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February 14, 1996

U.S. Nuclear Regulatory Commission
Mail Station P1-137
Washington, D.C. 20555

Attention: Document Control Desk

SUBJECT: Grand Gulf Nuclear Station, Unit 1
Docket No. 50-416
License No. NPF-29
Update to Violation of Operating License Condition 2.C.(38) Control Room
Envelope Boundary
LER 95-012-01

GNRO-96/00014

Gentlemen:

Attached is Licensee Event Report (LER) 95-012-01 which is a final report.

Yours truly,

CRH/KAG
attachment

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NRC FORM 366 (4-95)		U.S. NUCLEAR REGULATORY COMMISSION			APPROVED BY OMB NO. 3150-0104 EXPIRES 04/30/98						
LICENSEE EVENT REPORT (LER)					ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.						
FACILITY NAME (1) Grand Gulf Nuclear Station, Unit 1					DOCKET NUMBER (2) 05000-416		PAGE (3) 1 of 6				
TITLE (4) Update to Violation of Operating License Condition 2.C.(38)Control Room Envelope Boundary											
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	
11	02	95	95	012	01	02	14	96	N/A	05000	
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more) (11)									
1		20.2201(b)			20.2203(a)(2)(v)			50.73(a)(2)(i)		50.73(a)(2)(viii)	
POWER LEVEL (10)		20.2203(a)(2)(i)			20.2203(a)(3)(i)			50.73(a)(2)(ii)		50.73(a)(2)(x)	
100		20.405(a)(1)(ii)			20.2203(a)(3)(ii)			50.73(a)(2)(iii)		73.71	
		20.2203(a)(2)(ii)			20.2203(a)(4)			50.73(a)(2)(iv)		X OTHER	
		20.2203(a)(2)(iii)			50.36(c)(1)			50.73(a)(2)(v)		Specify in Abstract below or in NRC Form 366A	
		20.2203(a)(2)(iv)			50.36(c)(2)			50.73(a)(2)(vii)		Violation of OL Condition 2.C.(38)	
LICENSEE CONTACT FOR THIS LER (12)											
NAME Ken Godfrey/ Licensing Specialist						TELEPHONE NUMBER (Include Area Code) (601)437-6164					
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)											
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		
SUPPLEMENTAL REPORT EXPECTED (14)						EXPECTED SUBMISSION DATE (15)			MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)				X NO							
ABSTRACT (Limit to 1400 spaces, i. e., approximately 15 single-spaced typewritten lines) (16)											
<p>On October 12, 1995, after a power supply was replaced in the 'B' Control Room Heating, Ventilating and Air Conditioner (HVAC) unit, the fan was started to test the new power supply. When control room operators detected an abnormal odor from the control room ventilation, plant personnel were sent to investigate the problem. During troubleshooting activities and subsequent fan drive belt replacement, plant personnel opened an access panel on the 'B' Control Room HVAC unit in order to gain access to the fan drive belts. This panel is part of the control room envelope boundary, and opening the panel exceeded the allowable opening area for the envelope boundary. Plant personnel did not consider the removal of the panel to be a breach of the control room envelope boundary. The condition was discovered after the work had been completed and was reportable pursuant to Operating License Condition 2.F.</p> <p>This LER is being submitted as a supplemental report to LER 95-12-00 reported December 4, 1995.</p>											

NRC FORM 366A (5-82)	U.S. NUCLEAR REGULATORY COMMISSION	APPROVED BY OMB NO. 3150-0104 EXPIRES 5/31/95		
LICENSEE EVENT REPORT (LER) TEXT CONTINUATION		ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503		
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TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

A. Reportable Occurrence

The Operating License (OL) Condition 2.C.(38) requires the control room leak rate to be maintained within 590 cubic feet per minute (cfm) during modes 1, 2, and 3. The 590 cfm limit allows for additional boundary openings of approximately 20 in². However, the panel which was removed for fan drive belt replacement was equivalent to an opening of approximately 678 in². Therefore, this was a violation of OL Condition 2.C.(38), and was reported pursuant to OL Condition 2.F. This LER is being submitted as a supplemental report to LER 95-12-00 reported December 4, 1995.

B. Initial Conditions

At the time of discovery, the plant was in OPERATIONAL CONDITION 1 with reactor power at approximately 100 percent. Reactor coolant temperature was approximately 529 degrees F. Reactor Pressure Vessel level was 36 inches.

C. Description of Occurrence

On October 12, 1995, after a power supply was replaced in the 'B' Control Room Heating, Ventilating and Air Conditioner (HVAC) unit [VI], the fan was started as a test for the new power supply. When control room operators detected an abnormal odor coming from the control room ventilation, plant personnel were dispatched to investigate the problem. During troubleshooting activities and subsequent fan drive belt replacement, an access panel on 'B' Control Room HVAC was opened in order to gain access to the fan drive belts. However, maintenance personnel did not consider the removal of the panel to be a breach of the control room envelope boundary. Additionally, operations personnel were unaware that the panel removal was needed to gain access to the belts. Therefore, they did not request the Penetration Coordinator's review prior to opening the access panel as required by current administrative controls. Since this review was not performed and the access panel was removed, the control room envelope boundary was violated. The condition was discovered on November 2, 1995, after the work had been completed.

A subsequent review was performed to identify other activities which opened the access panel to the Control Room HVAC units. Four repetitive maintenance tasks were found that, when performed, violated the control room envelope.

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		FACILITY NAME (1) Grand Gulf Nuclear Station, Unit 1	DOCKET NUMBER (2) 05000-416	LER NUMBER (6) 95-012-01

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D. Apparent Cause

The root cause of this event is that the Corrective Actions of a previous control room envelope event were either ineffective or incomplete prior to this event:

- 1) Inadequate interim measures were implemented to assure that a breach in the control room envelope would not occur while corrective actions were being incorporated into permanent plant documentation.
- 2) When labeling the control room envelope access panels and penetrations, all structures, systems and components which comprise the entire boundary including access panels used for periodic equipment maintenance were not considered.

A contributing cause was that the work order issued to perform the HVAC belt replacement did not identify any control room envelope impact statement which delayed identification of the boundary breach.

E. Corrective Actions

Corrective Actions Completed:

- 1) All open Work Orders (WO) for the control building have been verified to ensure control room envelope impact is adequately addressed.
- 2) Access panels on both trains of Control Room HVAC units which are a part of the envelope boundary have been labeled as such to ensure that boundary penetrations are clearly identified.
- 3) An evaluation which further defines the control room envelope boundary definition has been issued by design engineering.
- 4) The design engineering organization has reviewed how increased opening size affects GGNS' design bases for radiological and chemical consequences of the control room envelope.
- 5) New criteria has been established which provides additional guidance for work packages affecting the control room envelope boundary.

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Corrective Actions In Progress:

- 1) Changes to work order impacts/instructions will be included for control building repetitive maintenance tasks which require special guidance regarding the control room envelope.

F. Safety Assessment

The GGNS Individual Plant Examination evaluated the average frequency of core damage internal events to be 1.7 E-5 per reactor year. From this, the probability of a core damage event for the period in which the HVAC access panel was open (maximum of one day) is 4.7 E-8. This probability is below the definition of a risk significant temporary change (*i.e.*, 1 E-6) provided by the Nuclear Energy Institute Probabilistic Safety Analysis Applications Guidelines. Thus, the overall radiological risk to the control room operators presented by this temporary condition was very insignificant.

For future maintenance activities, an engineering evaluation was performed to assess the relative importance of short-term increases in control room inleakage on the radiological protection functions. On the basis of this evaluation, it is concluded that the radiological consequences of increased control room inleakage present a concern only during Operational Conditions 1, 2, and 3. The acceptable control room inleakage value, as described in GGNS Supplement 6 to Safety Evaluation Report (SSER 6), Section 6.4, is based on compliance to the General Design Criterion (GDC)-19 dose limits. Control room doses during Operational Conditions 4 and 5 remain within the limits of GDC-19 for a postulated design basis fuel handling accident without control room isolation. For Operational Conditions 1, 2, and 3, a temporary opening in the control room envelope of up to 4,000 square inches is acceptable for the first 30 minutes following the onset of a radiological accident. Thus, the applicable acceptance limits are met as long as the control room inleakage is restored to the 590 cfm criterion within 30 minutes of event initiation. In this manner, the intent of the License Condition is met for temporary conditions exceeding 590 cfm when control room leak tightness is restored as described above.

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Investigation of the event revealed that additional openings in the control room envelope boundary could have existed. If so, the maximum opening size in the control room envelope boundary at any given time during this event could have been 1879 in².

A review of the Plant Data System's historical trend data reveals that during the entire time the access doors were open, the control room HVAC was operating in its normal mode. This means the control room HVAC Unit "A" was in operation and supplying outside air to the control room envelope and the control room utility exhaust fan was exhausting a lesser amount of air from the control room envelope. This results in the control room envelope remaining slightly pressurized during the events described in this LER; therefore, the control room operator's were at no risk with regards to a toxic chemical accident with the control room HVAC system in its normal mode of operation.

If the control room HVAC system had swapped to the isolation mode while the openings were present, the control room operators would have remained in no danger with regards to a toxic chemical accident. In the unlikely event of a toxic chemical accident, the toxic chemical plume would have had to traverse the plant yard and penetrate a concrete wall rated for 3 psi pressure differential or through two sets of doors to enter the area in the control building where the HVAC unit is located.

Should the toxic chemical plume enter the control building, it would have to travel to the control room with no driving force (i.e., "B" train ductwork not pressurized, no wind since indoors). Considering the fact that the plume would have had to navigate a circuitous path with no driving force, it is concluded that it would have been highly unlikely for a toxic chemical plume to have reached the control room operators with unacceptable toxicity levels.

As a result of this temporary condition, the overall radiological risk to the control room operators was very insignificant. They also were at no risk with regards to a toxic chemical accident with the control room HVAC system in its normal or isolated mode of operation.

Immediate corrective actions were initiated to resolve any safety concerns.

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G. Additional Information

This is an event similar to that reported by LER 93-007-00 on 08-26-93, and LER 93-007-01 on 12-03-93. As a result of this event, Incident Report 95-11-1 and Quality Deficiency Report 171-93 Supplement 1 were initiated.

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