



**ENTERGY**

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December 1, 1994

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Vice President  
Operations  
Grand Gulf Nuclear Station

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 ESF Switchgear Room Temperatures Could  
Exceed Allowable Limits  
LER 94-002-01

GNRO-94/00138

Gentlemen:

Attached is Licensee Event Report (LER) 94-002-01 which is an interim report.

Yours truly,

CRH/RR/  
attachment

cc:

- Mr. J. E. Tedrow (w/a)
- Mr. H. W. Keiser (w/a)
- Mr. R. B. McGehee (w/a)
- Mr. N. S. Reynolds (w/a)
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NRC FORM 366 (5-92)		U.S. NUCLEAR REGULATORY COMMISSION				APPROVED BY OMB NO. 3150-0104 EXPIRES 5/31/95				
LICENSEE EVENT REPORT (LER)						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 (MNBB 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				
FACILITY NAME (1) Grand Gulf Nuclear Station						DOCKET NUMBER (2) 05000-416		PAGE (3) 01 of 04		
TITLE (4) Update to ESF Switchgear Rooms Temperatures Could Exceed Allowable Limits Under Post-LOCA Conditions										
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
02	25	94	94	002	01	12	01	94	N/A	05000
									FACILITY NAME	DOCKET NUMBER
									N/A	05000
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more (11))								
1		20.402(b)		20.405(c)		50.73(a)(2)(iv)		73.71(b)		
POWER LEVEL (10)		20.405(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)		73.71(c)		
100		20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)		OTHER		
		20.405(a)(1)(iii)		50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		(Specify in abstract below and in text. NRC Form 366A)		
		20.405(a)(1)(iv)		X 50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)				
		20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(x)				
LICENSEE CONTACT FOR THIS LER (12)										
NAME Riley Ruffin / Licensing Specialist					TELEPHONE NUMBER (Include Area Code, 601-437-2167					
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		
X	YES (If yes, complete EXPECTED SUBMISSION DATE)			NO				06 01 95		
ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)										
<p>On February 25, 1994, Design Engineering personnel identified that equipment in four ESF switchgear rooms may not be operable during post-LOCA conditions if the associated room cooler was out of service. The condition identification was based on preliminary calculations of ventilation cooling loads. Specifically, with the room cooler out of service, the associated room could reach temperatures that were not previously evaluated. The availability of equipment in these rooms could not be guaranteed.</p> <p>Preliminary investigations revealed that non-conservative assumptions were made in the original design calculation performed by the Architect/Engineer. The original calculation did not address all heat loads that would be expected during accident conditions. They did not adequately consider loads created by certain electrical cables, space heaters, etc. <b>Calculations are being performed to determine the revised temperatures in the areas of concern. A supplemental report will be submitted following completion of the evaluation.</b></p>										

NRC FORM 366A (5-92)	U.S. NUCLEAR REGULATORY COMMISSION	APPROVED BY OMB NO. 3150-0104 EXPIRES 5/31/95		
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TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

### A. Reportable Occurrence

During a review of preliminary cooling load calculations, plant personnel identified the potential for four ESF switchgear rooms to exceed the allowable temperature limits in certain post-LOCA conditions. This is considered to be an unanalyzed condition and is being reported pursuant 10 CFR 50.73(a)(2)(ii)(A).

### B. Initial Condition

The reactor was in OPERATIONAL CONDITION 1 with reactor power indicating 100 percent power. Reactor temperature was indicating approximately 532 degrees F at the time of discovery.

### C. Description of Occurrence

The ESF switchgear room coolers provide a support function for the ESF electrical switchgear covered by GGNS Technical Specification (TS) Section 3.8.3. The operability of the electrical distribution system must be evaluated in the event a room cooler is out of service. Following the identification of cooling load deficiencies in 1986 (as reported in LER 86-029 and its supplements), an evaluation was performed to determine the impact of the increased temperatures that would be experienced in affected rooms. This evaluation was based on the original design calculation and assumptions for cooling loads. The evaluation determined that equipment located in the ESF switchgear rooms would not be significantly affected by the loss of one room cooler during a design basis accident (DBA).

Room coolers are removed from service for routine maintenance, repair or other procedures, as required. Since the TS do not address the operability of the switchgear room coolers, a TS position statement (PS) was developed to establish actions in the event a cooler was out of service. The justification used to support the PS was based on the aforementioned evaluation. The actions specified by the PS required an inoperable room cooler to be restored within 72 hours. Otherwise, obtain Management approval of a plan and schedule for restoration with the next 8 hours. In the event more than one were inoperable, the associated onsite power distribution system would be declared inoperable and the appropriate TS actions taken.

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On February 25, 1994, while performing a review of preliminary ventilation cooling loads calculations, plant personnel identified four ESF switchgear rooms that could exceed allowable temperatures during a DBA if the associated room cooler was not in service. The operability of the equipment located in the switchgear rooms could not be guaranteed. These preliminary calculation indicated that the temperature in these four rooms would exceed the maximum temperature for which equipment operability is assured.

As a result of the findings, more stringent actions (TSPS 128, R1) were implemented for rooms that could possibly exceed the previously evaluated temperatures. The required action with one room cooler inoperable, is to restore the inoperable cooler within 72 hours or be in HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

#### D. Apparent Cause

The investigation of this condition revealed the following cause.

Calculations performed by the Architect/Engineer (Bechtel) were based on non-conservative assumptions regarding the loads created by certain electrical cables, space heaters, etc. The capacity of the room coolers is based on the maximum expected heat loads during accident conditions. However, the heat loads generated by electrical equipment in the rooms was underestimated in original design calculations.

The calculations described above were approved without adequate technical review. During initial design, there were no approved design standards providing a methodology for calculating heat loads for electrical components. Therefore, the calculations were developed using assumptions made by the responsible engineer and checker. Some of these assumptions were non-conservative.

A contributing factor was also identified during the investigation. Plant personnel missed an opportunity to identify the above deficiencies during a review that took place following Service Water deficiencies identified in 1986. Reviews were performed; however the non-conservative assumptions made by the AE were not identified.

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### E. Supplemental Corrective Actions

An evaluation of the four rooms is in progress to determine the functional capability of the affected equipment that is located in the rooms. Also, reviews of other areas served by safety related ventilation is planned. Based on the results of the evaluations, a long term resolution will be proposed. *In order to support this evaluation, calculations are being developed to determine temperature in the areas of concern.*

*A supplemental report is scheduled to be submitted following completion of the evaluation.*

### F. Safety Assessment

The above evaluations will determine the full impact of the condition that existed prior to the issuance of the revised PS. The revised PS implements actions commensurate with the significance of this condition. Therefore the health and safety of the public are not in question.

### G. Additional Information

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