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June 4, 2001

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

Attention: Document Control Desk

Subject: Grand Gulf Nuclear Station
Docket No. 50-416
License No. NPF-29
Containment Air Lock Leakage in Excess
Of Technical Specification Allowable Rate
LER 2001-002-00

GNRO-2001/00045

Ladies & Gentlemen:

Attached is Licensee Event Report (LER) 2001-02-00, which is a final report.

This letter contains no commitments.

Yours truly,

WAE/CDH/GWI

Attachment: 1. LER 2001-002-00

cc:

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NRC FORM 366
(1-2001)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 06/30/2001

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)

FACILITY NAME (1)

Grand Gulf Nuclear Station, Unit 1

DOCKET NUMBER (2)

05000-416

PAGE (3)

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TITLE (4)

Containment Air Lock Leakage In Excess of Technical Specification Allowable Rate

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
04	06	2001	2001	-- 002	-- 00	06	04	2001	N/A	05000
									N/A	05000

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more) (11)			
POWER LEVEL (10)	100	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)	50.36(c)(1)(i)(A)	50.73(a)(2)(iv)(A)	50.71(a)(4)
		20.2203(a)(2)(i)	50.36(c)(2)(ii)(A)	50.73(a)(2)(v)(A)	50.71(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)	50.73(a)(2)(i)(B)	X 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)			

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Charles D. Holifield / Senior Licensing Engineer or Gary W. Ingram/Senior Licensing Specialist	601-437-6439 or 601-437-6716

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
X	NH	AL	W302	N					

SUPPLEMENTAL REPORT EXPECTED (14)

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

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

On April 2, 2001, a pressure decay surveillance on the outer containment air lock on the 119 Foot Elevation indicated that seal air system leakage exceeded the technical specification (TS) limit of greater than 2 pounds per square inch guage (PSIG) for a period of 48 hours. The excess leakage was attributed to a clevis valve failure and a regulator valve leaking through. These components were reworked and the door was restored to OPERABILITY on April 5, 2001.

On April 6, 2001, a pressure decay surveillance on the containment inner air lock on the 119 Foot Elevation indicated that the seal air system leakage rate exceeded the same TS limit. The excess leakage was attributed to a clevis valve failure and a minor pressure leak on a switch fitting. These components were reworked and the door was restored to OPERABILITY on April 7, 2001. Engineering evaluation of test results indicated that the condition would not have prevented the fulfillment of the containment safety function. Therefore, this condition did not constitute a safety system functional failure.

Engineering evaluation indicated that the containment inner air lock would have failed the surveillance if only the clevis valve had failed. Thus, GGNS is reporting the April 6, 2001, occurrence under 10CFR50.73(a)(2)(vii) for a single cause or condition causing two independent trains to become inoperable in a single system.

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TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

A. Reportable Occurrence

On April 6, 2001, GGNS exceeded the allowable containment air lock seal system leakage rate in Technical Specification (TS) Surveillance Requirement (SR) 3.6.1.2.4.

During the performance of a pressure decay surveillance on April 6, 2001, the leakage rate of the inner containment air lock [BD] seal system resulted in exceeding the allowable leakage permitted by TS SR 3.6.1.2.4. The leaking components were reworked and the air lock was returned to OPERABILITY on April 7, 2001.

This event was preceded on April 2, 2001, by a pressure decay surveillance during which the leakage rate of the outer containment air lock seal system resulted in exceeding the allowable leakage permitted by TS SR 3.6.1.2.4. The leaking components were reworked and the air lock was returned to OPERABILITY on April 5, 2001.

Since both events were attributed to failure of the same type clevis valve in two independent trains in a single system, the April 6, 2001 event meets the 10CFR50.73(a)(2)(vii) reporting criterion.

An assessment of this condition with respect to containment leakage was performed to determine if the condition could have prevented the fulfillment of the containment safety function. Assessment results indicated that the condition would not have prevented fulfillment of the containment safety function.

B. Initial Conditions

At the time of the event, the reactor was in OPERATIONAL CONDITION 1 with reactor power at approximately 100 percent. Moderator temperature, reactor pressure vessel (RPV) pressure and RPV water level were at approximately 540 degrees F, 1045 PSIG and 36 inches, respectively. The 18-month surveillance was being performed on the containment inner air lock seal pneumatic system. There were no additional inoperable structures, systems, or components at the start of the event that contributed to the event.

C. Description of Occurrence

On April 6, 2001, at approximately 0435 hours an 18-month surveillance was being performed on the containment inner air lock pneumatic system when test results indicated that the seal system leakage rate exceeded that allowed by TS SR 3.6.1.2.4. The air lock had been previously declared inoperable on April 5, 2001, at 2126 hours for performance of the surveillance.

The air lock components were reworked and retested and the air lock was returned to OPERABILITY on April 7, 2001, at 2030 hours.

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D. Apparent Cause

The condition was caused by two sequential clevis valve failures requiring rework, retest, and a surveillance completion to establish OPERABILITY.

The cause of the failed clevis valves was attributed to normal wear of the valve seals and lubricant over time. The clevis valves were replaced in June, 1995, as part of the containment air lock pneumatic system redesign.

The cause(s) of the regulator valve leaking through on the outer air lock and the pressure leak on the switch fitting on the inner air lock have not been determined. Initial engineering assessment indicated that neither of these occurrences alone would have resulted in an air lock failed surveillance. They appear to be isolated, random events.

E. Corrective Actions**Immediate Corrective Actions:**

- Condition Reports CR-GGN-2001-0526 (outer door) and CR-GGN-2001-0559 (inner door) were written to document the lower containment air lock door seal air systems leakage rate in excess of the TS allowable leakage rate. CR-GGN-2001-0563 was written to identify a possible generic implication with the clevis valves on the containment air locks.
- An engineering evaluation of test results was performed to determine if the condition would have prevented the fulfillment of the containment safety function.
- The air lock components were reworked and retested and the air locks were returned to OPERABILITY.
- Tubing drop tests on both containment air lock doors on the 208 Foot Elevation were performed. The inner door clevis valve was replaced before testing. The door passed the test. A post-surveillance bench test of the removed clevis valve indicated that the inner door would have passed with the old clevis valve installed. The outer door passed the test in its as-found condition. The outer door clevis valve was then replaced and retested satisfactory.

Long Term Corrective Actions:

- CR-GGN-2001-0563 was written to address possible generic clevis valve failures on containment air locks and any necessary corrective actions.

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F. Safety Assessment

An assessment of the containment air lock seal system was performed to determine if excessive loss of air via the inner air lock door's seal system would have prevented fulfillment of the containment safety function. The assessment was based on test results, plant conditions, applicable engineering reports, the air lock engineering specification, and the Electric Power Research Institute Probabilistic Safety Assessment Applications Guideline. The results are summarized below.

Each air lock is equipped with an air accumulator sized to keep the seals inflated for a minimum of 30 days in the event of prolonged loss of plant instrument air. This is based on the leakage not exceeding the allowable technical specification leakage rate over a 30-day period.

If leakage exceeds the allowable TS rate, the number of days that seal integrity is maintained is dependent on the actual leakage rate and the initial accumulator tank pressure. In this event, the inner door would have maintained its sealing function for approximately 11.6 days without instrument air makeup to the seal system. Using the TS minimum accumulator pressure of 90 psig instead of the actual as-found pressure, the door would have maintained its sealing function for 8.7 days without makeup. After this period, the containment safety function may have been compromised if instrument air could not have been recovered long enough to recharge the air accumulators. With instrument air makeup, the containment safety function would not have been compromised because of this condition.

The assessment used a conservative approach to calculate the probability that the instrument air system would be recovered prior to loss of containment safety function. Two dominant initiators that could cause the entire instrument air system to fail were considered. They are loss of power (LOP) and a seismic event that exceeds the operating basis earthquake (OBE) threshold. The probability that the instrument air system could not be restored was determined to be $1.20E-5$. Failure to restore the instrument air system was then considered in conjunction with postulated accidents where containment integrity is required. For the combined large and intermediate loss of coolant accident (LOCA) in combination with a LOP or a seismic event that exceeds the OBE threshold, the frequency of these independent events resulting in a containment safety function failure was determined to be approximately $4.8E-9$ /yr. This is well below the accepted industry threshold for risk significant conditions.

Based on the containment air lock seal system leakage assessment and the extremely low probability of containment safety function failure, there is reasonable assurance that the containment safety function would have been maintained. Thus, this event did not involve an increase in radiological risk and was not a potential detriment to the public health and safety.

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G. Additional Information

CR-GGN-2001-0563 was initiated to address possible generic implications with the clevis valves on the containment air locks.

Air Lock Data:

Manufacturer: W. J. Wooley Company
 Model Number: 1FA-PB-1
 Serial Number: 32480
 Manufacturing Design Standard: ASME Section III

Clevis Valve Data:

Manufacturer: Shrader-Bellows
 Model Number: M096-846-05
 Manufacturing Design Standard: Civil Standard C-153.0

As a result of this event, Condition Reports GG-CR-2001-0526-00 (outer door) and GG-CR-2001-0559-00 (inner door) were generated. CR-GGN-2001-0563-00 was written to identify a possible generic implication with the clevis valves on the containment air locks. Energy Industry Identification System (EIIIS) codes are identified in the text within brackets [].

LER 97-005-00 was submitted on October 30, 1997, for inadequate retest of the containment air lock seal system. The root cause of the condition was poor maintenance practices during pressure switch recalibration.

**ATTACHMENT 2 TO GNRO-2001/00045
 LICENSEE-IDENTIFIED COMMITMENTS**

Letter #:	GNRO-2001/00045		
COMMITMENT	TYPE <small>(Check only one type)</small>		SCHEDULED COMPLETION DATE <small>(If Required)</small>
	ONE- TIME ACTION	CONTINUING COMPLIANCE	
None			