

August 11, 2003

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Stop P1-137
Washington, DC 20555-0001

ULNRC-04885



Ladies and Gentlemen:

**DOCKET NUMBER 50-483
CALLAWAY PLANT UNIT 1
UNION ELECTRIC CO.
FACILITY OPERATING LICENSE NPF-30
RESPONSE TO REQUEST FOR INFORMATION ON
GENERIC LETTER 2003-01, "CONTROL ROOM HABITABILITY"**

Reference: Generic Letter 2003-01, "Control Room Habitability," June 12, 2003

This letter is a response to the Nuclear Regulatory Commission's (NRC's) request for information pursuant to the referenced letter. As permitted by the Generic Letter this "60-day" response letter is submitted because Union Electric Company (AmerenUE) will not be able to provide all of the requested information by the specified completion date of 180 days from the date of the Generic Letter. Specifically, Generic Letter 2003-01 requests that licensee's confirm the most limiting inleakage into the control room envelope by testing. AmerenUE has determined that the integrated testing method recommended by the Generic Letter would not provide valid results for the Callaway Plant Control Room Envelope (CRE) design. AmerenUE is currently pursuing an alternate integrated inleakage testing method for Callaway's Control Room/Control Building design.

Attachment 1 to this letter provides AmerenUE's response to NRC Generic Letter 2003-01. Attachment 2 contains commitments for making a final response to this Generic Letter.

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If you have any questions or require additional information, please contact me at (573) 676-8659, or Mr. David Shafer at (314) 554-3104.

Very truly yours,



Keith D. Young
Manager,
Regulatory Affairs

BFH

Attachments: I Preliminary Response to NRC Generic Letter 2003-01
II List of Commitments

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Preliminary Response to the Requested Information of NRC Generic Letter 2003-01

Below is AmerenUE's response to NRC Generic Letter 2003-01, "Control Room Habitability," dated June 12, 2003. The Generic Letter's "Requested Information" is shown in bold followed by the Callaway Plant response.

Requested Information

- 1. Confirm that your facility's CRE meets its applicable habitability regulatory requirements (e.g., GDC 1, 3, 4, 5, and 19) and that the CRE and CREHSs are designed, constructed, configured, operated, and maintained in accordance with the facility's design and licensing basis.**

Callaway Plant Response:

Callaway Plant is committed to the General Design Criteria of Appendix A of 10CFR50 as documented in our Final Safety Analysis Report.

Callaway Plant has not yet performed a test to confirm that the most limiting unfiltered inleakage into the control room envelope is no more than the value assumed in its design basis radiological analyses for control room habitability. See response to item 1(a) below for more detail.

However, AmerenUE, assisted by peers from the Strategic Teaming and Resource Sharing (STAR¹) alliance, performed a control room habitability assessment between May 1 and May 9, 2000. In the absence of confirmation testing for control room inleakage, the assessment concluded that the control room habitability systems were designed, constructed, configured, operated, and maintained consistent with the control room habitability design and licensing bases. Issues regarding control room design identified during the assessment did not prevent meeting the General Design Criteria and have been resolved for the Callaway Plant. These issues were summarized in a report to the NRC on March 5, 2001, "Submittal of the Strategic Teaming and Resource Sharing (STARS) Engineering Report on Control Room In-leakage," (ULNRC-04402).

Callaway Plant has established administrative controls that ensure continued compliance with the control room habitability design and licensing bases. These controls include:

¹ STARS consists of six plants operated by TXU Generation Company LP, AmerenUE, Wolf Creek Nuclear Operating Corporation, Pacific Gas and Electric Company, STP Nuclear Operating Company and Arizona Public Service Company.

Breach Control Program

HVAC boundary breaches at the Callaway Plant are controlled by procedure EDP-ZZ-04107 "HVAC Pressure Boundary and Watertight Door Control." The Callaway Plant HVAC system engineer oversees this procedure. Work activities at Callaway Plant are administered via a computerized planner that the planning and construction departments use. The review process for the planned activities includes an electronic sign off by the HVAC System Engineer for his systems needs and requirements. The breach control program address limits, precautions, and allowed mitigation that encompass the needs associated with protecting the control room pressure boundary, as required by the Technical Specifications.

Procedure Control

APA-ZZ-00101, "Procedure Preparation, Review, and Approval" controls the generation and revision of procedures at the Callaway Plant. Interdisciplinary reviews are required, as appropriate, which should prompt the control room HVAC systems engineer to review related procedure changes.

Hazardous Chemical Control

Hazardous chemicals used at Callaway Plant are controlled by procedure APA-ZZ-00831 "Hazardous Chemical Control Program." This procedure requires an evaluation of all chemicals brought onsite to determine their impact on Control Room habitability. In addition, the Callaway Plant License Impact Review (LIR) form includes questions to initiate an evaluation of Control Room Habitability impact for all new chemicals brought onsite.

Design Change Control

The Plant Modification program is controlled at Callaway Plant by procedure APA-ZZ-00600 "Design Change Control." The program provides the processes and requirements for managing and controlling changes to the plant. At Callaway Plant a Request For Resolution (RFR) is prepared under procedure EDP-ZZ-04015 "Evaluating and Processing Requests For Resolution (RFR'S)." The modification procedures require the screening of the change using a screening checklist per procedure APA-ZZ-00140 "Safety, Environmental and Other Licensing Evaluations." The checklists include questions involving the evaluation of the effect of the changes upon safety related equipment. The screening form will cause the Design Engineer to obtain additional programmatic or interdisciplinary reviews or evaluations as required. Independent verification is performed by another qualified engineer for all plant modifications in accordance with procedure EDP-ZZ-04033 "Design Verification" at Callaway Plant. One of the expectations is the verification that the appropriate reviews have occurred and that consideration has been taken for all important design attributes such as control room integrity.

Temporary Modifications to the plant are controlled by procedure APA-ZZ-00605 "Temporary System Modifications" at Callaway Plant. A screening process and review is also performed on Temporary Modifications.

Maintenance Control

Work activities performed on the Callaway Plant systems, structures, or components are controlled by the work control process addressed in procedure APA-ZZ-00320 "Processing Work Requests." Work activities are administered via a computerized planner that the planning and construction departments use. The review process for the planned activities includes an electronic sign off by the HVAC System Engineer for systems needs and requirements. The Preventive Maintenance program at the Callaway plant is controlled by procedure APA-ZZ-00330 "Preventive Maintenance Program." During the May 2000 assessment, representative PMs were reviewed and found to be adequate for maintain the control room boundary integrity.

The May 2000 assessment concluded that these programs adequately protected the integrity of the control room boundary. AmerenUE plans to continue to work in alliance with STARS to build upon the synergy of the combined effort thus far to ensure that control room habitability is maintained in the long-term.

1(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 CRE habitability. Describe how and when you performed the analyses, tests, and measurements for this confirmation.

Callaway Plant Response:

Callaway Plant design basis radiological analysis for control room habitability is the large break loss of coolant accident. This analysis was last performed November 26, 2002. This analysis was performed using methods described in Regulatory Guide 1.4 and Callaway Plant Final Safety Analysis Report (FSAR), Section 15A. The most limiting unfiltered inleakage into the control room envelope was assumed to be zero standard cubic feet per minute (scfm). However, an unfiltered inleakage rate of 300 scfm was assumed to account for some unfiltered air that may leak into the control building within which the control room envelope is located. In addition, 10 scfm unfiltered inleakage was assumed for ingress and egress during the progression of the accident. The results of this analysis are documented in Callaway Plant FSAR, Table 15.6-8.

Callaway Plant has not yet performed a test to confirm the accident analysis inleakage assumption. The assessments performed in 2000 determined that Callaway Plant and each of the other STARS facilities control room envelopes had minimal vulnerability to unfiltered inleakage. Integrated testing, ASTM E741 Tracer Gas Testing, and component

testing, as described in NRC Regulatory Guide 1.197, were performed at Comanche Peak and Palo Verde. These test results validated the assessment findings for these facilities.

AmerenUE evaluated conducting an integrated test and component test for control room leakage to be responsive to the intent of Generic Letter 2003-01 and NRC Regulatory Guide 1.197. This evaluation determined that ASTM E741 testing methods would not provide valid results for the Callaway Plant Control Room Envelope (CRE) design.

The Callaway Plant / SNUPPS CRE design is unique. The control building by and large surrounds the CRE. The CRE is required by Technical Specifications to be at a positive pressure with respect to its surrounding environment. The control building is also designed to be at a positive pressure with respect to its surrounding environment although not positive with respect to the CRE. In the emergency pressurization and filtration mode, the control room air volume receives air through a filtration system that takes suction on the control building. The control building in turn receives filtered air from the outside environment.

The Generic Letter proposed ASTM E741 test methodology is designed for testing a single zone and assumes that all air can be categorized as either unfiltered outside air or filtered inside air. As described above, the SNUPPS plant design has two separate control zones, the Control Building and the CRE. It is invalid to treat them as merely different volumes within a common zone. Based on the SNUPPS plant design the CRE dose model has three categories of air; unfiltered outside air, single filtered control building air, and double filtered control room air.

The Control Building has multiple common boundaries with the CRE. With the CRE pressurized, a substantial fraction of the out leakage from the CRE will go into the Control Building. This air could then be drawn back into the filtered pressurization system and put back into the control room. The current ASTM E741 tracer gas test does not account for re-introduction of tracer gas back into the test volume, potentially leading to erroneous and non-conservative leakage test results.

Based on the evaluation, AmerenUE is proposing to perform an integrated leakage test using an alternate test method. Two test methods developed by Brookhaven National Laboratory (BNL), entitled Atmospheric Tracer Depletion (ATD) testing and Air Infiltration Measurement System (AIMS) are possible candidates for consideration. AmerenUE is currently discussing these test methods with Dr. Russell Dietz and will select the most appropriate for implementation.

AmerenUE will develop a test plan and perform the proposed alternate test by September 30, 2004. A report containing the results will be provided within 90 days of the tests completion as our final response to the Generic Letter.

1(b) That the most limiting unfiltered inleakage into your CRE is incorporated into your hazardous chemical assessment. 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.

Callaway Plant Response:

During the May 2000 assessment, Callaway Plant determined there were no offsite storage or transportation of chemicals that presented a hazard to control room habitability. In addition, there were no onsite chemicals that posed a credible hazard to control room habitability. Engineered controls for the control room are not required to ensure habitability against a hazardous chemical threat. Therefore, the amount of unfiltered inleakage is not incorporated into Callaway Plant's hazardous chemical assessment.

The offsite and onsite hazardous chemical analyses have been updated to confirm the conclusion of the 2000 assessments.

The May 2000 assessments did not evaluate the reactor control capability in the event of smoke since this issue was not fully developed at that time. AmerenUE plans to complete this confirmation consistent with NEI 99-03, Rev 1, Appendix A (as recommended by Regulatory Position 2.6 of NRC Regulatory Guide 1.196, "Control Room Habitability at Light-Water Nuclear Power Reactors," May 2003) and will report the results in the final response to the Generic Letter.

1(c) That your Technical Specifications verify the integrity of your 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 E-741), 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, explain how and on what frequency you confirm your CRE integrity.

Callaway Plant Response:

Callaway Plant's Technical Specifications require on an 18 month staggered test basis, that a surveillance be performed to verify that one Control Room Emergency Ventilation System (CREVS) train can maintain a positive pressure of ≥ 0.125 inches water gauge,

relative to the outside during the pressurization mode of operation. The Callaway Plant Technical Specification Bases states that this surveillance requirement verifies the integrity of the control room enclosure, and the assumed inleakage rates of potentially contaminated air.

The positive pressure surveillance does verify the operability of the CREVS train and provides an indication of control room boundary integrity. However, this testing does not confirm control room integrity using leakage values. AmerenUE acknowledges that some form of inleakage testing appears to be the optimal method for confirming boundary integrity.

Following completion of inleakage testing AmerenUE will submit a Technical Specification change to incorporate a Control Room Integrity Program that will include periodic verification of control room integrity using inleakage values assumed in the design basis as the acceptance criteria.

AmerenUE does not anticipate any plant modifications are required to incorporate a Control Room Integrity Program into Technical Specifications as described above.

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

Callaway Plant Response:

Callaway Plant does not use compensatory measures to demonstrate control room envelope habitability.

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

Callaway Plant Response:

Callaway Plant is committed to the General Design Criteria of Appendix A of 10CFR50 as stated in the response to Item #1.

LIST OF COMMITMENTS

The following table identifies those actions committed to by AmerenUE in this document. Any other statements in this document are provided for information purposes and are not considered commitments. Please direct questions regarding these commitments to Mr. David E. Shafer at (314) 554-3104.

Commitment	Due Date
Develop and perform inleakage testing using alternate methods discussed in this letter.	No later than September 30, 2004.
Submit a final response to Generic Letter 2003-01. This response will provide: 1) a summary report of control room inleakage test results to confirm the most limiting inleakage, 2) confirmation of the smoke analysis, and 3) a schedule for submittal of a Technical Specification change to use the inleakage values assumed in the design basis as the acceptance criteria.	Within 90 days of test performance.
Submit a Technical Specification change to incorporate a Control Room Integrity program that will include periodic verification of control room integrity using the inleakage values assumed in the design basis as the acceptance criteria.	In accordance with the schedule established above.