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GNRO-2005/00041

June 30, 2005

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Subject: Follow-up Response to NRC Generic Letter (GL) 2003-01, "Control Room Habitability"
Grand Gulf Nuclear Station, Unit 1
Docket No. 50-416
License No. NPF-29

Dear Sir or Madam:

The purpose of this letter is to provide Entergy's follow-up response to Generic Letter (GL) 2003-01, "Control Room Habitability". In Entergy's initial response to the Generic Letter, as documented in letter GNRO-2003/00045, dated August 11, 2003, Grand Gulf Nuclear Station committed to perform certain actions to determine if Control Room Habitability is maintained within its current licensing and design basis. The results of that review are included within this letter.

New commitments contained in this submittal are summarized in Attachment 2.

If you have questions concerning this response, please contact Matt Crawford at 601-437-2334.

Sincerely,

CAB/MLC/amt

Attachments:
1. Follow-up Response to Generic Letter 2003-01, "Control Room Habitability"
2. List of Regulatory Commitments

cc: NRC Senior Resident Inspector
Grand Gulf Nuclear Station
Port Gibson, MS 39150

U. S. Nuclear Regulatory Commission
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Mr. J. N. Compton

Attachment 1

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Follow-up Response to Generic Letter 2003-01
"Control Room Habitability"

Background

On June 12, 2003, the NRC issued Generic Letter 2003-01, "Control Room Habitability." The letter requested licensees to submit information demonstrating that control rooms comply with the current licensing and design bases, and applicable regulatory requirements, and that suitable design, maintenance, and testing control measures are in place for maintaining this compliance. The Letter requested that we provide certain information as described below. The generic letter requested that this information be provided within 180 days of the date of the letter or if unable to meet this schedule, notification of the proposed plans for completion within 60 days of the date of the letter.

On August 11, 2003, Grand Gulf Nuclear Station (GGNS), Unit 1 submitted a response to GL 2003-01 that proposed an alternate course of action. As a proposed alternate course of action, GGNS committed to complete each of the initial "one time actions" described in Section 3 of NEI document 99-03, Revision 1, Control Room Habitability (CRH), for GGNS to facilitate the responses to the above requests. These actions were to:

- Assemble CRH licensing and design bases for control room emergency ventilation systems
- Assemble CRH analyses
- Document CRH bases and analyses
- Assess and evaluate licensing/design bases and operator dose analyses
- Confirm that limiting DBA has been used to assure adequacy of CRH design
- Verify that the potential effects of hazardous chemical release on control room operators have been addressed and that surveys of onsite and offsite hazardous chemicals have been conducted
- Assess and evaluate control room in leakage
- Assess and evaluate control room habitability during smoke events
- Assess and evaluate the adequacy of existing control room emergency ventilation system technical specifications

All of the above actions have been completed. In addition, tracer gas testing was conducted to ensure compliance with the GGNS licensing and design basis for Control Room Envelope (CRE) unfiltered inleakage assumptions.

The following provides the responses to the requested information.

1. "Provide confirmation that your facility's control room meets the applicable habitability regulatory requirements (e.g., GDC 1, 3, 4, 5, and 19) and that the CRHSs are designed, constructed, configured, operated, and maintained in accordance with the facility's design and licensing bases. Emphasis should be placed on confirming:

   a. That the most limiting unfiltered inleakage into your CRE (and the filtered inleakage if applicable) is no more than the value assumed in your design basis radiological analyses for Control Room Habitability. Describe how and when you performed the analyses, tests, and measurements for this confirmation."

      Response

      The GGNS control room is a neutral pressure design with a recirculating cleanup system to maintain low airborne activity levels. The inleakage requirements are currently maintained by Operating License Condition 2.B (38) which states that:

"EOI shall operate Grand Gulf Unit 1 during MODES 1 through 3 with an allowable control room leak rate not to exceed 2000 cfm (not including ingress/egress leakage of 10 cfm)." Before the implementation of the alternative source term in 1998, this inleakage limit was 590 cfm. In the isolated mode, the control room intake is isolated and the fresh air supply system is recirculating 4000 cfm of control room atmosphere through HEPA filters. In this neutral-pressure mode, the applicable analyses assume inleakage to be 2000 cfm consistent with the Operating License, with an addition 10 cfm from ingress/egress, for a total inleakage of 2010 cfm.

The main control room envelope consists of all rooms located on the main control room elevation 166', Technical Support Center, computer room elevation 177', upper cable spreading room and control cabinet area on elevation 189', main control room HVAC equipment located on elevation 133' including all duct chases.

A review of the design documentation, including specifications, drawings, and calculations, concluded that the control room HVAC system and filter units are adequately designed to meet the licensing basis (including General Design Criteria 2,3,4, and 5). Amendment 145 revised the design basis accident main control room dose limit requirements from GDC 19 to 10 CFR 50.67. A review of the design basis documents including technical specification show that procedure controls and/or required surveillance testing ensure the control room HVAC flow paths are correct and controlled.

The HEPA filter units and exhaust fans are adequately sized to filter a maximum of 4,000 CFM outside and return air for control room ventilation requirements. The filter units, fans, isolation dampers, ductwork, and associated accessories meet the requirements of RG 1.52 and ANSI N509/510. All habitability systems are designed to meet the single-failure criterion.

Based on the above evaluation, it is concluded the design of Grand Gulf main control room HVAC system meets the licensing basis and NEI guidance.

The CRE unfiltered inleakage rate assumed in the radiological analyses is 2010 cfm. The analyses were performed based upon the methods and assumptions consistent with the guidance provided in Regulatory Guide 1.183. The calculated dose consequences meet the acceptance criteria of 10 CFR 50.67.

Baseline tracer gas tests were conducted in March 2005 to measure CRE inleakage. The unfiltered inleakage to the CRE was measured using the ASTM Standard E471. The tracer gas testing was performed using site-approved procedures by a qualified contractor; Lagus Applied Technology, Inc. with the support of NCS Corporation. Air inleakage into the CRE was measured with the CR emergency ventilation system operating in different isolation modes with adjacent ventilation systems operating in different lineups. Measured inleakage rates are summarized below:

1. Isolated Mode w/both Recirculation Trains in Operation — 351 +/- 19 cfm
2. Isolated Mode w/ One Recirculation Train in Operation — 238 +/- 13 cfm
3. Normal Operating (Fresh Air) Mode — 812 +/- 48 cfm

w/ Train A in Operation

b. "That the most limiting unfiltered inleakage into your CRE is incorporated into your hazardous chemical assessments. This leakage may differ from the value assumed in your design basis radiological analyses. Also, confirm that the reactor control capability is maintained from either the control room or the alternate shut down panel in the event of smoke."

Response

Hazardous Materials

The accidental hazardous chemical release is evaluated based upon a computer model using the site specific meteorological data. The dispersion of this airborne release is dependent on the distance from the point of release and the atmospheric stability condition in the area. The CRFA system is assumed to be operating in normal mode with the flow path aligned to the most limiting flow path during the hazardous chemical release. Toxic chemical release evaluation was performed based upon an inleakage rate of 4060 cfm.

Smoke Events

Reactor control capability has been reviewed in the event of smoke. Procedures direct the plant shutdown and operation from the remote shutdown panel in the event of any unsafe situation such as toxic gas, high airborne activity, fire, or other condition which, in the opinion of the Control Room Supervisor, requires evacuation of the Control Room. The remote shutdown panel is located on El. 111' of the control building or two floors below the main control room. There are multiple routes from the main control room to the remote shutdown panel such that there is no credible smoke event that could affect control room habitability while simultaneously blocking the normal egress path to the remote shutdown panel.

c. "That your Technical Specifications verify the integrity of the CRE, and the assumed inleakage rates of potentially contaminated air. If you currently have a delta P surveillance requirement to demonstrate CRE integrity, provide the basis for your conclusion that it remains adequate to demonstrate CRE integrity in light of the ASTM E741 testing results. If you conclude that your delta P surveillance requirement is no longer adequate, provide a schedule for: 1) revising the surveillance requirement in your Technical Specification to reference an acceptable surveillance methodology (e.g., ASTM E741), and 2) making any necessary modifications to your CRE so that compliance with your new surveillance requirement can be demonstrated.

If your facility does not currently have a Technical Specification surveillance requirement for your CRE integrity, explain how and at what frequency you confirm your CRE integrity and why this is adequate to demonstrate CRE integrity."

Response

GGNS has a neutral pressure control room design. Therefore, there are no surveillance requirements regarding the operability of any pressurization system. Although the control room fresh air system can be aligned post-accident to pressurize the control room by drawing 4000 cfm of outside air through the HEPA filter and into the control room envelope, this pressurization effect is not credited in the accident analyses and was not tested. Currently, Technical Specification Surveillance and Bases for the control room filtration system are based on system operability, manual initiation, system flow and filter performance.

GGNS will submit a proposed licensing amendment request within six months following approval of TSTF-448. Alternately, if the TSTF is processed through the Consolidated Line Item Improvement Process (CLIIP), GGNS will submit a proposed licensing amendment within 6 months after the CLIIP is published in the Federal Register. The amendment request will include a new Technical Specification Surveillance Requirement to determine inleakage in accordance with the Control Room Integrity Program. A new section will be added to the Technical Specification Section 5.5, "Programs and Manuals," that will specify the scope of the Control Room Integrity Program. The Control Room Integrity Program will rely on the use of ASTM E741 tracer gas or other suitable inleakage testing. GGNS does not anticipate that modifications to the CRE will be required to demonstrate compliance with new surveillance requirements.

Attachment 2

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List of Regulatory Commitments

List of Regulatory Commitments

The following table identifies those actions committed to by Entergy in this document. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments.

COMMITMENT	TYPE (Check One)		SCHEDULED COMPLETION DATE (If Required)
	ONE-TIME ACTION	CONTINUING COMPLIANCE	
GGNS will submit a proposed licensing amendment request within six months following approval of TSTF-448. Alternately, if the TSTF is processed through the Consolidated Line Item Improvement Process (CLIIP), GGNS will submit a proposed licensing amendment within 6 months after the CLIIP is published in the Federal Register. The amendment request will include a new Technical Specification Surveillance Requirement to determine inleakage in accordance with the Control Room Integrity Program. A new section will be added to the Technical Specification Section 5.5, "Programs and Manuals," that will specify the scope of the Control Room Integrity Program. The Control Room Integrity Program will rely on the use of ASTM E741 tracer gas or other suitable inleakage testing.	X		N/A