



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

Eric A. Larson
Site Vice President
Grand Gulf Nuclear Station
Tel. (601) 437-7506

10CFR50.73

GNRO-2018/00056

December 12, 2018

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

SUBJECT: Licensee Event Report 2017-007-01, Engineered Safety Features System
Actuations due to the 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 is Supplemental Licensee Event Report 2017-007-01, Engineered Safety Features
System Actuations due to the 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 "E. A. Larson".

Eric A. Larson

EAL/dre

Attachment: Licensee Event Report 2017-007-01

cc: see next page

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

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

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

GNRO-2018/00056

Attachment

Licensee Event Report 2017-007-01



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, NE0B-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 05000416 | 3. Page 1 OF 3 |
|---|-------------------------------------|--------------------------|

4. Title
Engineered Safety Features 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 | - 01 | 12 | 12 | 2018 | N/A | 05000N/A |
| | | | | | | | | | Facility Name | Docket Number |
| | | | | | | | | | N/A | 05000N/A |

| | | | | | | | | | | | | |
|---|--|--|--|---|--|--|---|--|---|---|--|--|
| 9. Operating Mode 1 | 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)(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) | | | |
| 10. Power Level 18% | <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) | | |
| | <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)(ii) | | |
| | <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)(iii) | | |
| | | | | | | | | | | <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 |
|--|--|

13. Complete One Line for each Component Failure Described in this Report

| Cause | System | Component | Manufacturer | Reportable To ICES | Cause | System | Component | Manufacturer | Reportable To ICES |
|-------|--------|-----------|--------------|--------------------|-------|--------|-----------|--------------|--------------------|
| 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 |
|--|-------------------------------------|--------------|------------|-------------|

Abstract (Limit to 1400 spaces, i.e., approximately 14 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 was due to a degraded cable with a zinc shield coming in contact with moisture.

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 safety system functional failure.

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**

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.

(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. LER NUMBER | | |
|------------------------------------|------------------|---------------|-------------------|---------|
| | | YEAR | SEQUENTIAL NUMBER | REV NO. |
| Grand Gulf Nuclear Station, Unit 1 | 05000-416 | 2017 | - 007 | - 01 |

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 safety system functional failure.

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. The cause of the transformer loss was due to a degraded cable with a zinc shield coming in contact with moisture.



**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, 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 NUMBER | 3. LER NUMBER | | |
|------------------------------------|------------------|---------------|-------------------|---------|
| | | YEAR | SEQUENTIAL NUMBER | REV NO. |
| Grand Gulf Nuclear Station, Unit 1 | 05000-416 | 2017 | - 007 | - 01 |

NARRATIVE

CORRECTIVE ACTIONS

Spare Essential Transformer 21 was placed into service and normal power was restored. The new cable that was pulled has a copper shield that is not a susceptible to degrading in moist condition as the zinc shield. The new cable that is now in service had a megger, Tan Delta, and a Hi-Pot test performed.

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.