



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

June 19, 2018

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

SUBJECT: CALLAWAY PLANT UNIT NO. 1 – REGULATORY AUDIT PLAN FOR
SEPTEMBER 18-19, 2018, IN SUPPORT OF LICENSE AMENDMENT
REQUEST TO INCORPORATE NEW TECHNICAL SPECIFICATION 3.7.20
(EPID L- 2018-LLA-0062)

Dear Mr. Diya:

By application dated March 9, 2018 (Agencywide Documents Access and Management System Accession Package No. ML18068A685), Union Electric Company (dba Ameren Missouri, the licensee), submitted a license amendment request to incorporate new Technical Specification (TS) 3.7.20 "Class 1E Electrical Equipment Air Conditioning (A/C) System" to the Callaway Plant Unit No. 1 (Callaway) TSs.

The U.S. Nuclear Regulatory Commission staff has determined the need for a regulatory audit to be conducted at the Callaway site in support of the review for the proposed TS change. The regulatory audit is currently scheduled to be conducted from September 18, 2018, to September 19, 2018. The Enclosure to this letter provides an audit plan in support of this audit.

If you have any questions, please contact me at 301-415-5136 or via e-mail at John.Klos@nrc.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "L. John Klos".

L. John Klos, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-483

Enclosure:
Regulatory Audit Plan

cc: Listserv

REGULATORY AUDIT PLAN FOR SEPTEMBER 18-19, 2018

AUDIT AT CALLAWAY PLANT UNIT NO. 1

TO SUPPORT REVIEW OF THE LICENSE AMENDMENT REQUEST

TO INCORPORATE NEW TECHNICAL SPECIFICATION 3.7.20

DOCKET NO. 50-483

1.0 BACKGROUND

By application dated March 9, 2018 (Agencywide Documents Access and Management System (ADAMS) Accession Package No. ML18068A685), Union Electric Company (dba Ameren Missouri, the licensee), submitted a license amendment request (LAR) for approval of a new Technical Specification (TS) related to room cooling for essential electrical equipment for Callaway Plant Unit No. 1 (Callaway).

The proposed amendment would add new TS 3.7.20, "Class 1E Electrical Equipment Air Conditioning (A/C) System," to the Callaway TSs. New TS 3.7.20 will include the Limiting Condition for Operation (LCO) statement, Applicability during which the LCO must be met, Actions (with Conditions, Required Actions, and Completion Times) to be applied when the LCO is not met, and Surveillance Requirements (SRs) with a specified Frequency to demonstrate that the LCO is met for the Class 1E Electrical Equipment A/C System trains at Callaway.

The U.S. Nuclear Regulatory Commission (NRC) staff is performing a detailed review of the proposed new TS. Due to the complexity of the proposed new TS, supporting calculations, proposed mitigating actions, design modifications, and computer based modeling, the staff has determined that face-to-face interactions at the Callaway site can resolve complex technical issues more quickly than several rounds of requests for additional information. Face-to-face interactions will also allow the staff to review and assess physical aspects of the LAR at the site through field walkdowns.

The NRC staff has determined the need for a regulatory audit to be conducted in accordance with the Office of Nuclear Reactor Regulation (NRR) Office Instruction LIC-111, "Regulatory Audits" (ADAMS Accession No. ML082900195), for the NRC staff to gain a better understanding of the licensee's calculations and other aspects of the LAR.

2.0 REGULATORY AUDIT BASES

A regulatory audit is a planned license or regulation-related activity that includes the examination and evaluation of primarily non-docketed information. A regulatory audit is conducted with the intent to gain understanding, to verify information and/or to identify information that will require docketing to support the basis for the licensing or regulatory decision.

NRC Regulatory Requirements

The regulatory bases for the audit are described in the Callaway Final Safety Analysis Report (FSAR). Components comply with Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix A, "General Design Criteria for Nuclear Power Plants" (as stated in the Callaway FSAR Sections 3.1, "Conformance with NRC General Design Criteria," Revision OL-22 (ADAMS Accession No. ML17067A360).

- Criterion 2 – "Design Bases For Protection Against Natural Phenomena"
- Criterion 4 – "Environmental and Missile Design Bases"
- Criterion 13 – "Instrumentation and Control"
- Criterion 17 – "Electric Power Systems"
- Criterion 18 – "Inspection and Testing of Electric Power Systems"
- Criterion 20 – "Protection System Functions"
- Criterion 21 – "Protection System Reliability and Testability"
- Criterion 22 – "Protection System Independence"
- Criterion 23 – "Protection System Failure Modes"
- Criterion 24 – "Separation of Protection and Control Systems"
- Criterion 25 – "Protection System Requirements for Reactivity Control Malfunctions"
- Criterion 29 – "Protection Against Anticipated Operational Occurrences"

Additional applicable FSAR sections include:

- FSAR Chapter 9, Section 9.4.1, "Control Building HVAC [Heating, Ventilation, and Air Conditioning]" (ADAMS Accession No. ML17061A204)
- FSAR Chapter 16, Section 16.7.4, "Area Temperature Monitoring" (ADAMS Accession No. ML17090A165)
- FSAR Chapter 16, Section 16.7.13, Class 1E Electrical Air Conditioning (A/C)

Additional requirements and guidance are as follows:

Paragraph 50.36(c)(3), "Surveillance requirements," of 10 CFR, states that TSs include SRs "relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met."

Appendix A to 10 CFR Part 50, defines “single failure as an “occurrence which results in the loss of capability of a component to perform its intended safety functions. Multiple failures resulting from a single occurrence are considered to be a single failure. Fluid and electric systems are considered to be designed against an assumed single failure if neither (1) a single failure of any active component (assuming passive components function properly) nor (2) a single failure of a passive component (assuming active components function properly), results in a loss of the capability of the system to perform its safety functions.”

NUREG-1431, “Standard Technical Specifications, Westinghouse Plants,” Revision 4.0, Volume 1, Specifications, Section 1.1, “Definitions” (ADAMS Accession No. ML12100A222), defines “Operable-Operability” as follows:

A system, subsystem, train, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s), and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication and other auxiliary equipment that are required for the system, subsystem, train, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).

In order to be considered operable, structures, systems, or components (SSCs) must be capable of performing the safety functions specified by its design within the required range of design physical conditions, initiation times, and mission times. In addition, TS operability considerations require that SSCs meet all SRs (as specified in the SRs). An SSC that does not meet a SR must be declared inoperable. In order to be considered operable, the SSC must be able to perform its specified safety function for the duration that is credited in the accident analysis for the SSC to perform its specified safety function.

3.0 REGULATORY AUDIT SCOPE/METHODOLOGY

The purpose of this confirmatory audit is to determine if the calculations performed by the licensee for Callaway support the bases for the proposed new TSs. The areas of focus for the audit are the calculation methodologies, assumptions, and results used to reach conclusions for the proposed TS.

4.0 INFORMATION NECESSARY FOR THE REGULATORY AUDIT

The licensee is requested to provide via an electronic portal, the following list of references related to the LAR on approximately July 15, 2018, to supplement the audit’s reviewers prior to site arrival on September 18, 2018. The proposed list is a postulated list of Callaway specific titles related to this LAR, and actual titles may vary.

1. Callaway Calculation for the Class 1E Electrical Equipment Rooms A/C Units, Operational Capability.
2. Callaway Calculation of Control Building Loss of Class 1E A/C GOTHIC Room Heat Up Analysis concerning Cross-tie Fans and Louvers.
3. Callaway Calculation related to Electrical Equipment Heat Loads in Engineered Safety Feature Switchgear, Direct Current Switchboard, and Battery Rooms.

4. Callaway Calculation for the A/C System's Analysis.
5. Callaway Calculation for the 125 Volts Direct Current (VDC) Class 1E Battery Sizing, Voltage Drop and Short Circuit Studies.
6. Callaway's full System Description concerning the Control Building Ventilation System.
7. Callaway Calculation addressing Battery Rooms Hydrogen Concentration.
8. Callaway Calculation addressing the Battery Rooms, Switchboard Rooms, Switchgear Room Temperature During Winter Concurrent with Station Black Out Conditions.
9. Drawings documenting the Class 1E area Duct General Assembly Drawings.
10. Callaway Control Building Piping and Instrumentation Drawing/Diagrams.
11. Physical arrangement drawings of the areas of the Class 1E Electrical Equipment AC System and associated areas of cooling.
12. Drawings related to supporting plant design modifications (MP 17-0024 and MP 16-0024, Attachment 2 of the LAR)

In addition, to support the site audit walkdown, please provide half-size drawings related to the LAR and the associated plant design modifications on September 18, 2018.

The licensee is requested to make accessible licensee personnel or contractors who are familiar with the design of Callaway, Class 1E Electrical Equipment A/C System, calculations noted in the reference section, design modifications, and GOTHIC model, to assist the NRC staff during the audit. Plant access support for the NRC staff is requested into the area of the Control Building, Class 1E Electrical areas and Main Control Room.

Additional information needs, identified during the audit, will be communicated to the designated point of contact.

5.0 TEAM ASSIGNMENTS/RESOURCE ESTIMATES

The resource estimate for this audit visit is approximately 48 hours of direct audit effort. The NRC staff performing this audit will be:

Audit Team

The NRC/NRR audit team onsite will consist of:

- Larry Wheeler, Audit Team Lead, Technical Reviewer, Division of Safety Systems (DSS)/Containment & Plant Systems Branch (SCPB)
- Shavon Morris, Technical Reviewer, Division of Engineering (DE)/Electrical Engineering Operating Reactor Branch

- John Klos, Project Manager, Division of Operating Reactor Licensing/Plant Licensing Branch IV, Callaway Plant
- Gurcharan Matharu, Division of Engineering (DE)/Electrical Engineering Operating Reactor Branch

The following additional NRC staff may support the audit from the NRC headquarters:

- Pete Snyder, Technical Reviewer, DSS/Technical Specifications Branch
- Nageswara Karipineni, Technical Reviewer, DSS/SCPB
- John Hughey, Technical Reviewer, Division of Risk Assessment/Operations and Human Factors Branch
- Huda Akhavannik, Technical Reviewer, DE/Instrumentation and Controls Branch

6.0 LOGISTICS

The audit will start at approximately 8:30 a.m. on Tuesday, September 18, 2018, and will conclude on Wednesday, September 19, 2018. The estimated length of the audit is approximately 2 days (see Table 1 below for the audit's agenda).

The licensee is requested to provide a conference room to accommodate up to three NRC onsite staff with a telephone that allows conference calling with staff at NRC headquarters.

Table 1: Audit Agenda

| DATE | TIME | ITEM | RESPONSIBILITY |
|----------------------------------|-------------------------|---|---|
| Tuesday September 18, 2018 | ~8:30 a.m. - 10:00 a.m. | Site access badging and dosimetry and brief meeting with resident inspectors. | NRC/Callaway |
| | 10:00 a.m. - 10:30 a.m. | Entrance meeting, introductions, discuss purpose and objectives of audit. | NRC/Callaway (NRC requests availability of phone line) |
| | 10:30 a.m. – 12:00 p.m. | Overview of LAR and proposed new TS including related supporting calculations and drawings. | Callaway |
| | 12:00 p.m. – 1:00 p.m. | Lunch | |
| | 1:00 p.m. – 4:00 p.m. | Walkdown of areas that are related to the new TS (may | NRC/Callaway |

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|------------------------------------|------------------------|---|------------------|
| | | control room) with plant residents. | |
| | 4:00 p.m. – 5:00 p.m. | Audit of calculations. | NRC/Callaway |
| Wednesday September 19, 2018 | 8:30 a.m. – 12:00 p.m. | Audit of calculations. | NRC/Callaway |
| | 12:00 p.m. – 1:00 p.m. | Lunch | |
| | 1:00 p.m. – 4:00 p.m. | Audit of calculations. | NRC/Callaway |
| | 4:00 p.m. – 5:00 p.m. | NRC audit summary and exit** with licensee. | NRC (bridgeline) |
| | 5:00 p.m. – 5:30 p.m. | Turn in dosimetry and site badge and exit with senior resident inspector. | NRC/Callaway |

**Audit exit may be adjusted based on NRC staff progress.

7.0 DELIVERABLES

At the conclusion of the audit, the NRC staff will conduct an exit briefing and provide a summary of audit results in each subject area defined in the audit scope, as well as discuss the project's next steps. Once the NRC audit team leaves the site, only new, post-site audit documents added to the electronic portal will continue to be reviewed and audited.

The NRC staff plans to prepare a regulatory audit summary approximately 60 days after the completion of the site audit followed by a formal release of any requests for additional information at that time.

8.0 REFERENCE

1. Callaway LAR submittal, "Callaway Plant, Unit 1, License Amendment Request for Addition of New Technical Specification 3.7.20, 'Class 1E Electrical Equipment Air Conditioning (A/C) System' (LDCN 16-0013)," dated March 9, 2018 (ADAMS Accession Package No. ML18068A685).

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 (EPID L- 2018-LLA-0062) DATED JUNE 19, 2018

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ADAMS Accession No.: ML18156A404

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| OFFICE | NRR/DORL/LPL4/PM | NRR/DORL/LPL4/LA | NRR/DSS/SCP/BC |
| NAME | JKlos | PBlechman | SAnderson |
| DATE | 6/7/18 | 6/6/18 | 6/13/18 |
| OFFICE | NRR/DE/EEOB/BC | NRR/DORL/LPL4/BC | NRR/DORL/LPL4/PM |
| NAME | JQuichocho | RPascarelli | JKlos |
| DATE | 6/18/18 | 6/15/18 | 6/19/18 |

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