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**William A. Eaton**  
Vice President,  
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Grand Gulf Nuclear Station

June 27, 2002

U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Attention: Document Control Desk

Subject: LER 2002-002-00 [RHR System Pressure Higher Than Normal  
Rendering Primary Containment Isolation Valve (PCIV) Inoperable  
For About 11 Days]

Grand Gulf Nuclear Station  
Docket No. 50-416  
License No. NPF-29

GNRO-2002/00055

Ladies & Gentlemen:

Attached is Licensee Event Report (LER) 2002-002-00 which is a final report. **This letter does not contain any commitments.**

Yours truly,

A handwritten signature in cursive script that reads "William A. Eaton".

WAE/ACG:acg **AG.**  
attachment: LER 2002-002-00  
cc: (See Next Page)

cc:

Hoeg	T. L.	(GGNS Senior Resident)	(w/a)
Levanway	D. E.	(Wise Carter)	(w/a)
Reynolds	N. S.		(w/a)
Smith	L. J.	(Wise Carter)	(w/a)
Thomas	H. L.		(w/o)

Mr. E. W. Merschoff (w/2) Regional Administrator U.S. Nuclear Regulatory Commission Region IV 611 Ryan Plaza Drive, Suite 400 Arlington, TX 76011
U.S. Nuclear Regulatory Commission ATTN: Mr. David H. Jaffe NRR/DLPM (w/2) <b>ATTN: FOR ADDRESSEE ONLY</b> ATTN: U.S. Postal Delivery Address Only Mail Stop OWFN/7D-1 Washington, D.C. 20555-0001

<b>NRC FORM 366</b> (7-2001)	<b>U.S. NUCLEAR REGULATORY COMMISSION</b>	<b>APPROVED BY OMB NO. 3150-0104 EXPIRES 7-31-2004</b> <small>Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@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 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</small>
<b>LICENSEE EVENT REPORT (LER)</b> <small>(See reverse for required number of digits/characters for each block)</small>		

<b>1. FACILITY NAME</b> <b>Grand Gulf Nuclear Station, Unit 1</b>	<b>2. DOCKET NUMBER</b> <b>05000 416</b>	<b>3. PAGE</b> <b>1 OF 4</b>
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5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
04	29	2002	2002	002	00	06	27	2002		05000
									FACILITY NAME	DOCKET NUMBER
										05000

<b>9. OPERATING MODE</b>	1	<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §:</b> (Check all that apply)								
<b>10 POWER LEVEL</b>	100	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)					
		<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(x)					
		<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 73.71(a)(4)					
		<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(5)					
		<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	OTHER Specify in Abstract below or in NRC Form 366A					
		<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(C)						
		<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(D)						
		<input type="checkbox"/> 20.2203(a)(2)(v)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(vii)						
<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)								
<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)(B)								

12. LICENSEE CONTACT FOR THIS LER	
NAME <b>Avinash C Goel, Senior Engineer (Plant Licensing)</b>	TELEPHONE NUMBER (Include Area Code) <b>601-437-6296</b>

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

14. SUPPLEMENTAL REPORT EXPECTED				15. EXPECTED SUBMISSION DATE		
YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO		MONTH	DAY	YEAR

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

During the performance of Residual heat Removal/Low Pressure Coolant Injection System RHR/LPCI-"A" [BO] quarterly functional test in accordance with procedure 06-OP-1E12-Q-0023 it was noted that RHR-A System pressure was higher than normal (approximately 80 psig total pressure). Investigation of this abnormality revealed that this pressure had existed since the system was last "filled and vented" on April 18, 2002 following maintenance on the system. The pressure source was determined to be P11 (Condensate & Refueling Water Storage and Transfer System) which is used during the "fill and vent" procedure. E12F044A (See "A" in the attached RHR Figure) was found not fully seated which admitted P11 to the system. This valve is an inboard Primary Containment Isolation Valve (PCIV) for penetration 20.

The valve was immediately torqued closed upon discovery (April 29, 2002).

Technical Specification Limiting Condition of Operation (LCO) 3.6.1.3 states, "Each PCIV shall be OPERABLE". The term Operable/Operability is defined as, "A system, subsystem, division, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety functions(s)". Based on review of this event, E12F044A was considered inoperable for about 11 days.

Therefore, this event is reportable and a 60-day LER is required.

**LICENSEE EVENT REPORT (LER)**

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**A. REPORTABLE OCCURRENCE**

Primary Containment Isolation Valve (PCIV) E12F044A was considered inoperable from April 18, 2002 until the valve was torqued closed on April 29, 2002. Because valve E12F044A was torqued closed upon discovery insufficient data is available to perform a calculation establishing valve operability for the above period.

NUREG 1022 section 50.73(a)(2)(i)(B) states, "An LER is required if a condition existed for a time longer than permitted by the Technical Specifications even if the condition was not discovered until after the allowable time had elapsed and condition was rectified immediately upon discovery."

**B. INITIAL CONDITIONS**

At the time of the event, the reactor was in OPERATIONAL MODE 1 with reactor power at approximately 100 percent. Moderator temperature, reactor pressure vessel (RPV) pressure and RPV water level were at approximately 547 degrees F, 1023 PSIG and 36.8 inches, respectively. There were no additional inoperable structures, systems, or components at the start of the event that contributed to the event.

**C. DESCRIPTION OF OCCURRENCE**

During the performance of RHR/LPCI-"A" quarterly functional test in accordance with procedure 06-OP-1E12-Q-0023 it was noted that RHR A system pressure was higher than normal (approximately 80 psig total pressure). Investigation of this abnormality revealed that this pressure had existed since the system was last "filled and vented" on April 18, 2002 following maintenance on the system. The pressure source was determined to be P11 (Condensate & Refueling Water Storage and Transfer System) which is used during the "fill and vent" procedure. E12F044A was found with the seat leaking which admitted P11 to the system. This valve is an inboard PCIV for penetration 20.

The valve was immediately torqued closed upon discovery on April 29, 2002.

**D. APPARENT CAUSE**

The apparent cause of this event - Operations performed surveillance 06-OP-1E12-Q-0005-01 (RHR A MOV functional Test) on April 18, 2002. The RHR-"A" system was returned to standby per it's respective SOI (section 5.1). This included opening 1E12F044A to fill and vent the system. After filling the system 1E12F044A valve was closed. This valve is a locally chain operated valve. Operators closed the valve until resistance was felt as has been previous practice.

Operations performed surveillance 06-OP-1E12-Q-0023 (RHR pump functional test) on April 29, 2002. Operators in the field observed RHR-"A" pressure abnormally high for current system configuration. This higher than normal pressure prompted the operators to check the P11 flush valve to RHR-A - by checking position of 1E12F044A. The valve was fully closed to the extent possible by normal means, i.e. it was closed by an Operator using the chain wheel actuator until no further movement could be obtained. This was not sufficient to prevent P11 leakage into the RHR A system. Upon discovery of this condition and after additional attempts by a single Operator to further close the valve, a second Operator assisted in

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further torquing the valve closed. Additional torque on the chain wheel provided by two Operators working together was sufficient to minimize the seat leakage and stop the pressurization of the RHR A system by P11.

**E. CORRECTIVE ACTIONS**

Immediate - The valve was immediately torqued closed upon discovery (4/29/02). Condition report CR-GGN-2002-00755 was written to document this issue and to ensure appropriate actions.

Long Term – Condition Report (CR) 2002-00755 was written to address problem with operating of the valve.

**F. SAFETY ASSESSMENT**

E12F044A (4 inch gate valve, William Powell 303WE) is associated with penetration 20, the RHR (E12) LPCI (A) injection line to the reactor vessel and sprays. This valve is administratively controlled in a locked closed position. Inboard isolation provisions for this penetration are three motor operated valves (MOVs), E12F042A-A (See "B" in the attached RHR Figure), E12F028A-A (See "C" in the attached RHR Figure) and E12F037A-A (See "D" in the attached RHR Figure), two locked closed valves, E12F044A and E12F107A (See "E" in the attached RHR Figure), and a relief valve E12F025A. Outboard containment isolation is E12F027A-A (See "F" in the attached RHR Figure), an MOV. E12F044-A isolates the in-containment portion of the condensate and refueling water storage and transfer system from the RHR system. Only E12F027, E12F028, and E12F042 are potentially open post accident for emergency cooling and only E12F028 and E12F037 isolate automatically.

CONTAINMENT EVALUATION:

The containment isolation for penetration 20 with E12F044-A open is protected by two redundant design features. The first is the outboard containment isolation valve E12F027A-A. The second is the RHR system itself which is an essential system that meets the SRP 6.2.4 requirements for a closed system outside containment. The dose consequence of leakage through closed systems is explicitly accounted for in the offsite dose analysis. Therefore, the condition has no impact on safety relative to RHR system integrity and the containment boundary.

EMERGENCY CORE COOLING SYSTEM (ECCS) EVALUATION:

The condition identified in the above CR potentially creates a leakage path from the operating RHR system into containment. While under accident condition back flow from RHR out of the containment is prevented by P11-F004 and P11-F075, any leakage in the P11 system in the containment has the potential to reduce the volume of water available for use by LPCI or Containment Spray. Although there is a check valve immediately up stream of E12F044A, this valve and the associated piping is in the non-safety portion of the system and is not credited in this discussion.

The design flow rates for the LPCI and Containment Spray modes of RHR are 7450 gpm [1] and 5650 gpm [2], respectively. These values are the design values required by the General Electric design

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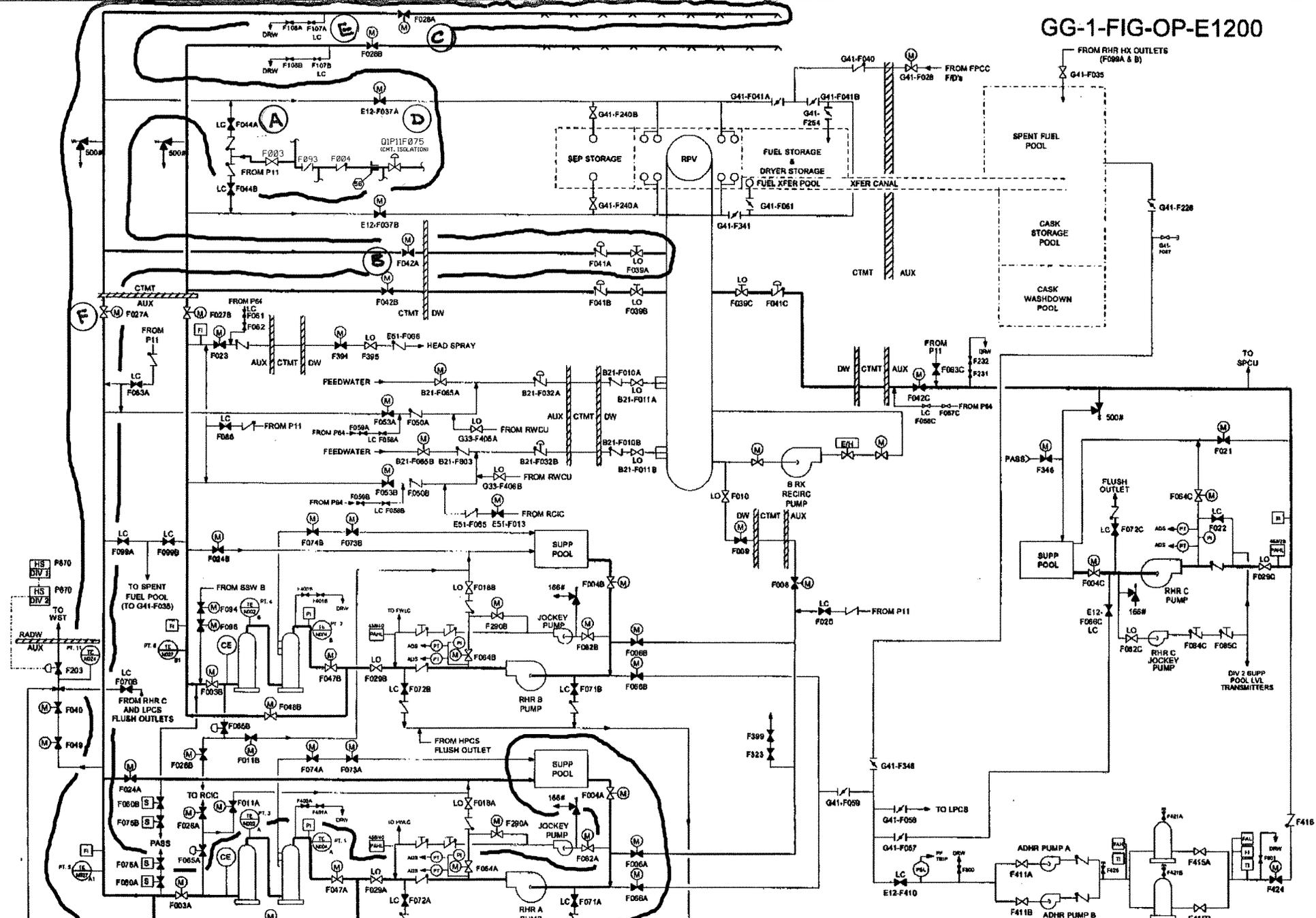
specifications. Residual Heat Removal System (E12) Hydraulic Analysis calculated the flow rates for the various RHR system operating modes using the Grand Gulf specific piping configuration and pump curves. For the same operating conditions, the calculated flow rates exceed the minimum design values by several hundred gpm.

Given the fact that valve E12F044A was found leaking, the LPCI or Containment Spray flow potentially diverted is expected to be much less than the system flow margin available for each respective operating mode. Therefore, there is no safety significance relative to RHR system performance.

**References:**

1. UFSAR Table 6.2-6
2. UFSAR 6.2.1.1.5.5

**G. ADDITIONAL INFORMATION - NONE**



**RHR SYSTEM STANDBY ALIGNMENT**

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