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GNRO-2004/00035

June 3, 2004

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

Attention: Document Control Desk

Subject: LER 2004-002-00 - Loss of RHR B Operability
Due to Misaligned Minimum Flow Valve

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

Dear Sir or Madam:

Attached is Licensee Event Report (LER) 2004-002-00 which is a final report.
This letter does not contain any commitments.

Yours truly,

CAB/CDH:cdh
attachment: LER 2004-002-00

cc: (See Next Page)

cc:

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NRC FORM 366 (7-2001) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 7-31-2004

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

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Grand Gulf Nuclear Station, Unit 1	05000 416	1 OF 4

4. TITLE Loss of RHR B Operability Due to Misaligned Minimum Flow Valve

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
									N/A	05000
04	04	2004	2004	002	00	06	03	2004	FACILITY NAME	DOCKET NUMBER
									N/A	05000

9. OPERATING MODE	1
10. POWER LEVEL	100

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

20.2201(b)	20.2203(a)(3)(ii)	50.73(a)(2)(ii)(B)	50.73(a)(2)(ix)(A)
20.2201(d)	20.2203(a)(4)	50.73(a)(2)(iii)	50.73(a)(2)(x)
20.2203(a)(1)	50.36l(1)(i)(A)	50.73(a)(2)(iv)(A)	73.71(a)(4)
20.2203(a)(2)(i)	50.36(c)(1)(ii)(A)	50.73(a)(2)(v)(A)	73.71(a)(5)
20.2203(a)(2)(ii)	50.36(c)(2)	50.73(a)(2)(v)(B)	OTHER
20.2203(a)(2)(iii)	50.46(a)(3)(ii)	50.73(a)(2)(v)(C)	Specify in Abstract below or in NRC Form 366A
20.2203(a)(2)(iv)	50.73(a)(2)(i)(A)	50.73(a)(2)(v)(D)	
20.2203(a)(2)(v)	X 50.73(a)(2)(i)(B)	50.73(a)(2)(vii)	
20.2203(a)(2)(vi)	50.73(a)(2)(i)(C)	50.73(a)(2)(viii)(A)	
20.2203(a)(3)(i)	50.73(a)(2)(ii)(A)	50.73(a)(2)(viii)(B)	

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER (Include Area Code)
Charles D. Holifield, Senior Licensing Engineer	(601) 437-6439

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

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

On February 25, 2004, the Residual Heat Removal (RHR) B minimum flow line was tagged out to allow piping replacement. During welding of the piping, the RHR B minimum flow isolation valve (1E12-F018B) was closed to stop leakage through the piping. Piping replacement was completed and operators were dispatched to complete the SOI lineup which included the repositioning of 1E12-F018B. The operators initialed the lineup sheets which incorrectly indicated that 1E12-F018B was in the locked-open position.

When the RHR B quarterly functional test was performed on April 4, 2004, system pressure was determined to be higher than expected. Operations directed the lineup verified and found 1E12-F018B closed. 1E12-F018B was repositioned to locked-open on April 5, 2004 in addition to conducting manual valve line-ups. Subsequent testing of the B RHR Pump indicated no changes in pump performance as a result of operation of the B RHR Pump with 1E12-F018B closed. A condition report was initiated to track long term corrective actions. The condition was caused by mis-application of self checking and peer checking to ensure the valve was in its required position.

LCO Required Action Completion Time for Tech Spec 3.5.1 was exceeded and this condition is reportable per 10CFR50.73(a)(2)(i)(B). This condition did not result in a Safety System Functional Failure.

A. REPORTABLE OCCURRENCE

1E12-F018B, a manual valve [HCV] located in the Residual Heat Removal (RHR) [BO] B System minimum flow line, was found out of its required position in that it was closed instead of open. With the valve closed, minimum flow would not function to protect the pump during pump startup with the reactor pressurized. The condition is estimated to exist for approximately 13 days following plant startup and it is assumed that the RHR B train, although considered functional, was not operable. Therefore, the LCO Required Action Completion Time for Tech Spec 3.5.1 was exceeded and this condition is reportable per 10CFR50.73(a)(2)(i)(B), "Any operation or condition which was prohibited by the plant's Technical Specifications...". Throughout the time that RHR B minimum flow was isolated, RHR A was available. Therefore, this condition did not result in a Safety System Functional Failure.

B. INITIAL CONDITIONS

At the time of the discovery of the mis-positioned valve, the reactor was in OPERATIONAL CONDITION 1 with reactor power at approximately 100 percent. Reactor temperature, reactor pressure vessel (RPV) pressure and RPV water level were at approximately 532 degrees F, 1045 psig and 36 inches, respectively. The plant had synced to the grid on March 24, 2004 as it was coming out of a refueling outage. On April 4, 2004, valve 1E12-F018B was found out of its required open position while performing the LPCI/RHR Subsystem-B Quarterly Functional Test.

C. DESCRIPTION OF OCCURRENCE

On February 25, 2004 during Refueling Outage 13, the RHR minimum flow line portion of RHR B was tagged out to allow replacement of piping. The tagout also provided a path to vent/drain the piping as necessary with four designated "no tag" valves. Valves that are needed for venting and draining during maintenance are designated as "no tag" valves so that they will be checked for proper alignment upon tagout removal.

At the time the tagout was installed, 1E12-F018B was designated as a "no tag" valve. During subsequent welding of the piping, maintenance personnel requested that 1E12-F018B be closed to stop water leakage through the piping which was hampering the welding process.

On the evening of March 3, 2004, the piping replacement was completed and actions were taken to return RHR B to operable status. Work Management Control dispatched three operators: a Reactor Operator (RO), and two non-Licensed Operators (NLOs). The operators were tasked with removing the tagout, vent/fill activities and completion of the SOI lineup which included the repositioning of 1E12-F018B.

C. DESCRIPTION OF OCCURRENCE (continued)

One NLO and RO entered the RHR B room to complete the removal of the tagout. The NLO entered the floor area to remove the tagout and perform the restoration. The NLO performing the restoration remembered being coached by the RO on the proper way to place the tie wrap locking device but could not remember actually operating the valve to the open position. The RO was not involved in the positioning or verification of 1E12-F018B. The second NLO independently verified the valve position but could not specifically remember how the valve was verified to be open. The NLOs signed off for removal of the tagout and initialed the SOI lineup sheets which incorrectly indicated that 1E12-F018B was in the required locked-open position. The entire manual valve attachment was signed off complete on March 6, 2004.

LPCI/RHR Subsystem-B Quarterly Functional Test was performed on April 4, 2004. During the test, system pressure was determined to be higher than expected. Operations directed the lineup for the minimum flow line be verified and found valve 1E12-F018B in the closed position without a tie wrap locking device installed. Other manual valves in the vicinity were also verified but 1E12-F018B was the only valve found to be mispositioned. 1E12-F018B was repositioned to locked-open on April 5, 2004 at 0526.

Subsequent testing of the B RHR Pump indicated no observed or measurable changes to pump performance as a result of actual operation of the B RHR Pump while 1E12-F018B valve was out of its normal position.

D. APPARENT CAUSE

ROOT CAUSE

- The root cause of the event was mis-application or non-application of self checking and peer checking to ensure the valve was in its required position.

E. CORRECTIVE ACTIONS

Immediate Corrective Actions:

- Valve 1E12-F018B was locked-open.
- Manual Valve Lineups for RHR A, B, C, LPCS, HPCS, and RCIC were performed.
- An assessment of RHR B pump was performed.
- A PRA safety significance evaluation was performed.

Long Term Corrective Actions:

- Condition Report CR-2004-1644 was initiated.

F. SAFETY ASSESSMENT

During the period of time the RHR B minimum flow function was not available, the functions associated with RHR A were always available.

The actual maintenance that was performed during the period of time that this condition existed was examined using the Grand Gulf equipment out-of-service (EOOS) risk assessment model. This includes surveillance performance which would have resulted in system non-functional time. Risk significant equipment or system trains taken out of service during the period were extracted from the Maintenance Rule Database and added to the EOOS history file. The time period was re-quantified assuming only the actual additional maintenance performed and the RHR B valve removed from service (closed). The CDF was calculated for each maintenance configuration during the period from 3/23/04 00:00 to 4/05/04 06:00 (13.25 days). The average CDF for this period of time is 5.3E-06/year which equates to a delta CDF of 6.2E-7/year. This increase is considered a very small increase in CDF (<1E-6/year) using the guidance of Regulatory Guide 1.174, "An Approach for Using PRA in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis". The Incremental Core Damage Probability (ICDP) over the no maintenance probability for the period is 8.77E-08, while the ICDP over the baseline (average maintenance) probability is 2.24E-08. Either of these values is considered small (i.e., less than 5.0E-7) using the guidance of Regulatory Guide 1.177, "An Approach for Plant-Specific, Risk-Informed Decision-making: Technical Specifications." Therefore, this condition is not considered risk significant.

G. ADDITIONAL INFORMATION

Energy Industry Identification System (EIIS) Component Function Identifiers are annotated in the narrative text within brackets [ ].

Previously submitted GGNS LERs:

There were no LERs written on similar GGNS events in the past two years.