

NRR-PMDAPem Resource

From: Klos, John
Sent: Tuesday, February 07, 2017 9:28 AM
To: 'Telwood@ameren.com'
Cc: Klos, John
Subject: RAI formal release for Callaway SG tube inspection report, MF8474

Importance: High

Dear Mr. Elwood,

By letter dated October 11, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16286A547), Union Electric Company (dba Ameren Missouri, the licensee), submitted information summarizing the 2016 steam generator tube inspections performed at Callaway Plant, Unit 1, during refueling outage 21.

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the submittal and determined that the attached request for additional information (RAI) is needed to complete its technical review and make a regulatory finding regarding this report.

You have stated that there is no necessity for a clarification call; therefore, this RAI is now issued formally and it will be due on March 3, 3017.

REQUESTS FOR
ADDITIONAL INFORMATION
2016 STEAM GENERATOR
TUBE INSPECTIONS
CALLAWAY PLANT,
UNIT 1
DOCKET NUMBER
50-483

By letter dated October 11, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16286A547), Union Electric Company (dba Ameren Missouri, the licensee), submitted information summarizing the 2016 steam generator tube inspections performed at Callaway Plant, Unit 1, during refueling outage 21.

Regulatory Basis for RAIs:

The regulations in Title 10 of the *Code of Federal Regulations* (10 CFR) establish the requirements with respect to the integrity of the SG tubing. Specifically, the General Design Criteria (GDC) in Appendix A to 10 CFR Part 50 state that the RCPB shall have “an extremely low probability of abnormal leakage ... and of gross rupture” (GDC 14, “Reactor pressure coolant boundary”), “shall be designed with sufficient margin to assure that the design conditions ... are not exceeded ...” (GDC 15, “Reactor coolant system design”), “shall be designed with sufficient margin that when stressed ... (1) the boundary behaves in a nonbrittle manner, and (2) the probability of rapidly propagating fracture is minimized” (GDC 31, “Fracture prevention of reactor coolant pressure boundary”), shall be of “the highest quality standards practical” (GDC 30, “Quality of reactor coolant pressure boundary”), and “shall be designed to permit periodic inspection and testing...to assess...structural and leaktight integrity” (GDC 32, “Inspection of reactor coolant pressure boundary”).

Paragraph 50.55a(c)(1) of 10 CFR specifies that components that are part of the reactor coolant pressure boundary (RCPB) must meet the requirements for Class 1 components in Section III of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code). Paragraph 50.55a(g)(4) of 10 CFR further requires, in part, that throughout the service life of a Pressurized-Water Reactor facility, ASME Code Class 1 components meet the requirements, except design and access provisions and preservice examination requirements in Section XI, "Rules for Inservice Inspection (ISI) of Nuclear Power Plant Components," of the ASME Code, to the extent practical. This requirement includes the inspection and repair criteria of Section XI of the ASME Code.

Section 50.36 of 10 CFR, "Technical specifications," establishes the requirements related to the content of the TSs. Pursuant to 10 CFR 50.36, TSs are required to include items in the following five categories related to station operation: (1) Safety limits, limiting safety system settings, and limiting control settings; (2) LCOs; (3) Surveillance requirements (SRs); (4) Design features; and (5) Administrative controls.

Paragraph 50.36(c)(5) of 10 CFR defines administrative controls as, the "provisions relating to organization and management, procedures, recordkeeping, review and audit, and reporting necessary to assure the operation of the facility in a safe manner." Programs established by the licensee to operate the facility in a safe manner, including the Steam Generator (SG) Program, are listed in the administrative controls section of the TSs. The Callaway TS defines the SG Program in TS 5.5.9, while the reporting requirements relating to implementation of the SG Program are defined in TS 5.6.10.

Callaway TS 5.5.9 requires that an SG Program be established and implemented to ensure that SG tube integrity is maintained. Specification 5.5.9.a requires that a condition monitoring assessment be performed during each outage in which the SG tubes are inspected to confirm that the performance criteria are being met. SG tube integrity is maintained by meeting the performance criteria specified in TS 5.5.9.b. for structural and leakage integrity, consistent with the plant design and licensing basis. The applicable tube repair criteria specified in TS 5.5.9. c. are that tubes found during ISI to contain flaws with a depth equal to or exceeding 40 percent (%) of the nominal wall thickness shall be plugged. Specification 5.5.9.d. includes provisions regarding the scope, frequency, and methods of SG tube inspections. These provisions require that the inspections be performed with the objective of detecting flaws of any type that: (1) may be present along the length of a tube, from the tube-to-tubesheet weld at the tube inlet to the tube-to-tubesheet weld at the tube outlet; and (2) may satisfy the applicable tube repair criteria.

RAI:

1. Please provide a listing of all service induced indications that were recorded in the steam generator eddy current inspections during refueling outage 21.

Thanks in advance,

John Klos

DORL Callaway, Columbia Project Manager

U.S. NRC, Office of Nuclear Reactor Regulation,

Division of Operating Reactor Licensing, O8E7

NRC/NRR/DORL/LPL4-1, MS O8H4A

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