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Jerry C. Roberts

Director
Nuclear Safety Assurance

October 14, 2003

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

Attention: Document Control Desk

Subject: LER 2003-003-00 [Containment Airlock Seal Air Leakage in
Excess of Technical Specification Allowable Rate]

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

GNRO-2003/00056

Ladies & Gentlemen:

Attached is Licensee Event Report (LER) 2003-003-00 which is a final report.
This letter does not contain any commitments.

Yours truly,

A handwritten signature in black ink, appearing to read "J. Roberts", with a long horizontal flourish extending to the right.

JCR/ACG/WBA:wba
attachment: LER 2003-003-00

cc: (See Next Page)

October 14, 2003
GNRO-2003/00056
Page 2 of 2

cc:

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LICENSEE EVENT REPORT (LER)

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

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

1. FACILITY NAME Grand Gulf Nuclear Station, Unit 1	2. DOCKET NUMBER 05000 416	3. PAGE 1 OF 4
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4. Title: Containment Airlock Seal Air Leakage in Excess of Technical Specification Allowable Rate

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
08	17	2003	2003	003	00	10	15	2003	N/A	05000
									FACILITY NAME	DOCKET NUMBER
									N/A	05000

9. OPERATING MODE	1	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)								
10. POWER LEVEL	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)	50.361(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	Specify in Abstract below or in NRC Form 366A				
		20.2203(a)(2)(iii)	50.46(a)(3)(ii)	50.73(a)(2)(v)(C)						
		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)						

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

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
B	NH	AL	927800	Y					

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)

On August 16 and 17, 2003, during performance of "Personnel Airlock Door Seal Air System Leak Test," on the outer door of the Upper Containment Airlock, the air system leakage was found to be 2.3 pounds/square inch gauge (psig) in 48 hours, compared to the permissible leakage rate of 2 psig in 48 hours specified in Technical Specification SR 3.6.1.2.4.

Preceding the above test On August 15, 2003, during initial testing on the inner door of the Upper Containment Airlock [BD] Seal System, the air system leakage was recorded to be approximately 81.6 psig in 48 hours. This leakage rate exceeds the permissible leakage rate of 2 psig in 48 hours specified in Technical Specification SR 3.6.1.2.4.

In both cases Immediate actions were taken to correct the leakage. The pressure switches for the doors and the "O" ring for the inner door clevis valve were replaced. The re-test for both doors was successful and the System was declared operable.

The repetitive failure of two same types of pressure switches constituted "Common Cause Failure". The event is being reported per 10CFR50.73 (a) (2) (vii) due to a single cause or condition causing two independent trains to become inoperable in a single system designed to control the release of radioactive material.

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1. FACILITY NAME

Grand Gulf Nuclear Station, Unit 1

2. DOCKET NUMBER

05000 416

3. PAGE

2 OF 4

A. REPORTABLE OCCURRENCE

With the failure of the inner door and the outer door from the same cause (failed pressure switch), Grand Gulf Nuclear Station (GGNS) met the reporting requirement of 10CFR50.73(a)(2)(vii) (CR's 2003-2388 and 2003-2386).

The "Personnel Airlock Door Seal Air System Leak Test" on the outer Door of the Upper Containment Airlock M23Y002 started at 2200 hours on August 16, 2003. The test was halted at 0030 hours on August 17 due to a leakage rate of 0.0479 psig per hour (2.3 psig in 48 hours). This leakage rate exceeded the permissible leakage rate of 2 psig in 48 hours (0.04167 psig per hour) specified in Technical Specification SR 3.6.1.2.4. The test was declared a failure.

Preceding the above test at 1700 hours on August 15, 2003 during initial testing on the Inner Door of the Upper Containment Airlock M23Y002, the air system leakage rate was found to be approximately 5 psig in 3 hours (81.6 psig in 48 hours). This leakage rate also exceeded the permissible leakage rate of 2 psig in 48 hours (0.04167 psig per hour) specified in Technical Specification SR 3.6.1.2.4. The test was declared a failed test. The door was repaired and restored to operable prior to the outer door testing.

To correct the leakage, the pressure switches for the inner and outer door were replaced and the "O" ring for the clevis valve on the inner door was replaced. The re-test for both doors was successful. The Upper Containment Airlock inner door was closed at 0941 hours on August 16, 2003 with the system declared Operable and the outer door closed and locked at 1513 hours on August 17, 2003 and the system declared Operable in accordance with Technical Specification LCO 3.6.1.2 A.

Since both events were attributed to failure of the same type of pressure switch in two independent trains in a single system, the August 17, 2003 event meets the 10CFR50.73(a)(2)(vii) reporting criterion.

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, 1028 PSIG and 37 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

During initial testing on the Inner Door of the Upper Containment Airlock M23Y002, the air system leakage rate was found to be approximately 5 psig in 3 hours (81.6 psig in 48 hours). This leakage

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1. FACILITY NAME

Grand Gulf Nuclear Station, Unit 1

2. DOCKET NUMBER

05000 416

3. PAGE

3 OF 4

rate exceeded the permissible leakage rate of 2 psig in 48 hours (0.04167 psig per hour) specified in Technical Specification SR 3.6.1.2.4. The test was declared a failure.

The source of leakage was a leaking pressure switch. The pressure switch and the clevis valve "O" ring were replaced and the inner door (re)test was successful. The Airlock was declared Operable at 0941 hours on August 16, 2003.

The "Personnel Airlock Door Seal Air System Leak Test" on the outer door of the Upper Containment Airlock M23Y002 started at 2200 hours on August 16, 2003. The test was halted at 0030 hours on August 17 due to a leakage rate of 0.0479 psig per hour. This leakage rate exceeded the permissible leakage rate of 2 psig in 48 hours (0.04167 psig per hour) specified in Technical Specification SR 3.6.1.2.4. The test was declared a failure.

Investigation into the cause of leakage within the boundary of the test was determined to be a failed pressure switch. The pressure switch was replaced. The outer door (re)test was successful and the Airlock declared Operable.

Because the failures were the result of identical pressure switches, this is reportable under 10CFR50.73(a)(2)(vii).

D. APPARENT CAUSE

The condition was caused by two sequential pressure switch failures requiring rework, retest, and a surveillance completion to establish OPERABILITY. The cause of the failed pressure switches was attributed to a hole in the pressure sensing diaphragm.

E. CORRECTIVE ACTIONS**Immediate Corrective Actions:**

Condition Reports CR-GGN-2003-02386 and CR-GGN-2003-02388 were written related to the upper containment air lock door seal air systems leakage rate in excess of the TS allowable leakage rate.

Long Term Corrective Actions:

Condition Report CR-GGN-2003-02388 is the open document tracking the long term corrective actions.

F. SAFETY ASSESSMENT

An assessment of the containment air lock seal system was performed to determine if excessive loss of air via the outer 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, and the air lock engineering specification. The results are summarized below.

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1. FACILITY NAME Grand Gulf Nuclear Station, Unit 1	2. DOCKET NUMBER 05000 416	3. PAGE 4 OF 4
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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. The allowable technical specification leakage rate is based on a seal inflation pressure to maintain seal leak tightness for containment pressure in excess of the maximum expected pressure following a design basis accident in primary containment.

If leakage exceeds the allowable TS rate, the number of days that seal integrity is maintained is determined based on the actual leakage rate, the initial accumulator tank pressure, and the minimum seal pressure to maintain seal integrity considering the maximum design post-accident containment pressure (P_a) of 11.5 psig. In this event, the outer door would have maintained its sealing function for approximately 43.7 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 37 1/2 days without makeup.

Based on the containment air lock seal system leakage assessment, the air lock door's seal system was capable of maintaining the air lock penetration leak tight for greater than 30 days. Thus, the containment safety function was maintained. This event did not involve an increase in radiological risk and was not a potential detriment to the public health and safety.

G. ADDITIONAL INFORMATION

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

Air Lock Data:

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

Pressure Switch Data:

Manufacturer:	Static-O-Ring
Model Number:	6RN-Y3-U9-C2A-YY
Manufacturing Design Standard	C-153.0

Energy Industry Identification System (EIIIS) codes are identified in the text within brackets [].

Previously submitted GGNS LERs:

LER 1997-005-00 was submitted on October 30, 1997, for inadequate retest of the containment air lock seal.

LER 2001-002-00 was submitted on June 4, 2001, for exceeding the Technical Specification allowable containment air lock system leakage rate due to failed clevis valves due to normal wear of the valve seals and lubricant over time.