



Crystal River Nuclear Plant
Docket No. 50-302
Operating License No. DPR-72

Ref: 10 CFR 50 Appendix A GDC 19

December 9, 2003
3F1203-02

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

Subject: Crystal River Unit 3 – Response to Generic Letter 2003-01, “Control Room Habitability”

- References:
- 1) Crystal River Unit 3 – License Amendment Request #262, Revision 1, and Response to NRC Request for Additional Information RE: License Amendment Request #262, Revision 0, “Alternative Source Term and Control Room Emergency Ventilation System” (TAC No. MB0241)
 - 2) Crystal River Unit 3 – Issuance of Amendment Regarding Alternative Source Term And Control Room Ventilation System (TAC No. MB0241)

Dear Sir:

On June 12, 2003, the Nuclear Regulatory Commission (NRC) issued Generic Letter (GL) 2003-01, “Control Room Habitability.” This GL applies to all operating pressurized and boiling water reactors, which includes Crystal River Unit 3 (CR-3). The NRC requested that specific information be provided within 180 days of the date of the GL to confirm that licensees’ Control Complex Habitability Envelopes (CCHE) were in compliance with 10 CFR 50 Appendix A General Design Criteria (GDC). This information is contained in Attachment A.

CR-3’s CCHE is in compliance with 10 CFR 50, Appendix A, GDC 19, and other applicable Principal Architectural and Design Criteria (PADC) described in Section 1.4 of the CR-3 Final Safety Analysis Report. CR-3 has a neutral-pressure CCHE and has performed two ASTM E741 “tracer gas” tests that confirmed actual inleakage is below that assumed in the safety analysis.

CR-3 requested and received a full implementation of the 10 CFR 50.67, Alternative Source Term in References 1 and 2, respectively. During the amendment process, CR-3 submitted a Control Room Habitability Report (Appendix A to Reference 1). This report provided details concerning the CR-3 CCHE design, inleakage, accident dose calculations and chemical hazards evaluation. CR-3 also requested and received an Improved Technical Specification (ITS) amendment that included a CCHE Integrity Program (Reference 2).

Progress Energy Florida, Inc. (PEF) made a commitment in Reference 1 stating that CR-3 would apply NRC approved guidance of habitability envelope integrity monitoring and verification, including proposal of ITS changes, if appropriate. Since that time, the NRC has issued this guidance as Regulatory Guide (RG) 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors." PEF is revising the commitment made in Reference 1 to address the specifics of RG 1.197. CR-3 has reviewed RG 1.197 and has determined that the existing CCHE Integrity Program and ITS meet the overall intent of the RG. One enhancement required to meet the specific recommendations of the RG is the performance of ASTM E741 testing. The Control Complex Habitability Envelope Integrity Program will be revised to include ASTM E741 testing on a periodic basis as recommended in Regulatory Guide 1.197. The program will be revised by December 15, 2004. The next ASTM E741 test will be performed during Refuel 15 in the Fall of 2007. Although not required for compliance, CR-3 will submit an ITS change to enhance the existing Control Complex Habitability Integrity Program in ITS Surveillance Requirement (SR) 3.7.12.4 and ITS 5.6.2.21 utilizing TSTF-448, "Control Room Habitability." The ITS change request will be submitted within six months after approval of TSTF-448 or the Consolidated Line Item Improvement Process (CLIIP) traveler, whichever is later. The revised commitments are summarized in Attachment B.

This letter establishes new regulatory commitments as documented in Attachment B.

If you have any questions regarding this submittal, please contact Mr. Sid Powell, Supervisor, Licensing and Regulatory Programs at (352) 563-4883.

Sincerely,



Dale E. Young
Vice President
Crystal River Nuclear Plant

DEY/pei

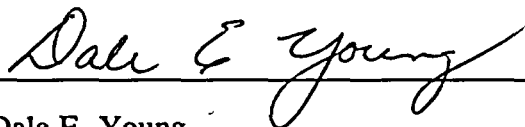
Attachment A: Response to Requested Information
Attachment B: List of Regulatory Commitments

xc: NRR Project Manager
Regional Administrator, Region II
Senior Resident Inspector

STATE OF FLORIDA

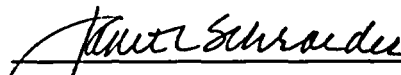
COUNTY OF CITRUS

Dale E. Young states that he is the Vice President, Crystal River Nuclear Plant for Progress Energy Florida, Inc. (PEF); that he is authorized on the part of said company to sign and file with the Nuclear Regulatory Commission the information attached hereto; and that all such statements made and matters set forth therein are true and correct to the best of his knowledge, information, and belief.



Dale E. Young
Vice President
Crystal River Nuclear Plant

The foregoing document was acknowledged before me this 9th day of December, 2003, by Dale E. Young.



Signature of Notary Public
State of Florida



(Print, type, or stamp Commissioned
Name of Notary Public)

Personally Known ☒ -OR- Produced Identification ☐

PROGRESS ENERGY FLORIDA, INC.

CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50 - 302 / LICENSE NUMBER DPR - 72

ATTACHMENT A

Response to Requested Information

Response to Requested Information

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 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 Control Room Envelope (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.
- (b) That the most limiting unfiltered inleakage into your CRE is incorporated into your hazardous chemical assessments. This inleakage 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 inleakage rates of potentially contaminated air. If you currently have a ΔP 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 ΔP 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.

PEF Response 1

At CR-3, the control room is within the control complex. PEF confirms that the control complex meets the applicable habitability regulatory requirements and confirms that the control complex habitability systems are designed, constructed, configured, operated, and maintained in accordance with CR-3 design and licensing bases. These confirmations are based on the following:

1. The UFSAR Chapter 14 design basis radiological analyses were completely reanalyzed in accordance with the Alternative Source Term guidelines provided in Regulatory Guide 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Plants." Each analysis input was evaluated against current plant design and operation. Each accident was analyzed for control complex dose such that the

limiting accident with respect to control complex habitability was determined. License Amendment 199 approved the use of the alternative source term.

2. A thorough review of the as-built configurations of the control complex envelope and control complex habitability ventilation system was conducted in preparation for ASTM E741 tracer gas air inleakage tests that were performed in October 1997 and November 1999. This review confirmed that the construction and configuration satisfy the design and licensing bases.
3. The relatively low air inleakage measured during performance of the ASTM E741, "Standard Test Method for Determining Air Change in a Single Zone by Means of a Tracer Gas Dilution," air inleakage tests demonstrate that administrative and maintenance practices are adequate to ensure the integrity of the control complex envelope. In 1997, the tracer gas test resulted in an inleakage of 523 standard cubic feet per minute (scfm) at 0.2 inches of water gauge differential pressure (in.w.g.). The 1999 test resulted in an inleakage of 513 scfm at 0.2 in.w.g. The 0.2 in.w.g. is the assumed post accident differential pressure based on actual plant measurements of the differential pressure across the Control Complex Habitability Envelope (CCHE) and adjacent structures. A conservative value of 1000 scfm was used in the analysis resulting in a dose of 3.49 REM TEDE for the limiting event, a control rod ejection accident. Therefore, significant margin exists to the GDC 19 limit of 5.00 REM TEDE.
4. A control complex habitability self-assessment 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 issues were identified in this self-assessment. Several areas for improvement were identified, and corrective actions to address these improvements have been entered into the CR-3 corrective action program.
5. CR-3 ITS SR 3.7.12.4 invokes the CR-3 Control Complex Habitability Envelope Integrity Program through ITS 5.6.2.21. This program has administrative requirements to ensure the dose limits of GDC 19 are not exceeded.

The following provides additional details for each of the three sub-items for which the Generic Letter requested that emphasis be placed:

- (a) The air inleakage rates into the CR-3 CCHE are less than the values assumed in the design basis radiological analyses for control complex habitability. This was confirmed by performance of ASTM E741 tracer gas air inleakage tests in October 1997 and November 1999. A description of these air inleakage tests, the results of the tests, and a comparison with the design basis radiological analyses assumptions was provided to the NRC in letter 3F0601-03, dated June 14, 2001, Appendix A, Control Room Habitability Report (Reference 1).

- (b) CR-3 evaluated the potential toxic gas sources at the site. The evaluation of the potential sources is included in the Control Room Habitability Report. The report concludes that the CCHE ventilation system could remain in normal alignment (no CCHE isolation) without exceeding the control complex toxicity limits within two minutes of nasal detection. Therefore, adequate time is available for operators to don the self contained breathing apparatus (SCBA) that are stored in the Control Room and, if required, in the Remote Shutdown (RSD) Room.

CR-3 has performed a qualitative evaluation in accordance with Appendix A of NEI 99-03, Revision 1, to ensure operators maintain the capability for reactor control during a smoke event. This evaluation, Engineering Change ED54994, "Generic Letter 2003-01 Control Room Habitability for Smoke Events Evaluation for Crystal River Unit 3," was performed using the CR-3 design control program and demonstrated the capability to maintain reactor control from either the Control Room or the RSD Room in the event of smoke originating inside or outside the CCHE.

- (c) CR-3 has a neutral-pressure CCHE and therefore, does not have a positive pressure surveillance requirement. CR-3 ITS SR 3.7.12.4 invokes the CR-3 Control Complex Habitability Envelope Integrity Program through ITS 5.6.2.21. This program requires controls to be in place to ensure the dose limits of GDC 19 are not exceeded. The SR does not specifically require the ASTM E741 tracer gas inleakage test at any periodicity. The current program credits the two tracer gas tests performed in 1997 and 1999, and requires periodic assessments to determine if further testing or additional maintenance is warranted.

In PEF letter dated June 14, 2001, CR-3 committed to, "...apply NRC approved guidance for habitability envelope integrity monitoring and verification at CR-3, including proposal of ITS changes if appropriate." The guidance referred to in the commitment was issued as Regulatory Guide (RG) 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors." CR-3 has performed a preliminary review and has determined that the current CCHE Integrity Program meets the intent of the RG except for the tracer gas testing. The ASTM E741 testing, or equivalent, will be added to the CCHE Integrity Program with the first test due during Refuel 15, scheduled for Fall 2007. This interval is slightly longer than the six year (plus 25% allowance) recommended in the RG. The increased interval is justified by the consistent results from the 1997 and 1999 tests that demonstrated the effectiveness of the CR-3 CCHE Integrity Program. The frequency of testing following the next test will be per RG 1.197 unless industry or plant experience justifies alternative surveillance intervals.

CR-3 currently has ITS for the CCHE Integrity Program (SR 3.7.12.4 and ITS 5.6.2.21). CR-3 has evaluated Technical Specification Task Force (TSTF) Traveler 448, "Control Room Habitability," Revision 1, and has determined that the TSTF offers several enhancements over the existing ITS requirements. Therefore, CR-3 will submit an ITS revision 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. Since CR-3 has already performed two tracer gas inleakage tests, it is not

anticipated that any modifications to the CCHE will be required in order to demonstrate compliance with new surveillance requirements.

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.

PEF Response 2

There are no compensatory measures in effect or necessary at CR-3 in order to meet control complex habitability requirements.

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.

PEF Response 3

PEF confirms that the CR-3 CCHE meets the applicable regulatory requirements and confirms that the control complex habitability systems are designed, constructed, configured, operated, and maintained in accordance with CR-3 design and licensing bases. This includes Principal Architectural and Design Criteria (PADC) 1 (similar to GDC 1), PADC 3 (similar to GDC 3), PADC 4 (similar to GDC 5) and GDC 19.

PROGRESS ENERGY FLORIDA, INC.

CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50 - 302 / LICENSE NUMBER DPR - 72

ATTACHMENT B

List of Regulatory Commitments

List of Regulatory Commitments

The following table identifies those actions committed to by PEF in this document. Any other actions discussed in the submittal represent intended or planned actions by PEF. They are described to the NRC for the NRC's information and are not regulatory commitments. Please notify the Supervisor, Licensing and Regulatory Programs, of any questions regarding this document or any associated regulatory commitments.

ID Number	Commitment	Commitment Date
3F1203-02-01	The Control Complex Habitability Integrity Program will be revised to include ASTM E741 testing on a periodic basis as recommended in Regulatory Guide 1.197.	Program revised by December 15, 2004, next ASTM E741 test performed during Refuel 15, scheduled for the Fall 2007.
3F1203-02-02	CR-3 will submit an ITS change to enhance the existing Control Complex Habitability Envelope Integrity Program in ITS SR 3.7.12.4 and ITS 5.6.2.21 utilizing TSTF-448, "Control Room Habitability."	Within six months after approval of TSTF-448 or associated CLIIP, whichever is later.