



ENTERGY

Entergy Operations, Inc.
P.O. Box 756
Port Gibson, MS 39150
Tel: 601 437 2800

C. R. Hutchinson
Vice President
Operations
Grand Gulf Nuclear Station

December 4, 1995

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
Violation of Operating License Condition 2.C.(38) Control Room Envelope Boundary
LER 95-012-00

GNRO-95/00131

Gentlemen:

Attached is Licensee Event Report (LER) 95-012 which is an interim report.

Yours truly,

CRH/KAG
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)

Mr. Leonard J. Callan (w/a)
Regional Administrator
U.S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive Suite 400
Arlington, TX 76011

Mr. Paul W. O'Connor
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Mail Stop 13H3
Washington, D.C. 20555

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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, Unit 1 | | | | | | DOCKET NUMBER (2) 05000-416 | | PAGE (3) 1 of 5 | | |
| TITLE (4) 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 | 00 | 12 | 04 | 95 | N/A | 05000 |
| | | | | | | | | | FACILITY NAME | DOCKET NUMBLx |
| | | | | | | | | | 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) | | X 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) Violation of OL Condition 2.C.(38) | | |
| | | 20.405(a)(1)(iv) | | 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 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 | MONTH | DAY | YEAR | |
| X | YES (If yes, complete EXPECTED SUBMISSION DATE) | | | NO | | SUBMISSION DATE (15) | 02 | 15 | 96 | |
| 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 Conditioning (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 is reportable pursuant to Operating License Condition 2.F. A supplemental report will be submitted by February 15, 1996 to provide additional information regarding the safety assessment.</p> | | | | | | | | | | |

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| NRC FORM 366A (5-92) | 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 (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, Unit 1 | DOCKET NUMBER (2) 05000-416 | LER NUMBER (6) 95-012-00 |

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 square inches. However, the panel which was removed for fan drive belt replacement was equivalent to an opening of approximately 815 square inches. Therefore, this was a violation of OL Condition 2.C.(38), and is being reported pursuant to OL Condition 2.F.

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 Conditioning (HVAC) unit [NA], 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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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 the identification of the boundary breach.

E. Corrective Actions

- 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) Evaluate incorporating control room envelope special requirements into the component database for those components which constitute a control room envelope boundary.
- 4) Procedure changes will be submitted for control building repetitive maintenance tasks which require special guidance regarding the control room envelope.
- 5) New criteria will be established for work packages to verify control room envelope impact.

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- 6) A document which further defines the control room envelope boundary definition will be completed by design engineering.
- 7) The design engineering organization has reviewed how increased opening size affects GGNS' design bases for radiological and chemical consequences of the control room envelope.
- 8) A supplemental report will be submitted by February 15, 1996 to provide additional information regarding the safety assessment.

F. Safety Assessment

The GGNS Individual Plant Examination evaluated the average frequency of core damage internal events to be $1.7 \text{ E-}5$ 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 $4.7 \text{ E-}8$. This probability is below the definition of a risk significant temporary change (*i.e.*, $1 \text{ E-}6$) 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 leakage on the radiological protection functions. On the basis of this evaluation, it is concluded that the radiological consequences of increased control room leakage present a concern only during Operational Conditions 1, 2, and 3. The acceptable control room leakage value, as described in GGNS Supplement 6 to Safety Evaluation Report, 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 leakage 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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Immediate corrective actions were initiated to resolve any safety concerns. Additional information regarding the safety assessment of chemical hazards will be provided in a supplemental report by February 15, 1996.

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 (EIS) codes are identified in the text within brackets [].