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Grand Gulf Nuclear Station
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GNRO-2016/00056

November 7, 2016

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

SUBJECT: Licensee Event Report (LER) 2016-007-00, Technical Specification Shutdown
Due to Loss of Residual Heat Removal Pump
Grand Gulf Nuclear Station, Unit 1
Docket No. 50-416
License No. NPF-29

Dear Sir or Madam:

Attached is Licensee Event Report (LER) 2016-007-00, which will be supplemented upon completion of the in-progress apparent cause evaluation. This report is submitted in accordance with Title 10 Code of Federal Regulations 50.73(a)(2)(i)(A) for the for the completion of any nuclear plant shutdown required by the plant's Technical Specifications.

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) 2016-007-00

cc: (See Next Page)

cc: U.S. Nuclear Regulatory Commission
ATTN: Mr. Jim Kim, NRR/DORL (w/2)
Mail Stop OWFN 8 B1
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

Mr. B. J. Smith (w/2)
Director, Division of Radiological Health
Mississippi State Department of Health
Division of Radiological Health
3150 Lawson Street
Jackson, MS 39213

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

Attachment to GNRO 2016/00056
Licensee Event Report (LER) 2016-007-00



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, 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 Grand Gulf Nuclear Station, Unit 1	2. DOCKET NUMBER 05000 416	3. PAGE 1 OF 3
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4. TITLE
Technical Specification Shutdown due to Loss of Residual Heat Removal Pump

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
9	8	2016	2016-007-00			11	7	2016	N/A	05000 N/A
									FACILITY NAME	DOCKET NUMBER
									N/A	05000 N/A

9. OPERATING MODE 1	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: <i>(Check all that apply)</i>									
10. POWER LEVEL 100%	<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)						
	<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 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 checked="" 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
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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
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 checked="" type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input type="checkbox"/> NO	15. EXPECTED SUBMISSION DATE MONTH: 1, DAY: 5, YEAR: 2017
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On September 4, 2016 at 02:58, Grand Gulf Nuclear Station entered three TS LCO Action Statements because RHR 'A' pump was declared inoperable.

LCO Actions entered:

- 3.5.1 for one low pressure ECCS injection/spray subsystem,
- 3.6.1.7 for one RHR containment spray subsystem, and
- 3.6.2.3 for one RHR suppression pool cooling subsystem. All have 7 day Completion Times

A decision was made to shutdown the plant to repair the RHR 'A' pump because, based on the troubleshooting and testing plan, the pump could not be repaired and returned to service within the LCO Completion Times. At 0300 CDT on 09/08/16, GGNS initiated the transition to Mode 4.

The pump was removed from service and sent to the vendor facility for decontamination, disassembly and failure analysis. The 'A' pump was then replaced and tested satisfactorily. RHR 'A' was returned to operable.

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		
Grand Gulf Nuclear Station, Unit 1	05000 416	YEAR	SEQUENTIAL NUMBER	REV. NO.
		2016-007-00		

NARRATIVE

PLANT CONDITIONS PRIOR TO THE EVENT

At the time of the event, Grand Gulf Nuclear Station (GGNS) Unit 1 was in Mode 1, at 100% rated thermal power. All systems, structures and components, with the exception of the RHR 'A' pump, that were necessary to mitigate, reduce the consequences of, or limit the safety implications of the event were available. No other safety significant components were out of service.

DESCRIPTION

On September 4, 2016, GGNS was performing a Residual Heat Removal (RHR) 'A' quarterly Technical Specification (TS) Surveillance Requirement (SR). At 02:58, The RHR pump failed to meet its TS SR Acceptance Criteria for flow and differential pressure (d/p) and was therefore declared Inoperable. Action Statements for TS Limiting Conditions for Operation (LCOs) 3.5.1, 3.6.1.7 and 3.6.2.3 were entered, each having Completion Times of 7 days.

LCO Action Statements entered:

- 1) 3.5.1 for one low pressure ECCS injection/spray subsystem,
- 2) 3.6.1.7 for one RHR containment spray subsystem, and
- 3) 3.6.2.3 for one RHR suppression pool cooling subsystem.

Initial troubleshooting verified that the pump was incapable of meeting the flow requirement of 7756 gpm and d/p of 131 psid simultaneously. The observed pump flow and discharge pressures were verified to be correct via a temporarily installed ultrasonic flow meter and pressure gauge. RHR system valves and lines were verified not to be clogged or leaking. The pump motor was confirmed to be operating at the proper speed.

Further troubleshooting and testing lead station management to the conclusion that RHR 'A' would not be returned to operable status within the 7 day Completion Time. A decision was made to commence an orderly shutdown. On September 8, 2016 at 0300, GGNS began the transition to Mode 4. No other systems were out of service that would have complicated an orderly shutdown to Mode 4.

REPORTABILITY

Event Notification No. 52225 was made to the U.S. Nuclear Regulatory Commission (NRC) Operations Center. This LER is being submitted pursuant to Title 10 Code of Federal Regulations 10 CFR 50.73(a)(2)(i)(A) for the completion of any nuclear plant shutdown required by the plant's Technical Specifications. Telephonic notification was made to the NRC Emergency Notification System on September 8, 2016, at 03:27, pursuant to 10 CFR 50.72(b)(2)(i) for the initiation of any nuclear plant shutdown required by the plant's Technical Specifications.

CAUSE

Direct Cause: The RHR 'A' pump was unable to provide its required flow at the required differential pressure in order to perform its safety function.

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.



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NARRATIVE

Apparent Cause: Subsequent investigation suggests internal pump degradation but the Apparent Cause is ongoing. A supplemental report to this LER will be provided when the Apparent Cause investigation is complete.

EXTENT OF CONDITION

Quarterly surveillance data of similar Emergency Core Cooling System (ECCS) pumps showed no evidence of degradation. Data was re-examined from the following pumps: Low Pressure Core Spray (LPCS), High Pressure Core Spray (HPCS) and RHR 'B' and 'C.' GGNS also performed a partial quarterly surveillance on the RHR 'B' which was completed satisfactorily.

CORRECTIVE ACTIONS

The RHR 'A' pump was replaced and retested satisfactorily. The pump removed from service has been sent to the vendor facility for failure analysis.

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

Previous similar events will be discussed in the supplemental report upon completion of the Apparent Cause investigation.