss of Engineered Safety Features Transformer 11.

This letter contains no new commitments. If you have any questions or require additional  
information, please contact Douglas Neve at 601-437-2103.

Sincerely,

A handwritten signature in black ink, appearing to read "Eric A. Larson".

Eric A. Larson  
Site Vice President  
Grand Gulf Nuclear Station  
EAL/ram

Attachment: Licensee Event Report 2017-007-00

cc: see next page

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Page 2 of 2

U.S. Nuclear Regulatory Commission  
ATTN: Mr. Siva Lingam  
Mail Stop OWFN 8 B1  
Rockville, MD 20852-2738

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

U. S. Nuclear Regulatory Commission  
ATTN: Mr. Scott Morris, NRR/DORL (w/2)  
Mail Stop OWFN 8 B1  
Washington, DC 20555-0001



**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/)

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 Information Services Branch (T-2 F43), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by 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.

<b>1. FACILITY NAME</b> Grand Gulf Nuclear Station, Unit 1	<b>2. DOCKET NUMBER</b> 05000 416	<b>3. PAGE</b> 1 OF 3
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**4. TITLE**  
Engineered Safety Feature System Actuations due to the loss of Engineered Safety Features Transformer 11

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
12	12	2017	2017	007 - 00		02	05	2018	N/A	05000 N/A
									N/A	05000 N/A

**11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §:** (Check all that apply)

<b>9. OPERATING MODE</b> 1	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(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)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
<b>10. POWER LEVEL</b> 18%	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> 73.77(a)(1)
	<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)(D)	<input type="checkbox"/> 73.77(a)(2)(i)
	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 73.77(a)(2)(ii)
		<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> OTHER	Specify in Abstract below or in NRC Form 366A

**12. LICENSEE CONTACT FOR THIS LER**

LICENSEE CONTACT Douglas Neve / Manager, Regulatory Assurance	TELEPHONE NUMBER (Include Area Code) (601) 437-2103
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**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**  YES (If yes, complete 15. EXPECTED SUBMISSION DATE)  NO

<b>15. EXPECTED SUBMISSION DATE</b>	MONTH	DAY	YEAR
	07	15	2018

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

At approximately 0918 hours on Tuesday, December 12, 2017, while operating in MODE 1 at approximately 18 percent power, the Grand Gulf Nuclear Station (GGNS) experienced a loss of the Engineered Safety Features (ESF) Transformer 11 which was powering the Division 1 ESF bus. Subsequently, the station experienced an automatic start of the Division 1 Emergency Diesel Generator and the partial isolation of the primary and secondary containment buildings. Both of these events were expected and as designed. The direct cause of ESF actuations was the loss of ESF Transformer 11. The cause of the transformer loss is under investigation at this time and this licensee event report will be supplemented upon completion of GGNS's causal analysis.

Additionally, GGNS experienced an unrelated isolation of the Reactor Core Isolation Cooling System upon restoration of power. The isolation of the Reactor Core Isolation Cooling System did not result in a loss of safety function. The cause of this isolation is under investigation and will be documented in accordance with the GGNS corrective action program.

This event is reportable to the NRC in accordance with 10 CFR 50.72(b)(3)(iv) and 10 CFR 50.73(a)(2)(iv)(A) as an event or condition resulting in a valid actuation of a ESF system.



LICENSEE EVENT REPORT (LER)  
CONTINUATION SHEET

(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/>)

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 Information Services Branch (T-2 F43), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to [Infocollects.Resource@nrc.gov](mailto: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			
		2017-007-00		

NARRATIVE

DESCRIPTION

At approximately 0918 hours on Tuesday, December 12, 2017, while operating in MODE 1 at approximately 18 percent power, the Grand Gulf Nuclear Station (GGNS) experienced a loss of the Engineered Safety Features (ESF) Transformer 11 [EB] which was powering the Division 1 ESF bus [EA]. The transformer experienced an instantaneous ground resulting in a transformer lockout and loss of power to the ESF bus. Subsequently, the station experienced an automatic start of the Division 1 Emergency Diesel Generator [EK] and the partial isolation of the primary and secondary containment buildings. Both of the system actuations were expected responses to a loss of ESF bus and both systems responded as designed. The direct cause of ESF actuations was the loss of ESF Transformer 11.

Additionally, GGNS experienced an unrelated isolation of the Reactor Core Isolation Cooling System [BN] upon restoration of power. The isolation of the Reactor Core Isolation Cooling System did not result in a loss of safety function. The cause of this isolation is under investigation and will be documented in accordance with the GGNS corrective action program.

REPORTABILITY

This event is reportable to the NRC in accordance with 10 CFR 50.72(b)(3)(iv)(A) and 10 CFR 50.73(a)(2)(iv)(A) as an event or condition resulting in a valid actuation of a ESF system.

The 10 CFR 50.72 reporting requirements were met with the completion of Emergency Notification System (ENS) Notification 53115, at 1740 hours eastern standard time on December 12, 2017.

CAUSE

Direct Cause:

The direct cause of the ESF actuation was the loss of ESF Transformer 11 and the opening of the transformer feeder breaker due to an instantaneous ground.

Apparent Cause:

The most probable cause is a ground on one of the feeder cables to ESF Transformer 11. However, the investigation and causal analysis is ongoing at this time and this licensee event report will be supplemented upon completion of the GGNS causal analysis.



LICENSEE EVENT REPORT (LER)  
CONTINUATION SHEET

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Grand Gulf Nuclear Station, Unit 1	05000 416		2017-007-00	

NARRATIVE

**CORRECTIVE ACTIONS**

Spare Essential Transformer 21 was placed into service and normal power was restored. The investigation and causal analysis is ongoing and this licensee event report will be supplemented upon completion of GGNS's causal analysis. The planned corrective actions will be included in the corrective action program and may be changed in accordance with the program.

**SAFETY SIGNIFICANCE**

There were no nuclear safety consequences or radiological consequences as a result of this event. No Technical Specification Safety Limits were violated. Upon the loss of Engineered Safety Feature Transformer 11 all required accident mitigation ESF components responded as designed. The isolation of the Reactor Core Isolation Cooling System, although unexpected, did not adversely impact the plant's ability to respond to the event.

**PREVIOUSLY SIMILAR EVENTS**

- LER 2015-001, Automatic Actuation of the Reactor Protection System (RPS) due to a Fault in the Protective Relaying Circuitry on the "B" Main Transformer
- LER 2016-002, Automatic Actuation of the Reactor Protection System due to "B" Main Transformer Wiring
- LER 2016-006, Multiple Valid Engineered Safety Feature Actuations

Entergy has reviewed the events listed in the licensee event reports (LER) documented above to determine if the corrective actions should have prevented the event documented in this LER. Based on a preliminary evaluation it has been concluded the established corrective actions would not have prevent this event.

Entergy's investigation into the cause of this event and the development of corrective actions to preclude recurrence are ongoing. This section will be supplemented at the conclusion of this effort.