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August 6, 2012

Mr. Adam C. Heflin
Senior Vice President and Chief Nuclear Officer
Union Electric Company
P.O. Box 620
Fulton, MO 65251

SUBJECT: SCOPING AND SCREENING METHODOLOGY AUDIT REPORT REGARDING THE CALLAWAY PLANT, UNIT 1, LICENSE RENEWAL APPLICATION (TAC NO. ME7708)

Dear Mr. Heflin:

By letter dated December 15, 2011, Union Electric Company d/b/a Ameren Missouri (the applicant) submitted an application for renewal of operating license NPF-30 for the Callaway Plant Unit 1. On April 19, 2012, the U.S. Nuclear Regulatory Commission staff (NRC or the staff) completed the on-site audit of the license renewal scoping and screening methodology. The audit report is enclosed.

If you have any questions, please contact me by telephone at (301) 415-2946 or by e-mail at Samuel.CuadradoDeJesus@nrc.gov.

Sincerely,

Samuel Cuadrado de Jesús, Project Manager
Projects Branch 1
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket No. 50-483

Enclosure:
As stated

cc w/encl: Listserv

SCOPING AND SCREENING METHODOLOGY TRIP REPORT FOR THE CALLAWAY PLANT, UNIT 1, LICENSE RENEWAL APPLICATION

I. Introduction

The Division of License Renewal performed an audit of the Callaway Plant, Unit 1 (Callaway; the applicant), license renewal scoping and screening methodology, developed to support the Callaway license renewal application (LRA). The audit was performed during the week of April 16-19, 2012, at the applicant's facility located in Callaway County, Missouri.

The purpose of the audit was to review the methodology used by the applicant to identify the systems, structures and components (SSCs) to be included within the scope of license renewal and subject to an aging management review (AMR). In addition, the staff reviewed the quality practices and the training practices used in the development of the LRA, the quality assurance elements of aging management programs (AMPs), selected examples of component material and environment combinations identified in AMR line items, and site-specific operating experience related to age related degradation.

The regulations contained in Title 10 of the *Code of Federal Regulations* Part 54 (10 CFR Part 54), "Requirements for Renewal of Operating Licenses for Nuclear Power Plants," and NUREG-1800, "Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants," (SRP-LR) Revision 2, provided the bases for the audit. In addition, the applicant developed the LRA in accordance with the guidance contained in Nuclear Energy Institute (NEI) 95-10, "Industry Guidelines for Implementing the Requirements of 10 CFR Part 54 – The License Renewal Rule," Revision 6 (NEI 95-10), which the NRC has endorsed via Regulatory Guide 1.188 (RG 1.188), "Standard Format and Content for Applications to Renew Nuclear Power Plant Operating Licenses."

II. Background

10 CFR 54.21, "Contents of Application – Technical Information," requires that each application for license renewal contain an integrated plant assessment (IPA). The IPA must list, for SSCs within the scope of license renewal, the structures and components (SCs) that are subject to an aging management review (AMR). 10 CFR 54.4(a), "Scope," provides the criteria for inclusion of SSCs within the scope of license renewal and 10 CFR 54.21, "Contents of the Application – Technical Information," Section (a)(1), requires that SCs within the scope of license renewal, that are determined to be passive and not periodically replaced, are subject to an AMR.

III. Scoping Methodology

The scoping evaluations for the LRA were performed by the applicant's license renewal project personnel. The staff conducted detailed discussions with the applicant's management and license renewal project personnel and reviewed implementing procedures, reports, and documentation pertinent to the scoping process. The staff assessed if the scoping methodology outlined in the LRA and implementing procedures was implemented consistent with 10 CFR Part 54. The staff also assessed, on a sampling basis, if the scoping methodology was implemented consistent with the applicant's process.

ENCLOSURE

Verification of Scoping Results for Portions of Sampled Systems

The staff reviewed a sample of documented scoping results for portions of the essential service water system, the essential service water pump house, and the turbine building. In addition, the staff performed walk-downs of selected portions of the following systems:

- essential service water
- essential service water pump house
- turbine building
- emergency diesel generator building
- ultimate heat sink basin

Verification of Scoping and Screening Results for Selected Components

The staff conducted a review of selected components from the applicant's controlled plant equipment database to confirm the results of the applicant's determination of whether the components were within the scope of license renewal and subject to an AMR. The staff reviewed the selected mechanical, electrical and structural components, using the Final Safety Analysis Report (FSAR); system information; and piping and instrumentation drawings to perform its review. The controlled plant equipment database, which provides a list of the components contained within the plant, was a primary source of information used during the license renewal scoping and screening process, including scoping and screening reviews, AMRs, and the assignment of AMPs.

The NRC staff independently selected a random sample of 85 components from the approximately 175,000 components listed in the plant equipment database and reviewed the component information to determine whether the components were appropriately included within the scope of license renewal and determined to be subject to an AMR. The staff reviewed the component information including the component name, system, function, tag number, location and other documentation. Of the 85 randomly selected components, the applicant had included 27 components within the scope of license renewal and determined the components to be subject to an AMR. The applicant had determined 58 components were either not within the scope of license renewal or not subject to an AMR (because the component was active or replaced on a periodic basis). The NRC staff reviewed the 58 components and confirmed the applicant's conclusion that the components were not required to be within the scope of license renewal or subject to an AMR, as applicable.

Areas Requiring Additional Information

The staff confirmed that the applicant's scoping methodology was consistent with the requirements of 10 CFR Part 54 for the identification of SSCs that meet the scoping criteria of 10 CFR 54.4(a). However, the staff determined that additional information was required in the following areas in order for the staff to complete its review:

- The process used to evaluate components identified as Q in the plant equipment database for inclusion within the scope of license renewal in accordance with 10 CFR 54.4(a)(1).

- The process used to identify and evaluate: (1) safety-related piping components located within the turbine building (as identified on the applicant's license renewal drawings), the results of the evaluation, and the basis for any determination to not include safety-related SSCs within the scope of license renewal in accordance with 10 CFR 54.4(a)(1) and (2) nonsafety-related SSCs located in the turbine building whose potential failure could impact safety-related SSCs, for inclusion within the scope of license renewal in accordance with 10 CFR 54.4(a)(2).

- The process used to identify and evaluate: (1) safety-related electrical SSCs, located within the turbine building, for inclusion within the scope of license renewal in accordance with 10 CFR 54.4(a)(1) and (2) nonsafety-related SSCs located in the turbine building whose potential failure could impact safety-related SSCs, for inclusion within the scope of license renewal in accordance with 10 CFR 54.4(a)(2).

- The use of equivalent anchors, supporting nonsafety-related SSCs connected to safety related SSCs, for inclusion within the scope of license renewal in accordance with 10 CFR 54.4(a)(2).

IV. Screening Methodology

The staff reviewed the methodology used by the applicant to determine if mechanical, structural, and electrical components within the scope of license renewal would be subject to an AMR (screening). The applicant provided the staff with a detailed discussion of the processes used for each discipline using the essential service water system, the essential service water pumphouse, and the turbine building as examples in its scoping and screening presentations. The staff reviewed the applicable implementing procedures and reports and focused on a sample of the documentation for the essential service water system, the essential service water pumphouse, and the turbine building. The staff noted that the applicant's screening process was performed in accordance with its written requirements and was consistent with the guidance provided in the SRP-LR and NEI 95-10. The staff determined that the screening methodology was consistent with the requirements of 10 CFR 54.21(a)(1)..

V. Component Material and Environment Combinations

The staff performed a verification of materials and environment information in the Callaway LRA to validate the Callaway plant specified in-scope generic component material and environment information as shown in the LRA tables.

The staff independently selected a random sample of 35 components from the "Summary of Aging Management Evaluation" tables (AMR items) contained in LRA Section 3. The staff verified the information either during a walkdown or through review of the applicant's reference documents. These reference documents included the FSAR; plant system and design drawings; and component vendor manuals. The staff was able to visually inspect 23 of the 35 selected components.

During the staff review of the 35 components, 32 of the component material and environment combinations were confirmed by the staff. However, the staff determined that additional information was required in the following area in order for the staff to complete its review.

- Confirmation of one environment in the service water system, on environment in the liquid radwaste system and one component material in the high pressure coolant injection system.

VI. Site-Specific Operating Experience

The SRP-LR provides guidance to the staff on the process to be followed when assessing the 10 program elements for each AMP submitted in an LRA. Operating experience (OE) is one of the 10 elements and is defined in the SRP-LR and the Generic Aging Lessons Learned (GALL) Report. The site-specific and industry OE also relates to two other AMP elements: detection of aging effects and monitoring and trending. The SRP-LR addresses the importance of the applicant's specific OE in relation to scoping and screening, AMR and time-limited aging analysis (TLAA) activities.

During the scoping and screening methodology audit, the staff performed an independent search of the applicant's corrective action report database, using staff selected keywords, to identify occurrences of age related degradation. This activity was performed independently of the applicant's review of the corrective action report database. The staff identified corrective action reports that contained information concerning age related degradation that would be used by the staff during the performance of the AMP audit.

VII. Aging Management Program Quality Assurance Elements

The staff reviewed the AMPs quality assurance elements to verify consistency with the staff's guidance described in SRP-LR, Appendix A, "Branch Technical Positions," Section A.2, "Quality Assurance for Aging Management Programs (Branch Technical Position IQMB-1)." The AMP quality assurance elements are corrective action, confirmation process, and administrative controls.

The applicant described the AMP quality assurance elements in LRA Appendix A, Section A1, "Summary Descriptions of Aging Management Programs," and LRA Appendix B, Section B1.3, "Quality Assurance Program and Administrative Controls." LRA Appendices A and B stated that the applicant's existing 10 CFR 50 Appendix B Quality Assurance (QA) Program corrective action, confirmation process, and administrative controls requirements are applicable to all safety-related and nonsafety-related SSCs subject to aging management. The applicant's AMPs incorporate various Callaway procedures required to ensure the elements of corrective action program, confirmation process, and administrative controls are compliant with the 10 CFR Part 50, Appendix B. The staff reviewed the AMPs and confirmed that the AMPs incorporate corrective action programs, confirmation processes, and administrative controls.

Based on the staff's evaluation, review of the AMPs' basis documents, and information contained in LRA Appendix A, Section A1, and Appendix B, Section B1.3, the staff determined the AMP quality assurance elements to be consistent with the staff's position regarding QA for aging management.

VIII. Quality Assurance Controls Applied to LRA Development

The staff reviewed the quality controls used by the applicant during development of the LRA, which included:

- Performing scoping and screening activities using approved documents and procedures.
- Using databases to guide and support scoping and screening and to generate license renewal documents. These databases were controlled by procedures and included the eB Director, which contains the Callaway Equipment List, and the License Renewal Data Management Tool.
- Employing the Strategic Teaming and Resource (STARS) standard process for scoping, screening, and LRA preparation.
- Using processes and procedures that incorporate preparation, review, comment and owner acceptance.
- Incorporating industry lessons learned.
- Including independent review by industry senior consultants, industry peer review, and review by the Onsite Review Committee in the LRA preparation process.

The staff performed a review of implementing procedures and guides, examined the applicant's documentation of activities in reports, reviewed the applicant's activities performed to assess the quality of the LRA, and held discussions with the applicant's license renewal management and license renewal project personnel. The staff determined that the applicant's activities provide assurance that the LRA was developed consistent with the applicant's license renewal program requirements.

IX. Training for License Renewal Project Personnel

The staff reviewed the applicant's training processes to ensure the guidelines and methodology for the scoping and screening activities were applied in a consistent and appropriate manner. As outlined in procedures, the applicant required training for personnel participating in the development of the LRA and used trained and qualified personnel to prepare the scoping and screening implementing procedures. The training included the following activities:

- Using existing plant procedures to define, request, and document personnel on license renewal activities.
- Employing corporate procedures to train corporate and on-site personnel in license renewal activities.

- Providing license renewal and subject matter expert training that included:
    - 10 CFR Part 54
    - relevant NRC and industry guidance documents
    - lessons learned from other nuclear power plant license renewals
    - applicable procedures

The staff discussed training activities with the applicant's management and license renewal project personnel and performed a sampling review of applicable documentation. The staff determined that the applicant had developed and implemented adequate controls for the training of personnel performing LRA activities.

X. Final Briefing

A final briefing was held with the applicant on April 19, 2012, to discuss the results of the scoping and screening methodology audit. The staff identified preliminary areas where additional information would be required to support completion of the staff's LRA review.

XI. Documents Reviewed

1. NUREG-1800, "Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants," Revision 2
2. NEI 95-10, "Industry Guideline for Implementing the Requirements of 10 CFR Part 54 The License Renewal Rule," Revision 6
3. License Renewal Application – Callaway Plant, Unit 1
4. Project Instruction PI-1 Scoping and Screening of Systems, Structures and Components
5. PI-2 Aging Management Review
6. ADMIN-106 Training
7. ADMIN-306 Project Change Tracking
8. APA-ZZ-00303 Classification of Systems
9. APA-ZZ-00304 Control of Callaway Equipment List
10. EDP-ZZ-01128 Maintenance Rule Program
11. APA-ZZ-00500 Corrective Action Program
12. PDP-ZZ-00023 Work Screening and Processing
13. TR-1CW Anticipated Transient without SCRAM (ATWS)
14. TR-2CW Station Blackout (SBO) Topical Report

15. TR-3CW Fire Protection Topical Report
16. TR-4CW Environmental Qualification (EQ) License Renewal Position Paper
17. TR-5CW Pressurized Thermal Shock (PTS) License Renewal Position Paper
18. TR-6CW Criterion 54.4(a)(2) License Renewal Position Paper
19. TR-7CW Electrical/I&C Plant Spaces Approach License Renewal Position Paper
20. TR-8CW Aging Effects Topical Report
21. TR-9CW Plant Systems and Aging Management Programs Topical Report
22. TR-10CW Thermal Insulation Topical Report
23. TR-11CW Electrical Component Aging Evaluation License Renewal Topical Report
24. TR-12CW Design Basis Events Topical Report
25. TR-13CW Specification & Standards Topical Report
26. Callaway Aging Management Program Evaluation Report – Quality Assurance for Aging Management Programs – B1.3
27. Callaway Aging Management Program (AMP) Evaluation Reports (various)
28. System and Structure Scoping and Screening Reports – LRID System Notebooks (various)
29. License Renewal Boundary Drawings (various)
30. Callaway Final Safety Analysis Report – Standard Plant – FSAR-SP
31. Callaway Final Safety Analysis Report – Site Addendum – FSAR-SA
32. Request for Resolution (RFR) – engineering evaluations (various)
33. Corrective Action Reports (CAR) – (various)
34. License Renewal Data Management Tool (LRDMT) – license renewal database
35. Plant Equipment Database (eB Director)

XII. NRC Staff Members

Michael Marshall	NRR/DLR/RASB Chief
Bill Rogers	NRR/DLR
Stacie Sakai	NRR/DLR

Angela Buford	NRR/DLR
Donald Brittner	NRR/DLR
Edward Smith	NRR/DSS
Gary Armstrong, Jr.	NRR/DSS
Lane Howard	Southwest Research Institute (NRC Contractor)
Patrick Mackin	Southwest Research Institute (NRC Contractor)
James Nickolaus	Pacific Northwest National Laboratory (NRC Contractor)

XIII. Applicant Personnel Contacted During Audit

Sarah Kovaleski	Callaway Plant, Unit 1 (Callaway)
Sharon Merciel	Callaway
Trent Russell	Callaway
Tanrang Parashar	Callaway
J.C. Sellers	Callaway
Andrew Burgess	Callaway
Kurt Linsenbardt	Callaway
Dave Shafer	Callaway
Angie Leeper	Callaway
Eric Blocher	Strategic Teaming and Resource Sharing Center of Business (STARS COB)
Al Davis	STARS COB
Rye Davis	STARS COB
Ken Bryant	STARS COB
James Johnson	STARS COB
Gordon Chen	STARS COB
Jason Knust	STARS COB
George Kyle	STARS COB

August 6, 2012

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Sincerely,

/RA/

Samuel Cuadrado de Jesús, Project Manager
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Division of License Renewal
Office of Nuclear Reactor Regulation

Docket No. 50-483

Enclosure:
As stated

cc w/encl: Listserv

ADAMS Accession No. ML12178A475 *concurred via email

OFFICE	PM:RPB1:DLR	LA::RPB1:DLR	BC:RASB:DLR	BC:RPB1:DLR	PM:RPB1:DLR
NAME	SCuadrado	IKing	MMarshall	DMorey	SCuadrado
DATE	7/25/12	7/9/12	8/7/12	8/6/12	8/6/12

OFFICIAL RECORD COPY

Letter to A. Heflin from S. Cuadrado dated August 6, 2012

SUBJECT: SCOPING AND SCREENING METHODOLOGY AUDIT REPORT REGARDING THE CALLAWAY PLANT, UNIT 1, LICENSE RENEWAL APPLICATION (TAC NO. ME7708)

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