



Entergy Operations, Inc.  
P. O. Box 756  
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Eric A. Larson  
Site Vice President  
Grand Gulf Nuclear Station  
Tel. (601) 437-7500

10CFR50.73

GNRO-2018/00032

Jun 26, 2018

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

SUBJECT: Licensee Event Report 2018-007-00, Potential Loss of Safety Function  
(Residual Heat Removal) and System Actuation Caused by Inadvertent  
Valve Opening  
Grand Gulf Nuclear Station, Unit 1  
Docket No. 50-416  
License No. NPF-29

Dear Sir or Madam:

Attached is Licensee Event Report 2018-007-00. This report is being submitted in accordance with 10CFR50.73(a)(2)(v)(B) as an event or condition that could have prevented fulfillment of a safety function, and under 10CFR50.73(a)(2)(iv)(A) for the Emergency Core Cooling System (ECCS) and associated Diesel Generator System Actuations.

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

Sincerely,

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

1822  
NAR

Attachment: Licensee Event Report 2018-007-00

cc: see next page

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

U.S. Nuclear Regulatory Commission  
ATTN: Ms. Lisa M. Regner  
Mail Stop OWFN 8 B1  
Rockville, MD 20852-2738

U.S. Nuclear Regulatory Commission  
ATTN: Mr. Kriss Kennedy, NRR/DORL (w2)  
Regional Administrator, Region IV  
1600 East Lamar Boulevard  
Arlington, TX 76011-4511

**GNRO-2018/00032**

**Attachment**

**Licensee Event Report 2018-007-00**



**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](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.

<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**  
Potential Loss of Safety Function (Residual Heat Removal) and System Actuation Caused by Inadvertent Valve Opening

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
05	01	2018		2018-007-00		06	26	2018	N/A	05000 N/A
									FACILITY NAME	DOCKET NUMBER
									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> 5	<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> 0	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input checked="" 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
A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

<b>14. SUPPLEMENTAL REPORT EXPECTED</b> <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	<b>15. EXPECTED SUBMISSION DATE</b>	MONTH	DAY	YEAR
		N/A	N/A	N/A

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

On May 1, 2018, Grand Gulf Nuclear Station Instrument & Control technicians started a Reactor Vessel Water Level Transmitter Calibration Surveillance. At 1551, the technicians inadvertently opened the low pressure isolation valve instead of the equalization valve. This resulted in a decrease in sensing line pressure, which appeared as a low water level signal to the transmitters. As a result, Division 1 Emergency Core Cooling System initiated, and Shutdown Cooling was isolated. All systems responded as expected. After a 5 degree F rise in local Reactor Coolant System (RCS) temperature, Operations restored Shutdown Cooling.

The technicians inadvertently opened the wrong valve because of a failure to use human performance tools. In addition, Operations did not implement an adequate risk mitigation strategy for the surveillance. Both of these causes will be corrected by revising surveillances which involve replacement, calibration, or maintenance on consequential transmitters, to include hardened barriers.

The safety consequences of this event were low, as Shutdown Cooling was restored after only a slight rise in local RCS temperature.



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/>)

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		YEAR	SEQUENTIAL NUMBER	REV. NO.
Grand Gulf Nuclear Station, Unit 1	05000 416		2018-007-00	

NARRATIVE

A. PLANT CONDITIONS PRIOR TO THE EVENT

Mode 5, Reactor Coolant System (RCS) Temperature 87 F, Residual Heat Removal (RHR) [BO] Train "A" aligned for Shutdown Cooling

No inoperable structures, components, or safety systems contributed to this event.

B. DESCRIPTION

On May 1, 2018, Grand Gulf Nuclear Station Instrument & Control (I&C) technicians started a Reactor Vessel Water Level Transmitter Calibration Surveillance. At 1551, the technicians inadvertently opened the low pressure isolation valve instead of the equalization valve. This resulted in a decrease in sensing line pressure, which appeared as a low water level signal to the transmitters. As a result, Division 1 Emergency Core Cooling System (ECCS) initiated, and Shutdown Cooling was isolated. All systems responded as expected, including RHR "A", which automatically aligned to inject into the Reactor. The RHR "A" suction source remained from the spent fuel pool, and thus there was not a net change in RCS inventory. The ECCS actuation resulted in minimal flow from the RHR "A" pump through the "RHR "A" Heat Exchangers. After a 5 degree F rise in local Reactor Coolant System (RCS) temperature, Operations realigned RHR "A" from Injection to Shutdown Cooling mode.

C. REPORTABILITY

This event is being reported under 10CFR50.73(a)(2)(v)(B), as an event or condition that could have prevented fulfillment of a safety function (Residual Heat Removal), and under 10CFR50.73(a)(2)(iv)(A) for the Emergency Core Cooling System (ECCS) and associated Diesel Generator [EK] System Actuations. The event was initially reported under 10CFR50.72(b)(2)(iv)(A) for the ECCS and associated Diesel Generator System Actuations and 50.72(b)(3)(v)(B) for the potential loss of safety function (Residual Heat Removal) on May 1, 2018, via Event Report 53374.

D. CAUSE

The technicians inadvertently opened the wrong valve because of a failure to use human performance tools. I&C technicians failed to use various human performance tools, including procedure adherence, operating experience, questioning attitude, verification/validation, peer check, and self-check. Furthermore, flagging or robust barriers were not used in valve manipulations. In addition, Operations did not implement an adequate risk mitigation strategy for the surveillance. This task had been previously categorized as high impact; however, it was screened as medium during this event.

E. CORRECTIVE ACTIONS

The following actions are completed or planned.



LICENSEE EVENT REPORT (LER)  
CONTINUATION SHEET

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Completed:

- The Control Room was notified. Operations restored Shutdown Cooling by realigning "A" Residual Heat Removal, after only a slight rise in local RCS temperature.
- The qualifications were removed from the involved individuals.

Planned actions included in the corrective action program which may be changed in accordance with the program:

- Revise surveillances, which involve replacement, calibration, or maintenance on transmitters that have the ability to trip the plant, trip the turbine, or result in a safety system actuation, to include hardened barriers.

F. SAFETY SIGNIFICANCE

The actual consequences of this event were an unplanned initiation of Division 1 ECCS and a temporary loss of Shutdown Cooling. There were no other actual consequences to the general safety of the public, nuclear safety, industrial safety, and radiological safety for this event.

The potential consequence to the general safety of the public, nuclear safety, industrial safety, and radiological safety for this event is a continued rise in the RCS temperature until it reached 212 degrees F, and began to boil. RHR "A" was realigned, in accordance with plant procedures, to provide Shutdown Cooling after only a 5 degree F rise in RCS temperature. In addition, RHR "B" was also available. Therefore, the residual heat removal safety function was never lost. Since the time to boil at the start of the event was greater than 7 hours, and there were multiple systems available to remove residual heat, the risk associated with this event is low.

Based on the above, Entergy has determined that it did not result in an actual loss of safety function. Therefore, in accordance with the guidance provided in NEI 99-02, Revision 7, Regulatory Assessment Performance Indicator Guideline, Section 2.2, Mitigating Systems Cornerstone, Sub-Section, Safety System Functional Failures, Page 30, Lines 27 through 30; this condition will not be counted as a safety system functional failure against Performance Indicator MSO5, Safety System Functional Failures.

G. PREVIOUS SIMILAR OCCURRENCES

An internal Operating Experience search of the Corrective Action system was performed for the previous fifteen years, and no similar events could be found.