



Serial: RNP-RA/03-0144

DEC 08 2003

United States Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555-0001

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2  
DOCKET NO. 50-261/LICENSE NO. DPR-23

**SUBMITTAL OF INFORMATION REQUESTED BY  
NRC GENERIC LETTER 2003-01, "CONTROL ROOM HABITABILITY"**

Ladies and Gentlemen:

On June 12, 2003, NRC Generic Letter 2003-01, "Control Room Habitability," was issued requesting that licensees provide information related to control room habitability. The purpose of this letter is to provide the H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2, response to NRC Generic Letter 2003-01.

Attachment I provides an Affirmation in accordance with 10 CFR 50.54(f).

Attachment II provides the HBRSEP, Unit No. 2, response to NRC Generic Letter 2003-01.

If you have any questions concerning this matter, please contact Mr. C. T. Baucom.

Sincerely,

A handwritten signature in black ink, appearing to read 'Jan F. Lucas', written over a circular stamp or seal.

Jan F. Lucas  
Manager - Support Services - Nuclear

RAC/rac

**Attachments:**

- I. Affirmation
- II. Submittal of Information Requested by NRC Generic Letter 2003-01, "Control Room Habitability"

c: Mr. L. A. Reyes, NRC, Region II  
Mr. C. P. Patel, NRC, NRR  
NRC Resident Inspector

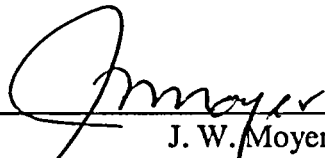
Progress Energy Carolinas, Inc.  
Robinson Nuclear Plant  
3581 West Entrance Road  
Hartsville, SC 29550

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**AFFIRMATION**

The information contained in letter RNP-RA/03-0144 is true and correct to the best of my information, knowledge, and belief; and the sources of my information are officers, employees, contractors, and agents of Progress Energy Carolinas, Inc. I declare under penalty of perjury that the foregoing is true and correct.

Executed On: 8 December 2003

  
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J. W. Moyer  
Vice President, HBRSEP, Unit No. 2

**H.B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2**

**SUBMITTAL OF INFORMATION REQUESTED BY  
NRC GENERIC LETTER 2003-01, "CONTROL ROOM HABITABILITY"**

**NRC 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 Control Room Habitability Systems (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 leakage into your Control Room Envelope (CRE) (and the filtered leakage 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.
- (b) That the most limiting unfiltered leakage 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 shutdown panel in the event of smoke.
- (c) That your technical specifications verify the integrity of the CRE, and the assumed leakage 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 1**

H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2, confirms that the control room meets the applicable habitability regulatory requirements and that the CRHSs are designed, constructed, configured, operated, and maintained in accordance with the facility design and

licensing bases. This confirmation is based on the following:

- The Updated Final Safety Analysis Report (UFSAR) Chapter 15 design basis radiological analyses were reanalyzed in accordance with the Alternative Source Term (AST) guidelines provided within Regulatory Guide 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors." Each input assumption was evaluated against current plant design and operation. Each accident was analyzed for control room dose such that the limiting accident for control room habitability was determined. The revised analyses were submitted to the NRC in a letter dated May 10, 2002. Although these analyses are not yet approved by the NRC, the detailed review of design inputs performed while preparing these analyses provided added confidence that the CRHSs are designed and operated in accordance with the existing licensing basis.
- A detailed review of the control room habitability envelope and ventilation systems was performed in preparation for tracer gas tests that were conducted in January 2003. This review confirmed that the construction and configuration of the envelope and ventilation systems are consistent with the design and licensing bases.
- A detailed self-assessment of control room habitability was performed. The self-assessment scope addressed many of the topics covered in NEI 99-03, "Control Room Habitability Assessment Guidance," including: operating procedures, surveillance testing, post-maintenance testing, maintenance practices and procedures, radiological analyses, hazardous chemical evaluations, and design change control. No significant findings resulted from that self-assessment and, with the exception of one minor procedural enhancement, the identified corrective actions have been completed.

The above confirmation is based, in part, on the fact that one of the current regulatory requirements for HBRSEP, Unit No. 2, as implemented via the Technical Specifications, is that a positive pressure test provides adequate confirmation that negligible inleakage will occur, and hence low inleakage rate assumptions in the analyses are acceptable. One primary emphasis of Generic Letter 2003-01 is to address the fact that the current regulatory requirement for use of a positive pressure test may not be adequate justification for low inleakage rate assumptions. The following additional details, which are specific to the three sub-issues emphasized within the Generic Letter, provide information relevant to HBRSEP, Unit No. 2, in this regard:

- (a) Tracer gas tests of the HBRSEP, Unit No. 2, control room habitability envelope were performed in January 2003. These tests were performed as part of the technical justification for the input assumptions associated with the revised radiological analyses performed in accordance with Regulatory Guide 1.183. A discussion of these tracer gas tests and their results, including a comparison with design basis radiological analyses assumptions, was provided to the NRC in a letter dated April 10, 2003. A summary of that

information is provided as follows:

- Measured inleakage rates were less than the values assumed in the revised radiological analyses.
- Measured inleakage rates for one specific mode of system operation exceeded the value assumed in the current radiological analysis of record (the assumed value is 5 cfm versus the measured value of approximately 30 cfm).

Although the measured inleakage rate exceeded that assumed in the current analysis of record, HBRSEP, Unit No. 2, has concluded that the control room would remain habitable following a design basis accident based on the revised radiological analyses that have been performed in accordance with Regulatory Guide 1.183.

- (b) HBRSEP, Unit No. 2, recently updated the hazardous chemical analyses, including a re-evaluation of on-site and off-site sources, as well as the analyses of the resultant control room concentrations. These updated analyses assumed normal make-up and infiltration simultaneously. A total air intake flow of 570 cfm (400 cfm normal makeup plus 170 cfm air inleakage) was assumed. No isolation of the control room normal ventilation was assumed, and the control room emergency filtration system was not assumed to be in recirculation during the analyses. The updated analyses demonstrate that the control room remains habitable following a postulated external release of hazardous chemicals from mobile or stationary sources, on-site or off-site. The results of the tracer gas testing performed in January 2003 demonstrated that the assumed combined intake flow of 570 cfm is conservative. A description of these tests and their results was provided to the NRC in a letter dated April 10, 2003.

In regard to maintaining reactor control capability in the event of a smoke event, HBRSEP, Unit No. 2, has performed a qualitative evaluation in accordance with NEI 99-03. That evaluation concluded that safe shutdown of the reactor can be achieved from either the control room or the alternate shutdown locations in the event of smoke originating inside or outside the control room envelope.

- (c) HBRSEP, Unit No. 2, is a positive pressure control room design and has a Technical Specifications positive pressure surveillance requirement (Technical Specifications Surveillance Requirement 3.7.9.4). HBRSEP, Unit No. 2, has determined that the current surveillance requirement alone is not adequate for demonstration of CRE integrity. Therefore, HBRSEP, Unit No. 2, will submit a proposed license amendment request that will include a new Technical Specifications surveillance requirement to determine inleakage in accordance with a CRE integrity program. A new section will be added to Technical Specifications Section 5.5, "Programs and Manuals," that will specify the scope of the CRE integrity program. The CRE integrity program will rely on the use of tracer gas

testing. Based on experience from the recently performed CRE tracer gas tests at HBRSEP, Unit No. 2, it is not anticipated that modifications to the CRE will be required in order to demonstrate compliance with new surveillance requirements. HBRSEP, Unit No. 2, will submit the proposed license amendment within six months of the approval of TSTF-448, or the issuance of the Consolidated Line Item Improvement Process (CLIIP) notice if the TSTF is issued by that process.

### **NRC Requested Information 2**

If you currently use compensatory measures to demonstrate control room habitability, describe the compensatory measures at your facility and the corrective actions needed to retire these compensatory measures.

### **Response 2**

As noted above, for HBRSEP, Unit No. 2, dose analyses performed in accordance with Regulatory Guide 1.183 have been used to demonstrate that the control room will remain habitable with inleakage rates as measured during the January 2003 tracer gas tests. This compensatory measure will be retired upon NRC approval of the previously submitted Alternative Source Term license amendment request, or other similar license amendment request.

### **NRC Requested Information 3**

If you believe that your facility is not required to meet either the GDC, the draft GDC, or the "Principal Design Criteria" regarding control room habitability, in addition to responding to 1 and 2 above, provide documentation (e.g., Preliminary Safety Analysis Report, Final Safety Analysis Report sections, or correspondence) of the basis for this conclusion and identify your actual requirements.

### **Response 3**

HBRSEP, Unit No. 2, is required to meet either the GDC or the draft GDC in regard to control room habitability requirements.