



April 6, 2020

ULNRC-06569

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

10 CFR 50.55a(z)(2)

Ladies and Gentlemen:

**DOCKET NUMBER 50-483
CALLAWAY PLANT UNIT 1
UNION ELECTRIC CO.
RENEWED FACILITY OPERATING LICENSE NPF-30
10 CFR 50.55a REQUEST: PROPOSED ALTERNATIVE TO ASME SECTION XI
REQUIREMENTS FOR CONTAINMENT TENDON INSPECTION
(RELIEF REQUEST CC-01)**

Pursuant to 10 CFR 50.55a(z)(2), Union Electric Company (Ameren Missouri) hereby requests NRC approval of attached Relief Request CC-01 regarding the interval between containment tendon inspections as specified per Paragraph IWL-2420 of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, Subsection IWL. Relief is requested on the basis that compliance with the Code-specified inspection interval during the COVID-19 pandemic would result in hardship without a compensating increase in the level of quality and safety. A proposed alternative approach is described in the enclosed relief request.

Justification for the requested relief is provided in the Relief Request document, which is provided in Attachment 1 to this letter. Supporting information is provided in Attachment 2 to this letter.

The Code Edition applicable to this request and to the current (third) IWL interval for Callaway Plant is the 2007 Edition with the 2008 Addenda. As noted in the attached relief request, the relief is requested for the period beginning June 30, 2020 and ending June 30, 2021. Approval of the relief is respectfully requested by April 30, 2020 in order to allow for re-scheduling the inspection, which has a current deadline of June 2020.

This letter does not contain new commitments.

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If there are any questions, please contact Mr. Tom Elwood at 314-225-1905.

Sincerely,

A handwritten signature in black ink, appearing to read "Stephanie P. Banker". The signature is fluid and cursive, with the first name being the most prominent.

Stephanie P. Banker
Vice President, Engineering

JPK/

Attachments:

1. 10 CFR 50.55a Request Number CC-01 – Proposed Alternative In Accordance with 10 CFR 50.55a(z)(2) --Hardship without a Compensating Increase in Quality and Safety--
2. Abstract from Final Report for the 30thYear Tendon Surveillance at Callaway

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cc: Mr. Scott A. Morris
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STARS Regulatory Affairs

Mr. Jay Silberg (Pillsbury Winthrop Shaw Pittman LLP)

Mr. Dan Beck (Missouri Public Service Commission)

**Attachment 1
to
ULNRC-06569**

10 CFR 50.55a Request Number CC-01

**Proposed Alternative in Accordance with 10 CFR 50.55a(z)(2)
--Hardship without a Compensating Increase in Quality and Safety--**

4 pages

10 CFR 50.55a Request Number CC-01

**Proposed Alternative
in Accordance with 10 CFR 50.55a(z)(2)
--Hardship without a Compensating Increase in Quality and Safety--**

1. ASME Code Component(s) Affected

The requested relief applies to ASME Class CC post-tensioning systems of concrete containments during the Callaway third 10-year Containment Exterior and Tendon Inspection Program interval.

2. Applicable Code Edition and Addenda

The Code Edition and Addenda applicable to Callaway during its third IWL interval, which began September 9, 2016, is the ASME Boiler and Pressure Vessel Code, Section XI, Subsection IWL, 2007 Edition through 2008 Addenda.

3. Applicable Code Requirement

IWL-2420, "Unbonded Post-Tensioning Systems," states, "The 10-year and subsequent examinations shall commence not more than 1 year prior to the specified dates and shall be completed not more than 1 year after such dates. If plant operating conditions are such that examination of portions of the post-tensioning system cannot be completed within this stated time interval, examination of those portions may be deferred until the next regularly scheduled plant outage."

Callaway is currently in the "subsequent examinations" period, as the specified date (i.e., the anniversary date) for the 35th surveillance year is June 2019. Therefore, Callaway's deadline for the completion of the inspection is June 30, 2020.

4. Reason for Request

Relief is requested pursuant to 10 CFR 50.55a(z)(2) – "Hardship without a compensating increase in quality and safety."

The U.S. Federal Government made a COVID-19 declaration of emergency pursuant to the Stafford Act on March 13, 2020. The U.S. Center for Disease Control (CDC) has determined that COVID-19 poses a serious public health risk. Due to the current COVID-19 pandemic, completing the identified inspection within the surveillance period would be a hardship, as it would create the potential for inadvertent spread of the associated SARS-CoV-2 virus by contract inspectors to Callaway staff. Exposure of Callaway staff to this highly infectious virus would subject them to potentially severe health consequences, and would also potentially impact the availability of sufficient staff to safely operate the plant. This could also lead to additional risks associated with the potential need to maneuver the plant to a safe shutdown condition at a time when the electric power that would be generated by the plant may be needed by responders, hospitals, and members of the public in order to mitigate the COVID-19 crisis.

Callaway is presently in Stage 2 of Callaway's Action Plan for the COVID-19 pandemic, which minimizes the number of co-workers on-site to only those required to operate the plant. Other personnel who are determined to be needed onsite to support plant operations must be individually approved by senior management for site access and undergo COVID-19 health screenings prior to entry into the Protected Area. In the event that entry into Stage 3 of the Action Plan is required, the staff required to operate the plant would be sequestered onsite.

In consideration of the above, the Containment Post-Tensioning System Inspection, which had been scheduled to start on March 30, 2020, has been postponed. At present, it is not known whether the Stage 2 restrictions can be relaxed prior to the current deadline for performing the inspection. Furthermore, if Stage 3 restrictions are required, performing the inspection by the current deadline could require sequestering approximately 20 additional personnel and put a strain on the resources needed to support personnel sequestration.

5. Proposed Alternative and Basis for Use

Callaway is proposing a one-time 12-month extension of the Containment Post-Tensioning System Inspection period to allow time to safely and effectively accomplish the inspection. Although the next regularly scheduled plant refueling outage is in October 2020, the equipment and personnel needed for the inspection (which had been planned to be performed during plant operation) would pose a problem if performed during the upcoming outage; therefore, a 12-month extension is requested.

The purpose of the Containment Post-Tensioning System Inspection is to assess the structural performance of the containment post-tensioning system and the containment building concrete shell on an ongoing basis, up through and including the plant's period of extended operation. All prior Containment Post-Tensioning System Inspection surveillances have been completed successfully with no abnormal degradation of the containment post-tensioning system identified. A copy of the abstract from the most recent 30th year IWL Containment Post-Tensioning System Inspection Report (Reference 2) is provided in Attachment 2 to this letter. Summary results from earlier IWL Containment Post-Tensioning System Inspections have been submitted to the NRC in References 3 through 11. Due to the prior successful surveillances, a Containment Inservice Inspection (ISI) Interval Extension Relief Request to extend the period of examinations at Callaway by 5 years could be justified.

In addition, Callaway conducted a drone inspection of the exterior of the Containment Building in February 2020 to identify what repairs may be needed. During review of the video footage and pictures obtained during the drone inspection, it was determined that no major deterioration has occurred and only minor, cosmetic repairs are needed.

6. Duration of Proposed Alternative

The duration of the proposed alternative would extend from the current June 30, 2020 deadline for performing the 35th year IWL Containment Post-Tensioning System Inspection until June 30, 2021.

7. Precedents

There have not been any other relief requests for the Containment Post-Tensioning System Inspection due to the COVID-19 crisis. The COVID-19 crisis and the relief being sought is a unique, emergent condition without precedent. However, specifically in regard to the IWL Containment Post-Tensioning System Inspection requirement, other licensees have been granted one-time extensions to the examination periods for their plants, including Exelon for TMI, Unit 1 (Reference 12), and Southern Nuclear for Vogtle, Units 1 & 2 (Reference 13).

8. References

1. ASME Boiler & Pressure Vessel (B&PV) Code Section XI, 2007 Edition with 2008 Addenda
2. Precision Surveillance Corporation Report No. REP-1117-510, "Final Report for the 30th Year Tendon Surveillance at Callaway Nuclear Power Plant" (557 pages)
3. Ameren Missouri Letter to the NRC ULNRC-05729, "Facility Operating License NPF-30 Owner's Activity Reports (OAR-1 Forms) for Refuel 17," dated 08/09/2010 (ADAMS Accession No. ML102530105)
4. Ameren Missouri Letter to the NRC ULNRC-05053, "Special Report – Twentieth Year Inservice Containment Building Tendon Surveillance and Concrete Inspection," dated 09/17/2004 (ADAMS Accession No. ML042790333)
5. Ameren Missouri Letter to the NRC ULNRC-04058, "Fifteenth Year Inservice Containment Building Tendon Surveillance Failure," dated 06/28/1999 (ADAMS Accession No. 9907090008)
6. Ameren Missouri Letter to the NRC ULNRC-03057, "Special Report 94-02 – Tenth Year Inservice Containment Vessel Tendon Surveillance Failure," dated 08/29/1994 (ADAMS Accession No. 9409080050)
7. Ameren Missouri Letter to the NRC ULNRC-02066, "Special Report 89-10 – 5th Year Inservice Containment Vessel Tendon Surveillance Failure," dated 09/05/1989 (ADAMS Accession No. 8909110378)
8. Ameren Missouri Letter to the NRC ULNRC-01587, "Special Report 87-08 – Supplement 1 – 3rd Year Inservice Containment Vessel Tendon Surveillance Failure," dated 08/31/1987 (ADAMS Accession No. 8709100391)
9. Ameren Missouri Letter to the NRC ULNRC-01575, "Special Report 87-08 – 3rd Year Inservice Containment Vessel Tendon Surveillance Failure," dated 08/13/1987 (ADAMS Accession No. 8708180382)
10. Ameren Missouri Letter to the NRC ULNRC-01172, "Special Report 85-06 Revision 1 – Inservice Tendon Surveillance," dated 09/12/1985 (ADAMS Accession No. 8509240187)
11. Ameren Missouri Letter to the NRC ULNRC-01145, "Special Report 85-06 – Inservice Tendon Surveillance," dated 07/29/1985 (ADAMS Accession No. 8507310005)
12. NRC Letter to Exelon Generation Company, "Three Mile Island Nuclear Station, Unit 1 – Relief from the Requirements of the American Society of Mechanical Engineers Code Re: Examination and Testing for Containment Unbonded Post-Tensioning System (EPID L-2018-LLR-0132)," dated September 19, 2019 (ADAMS Accession No. ML19226A023)

13. NRC Letter to Southern Nuclear Operating Company, "Vogtle Electric Generating Plant, Units 1 and 2 – Inservice Inspection Alternative VEGP-ISI-ALT-19-01 for Containment Tendon Inservice Inspection Extension (EPID NO. L-2019-LLR-0017," dated July 11, 2019 (ADAMS Accession No. ML19182A077)

**Attachment 2
to
ULNRC-06569**

**Abstract from the Final Report
for the 30th Year Tendon Surveillance at Callaway**

2 pages



ABSTRACT

The purpose of this report is to present the results of the Callaway Nuclear Power Plant, 30th Year In-Service Inspection on the containment structure's post-tensioning system. The details of this investigation are discussed in the body of the report, and a summary of the results is listed below:

➤ Summary of Findings:

1. **GREASE CAP REMOVAL** (SQ 6.0)

Acceptable grease coatings were found on all tendon ends inspected, and no unusual conditions were reported at any tendon end.

2. **FREE WATER INSPECTION** (SQ 6.1)

All inspected tendon ends were found with no evidence of free water and are acceptable per IWL-3221.3(e).

3. **SHEATHING FILLER ANALYSIS** (SQ 7.0)

Soluble ion concentrations and moisture contents are within acceptable limits for all inspected tendons, per IWL-3221.4.

Reserve alkalinity (base) numbers for tendons 16AC (field end), 46CB (field end), 2CB (field end), V26 (shop end), V45 (field end), and V65 (shop & field end) were lower than the specified acceptance limit for the first grease sample tested. Responsible Engineer at Callaway NPP was notified about the test results, and CAR 201506412 was initiated in accordance with the Callaway Corrective Action Program to evaluate the condition. The first grease sample was re-tested in order to respond to the requirements of the CAR 201506412, and the results of the second test confirmed PSC's evaluation that the first sample was tested incorrectly during the first test. A second grease sample for each of the affected tendon ends was then sent for testing, per PSC Procedure SQ 7.0.

Sample 2 test results returned base numbers above the specified acceptance limit for all re-tested tendons, and the sheathing filler was deemed acceptable.

All other grease samples had base numbers above the specified acceptance limit, per IWL-3221.4.

4. **ANCHORAGE INSPECTION (BUTTONHEAD COUNT)** (SQ 8.0)

Common tendon 45BA was found with two (2) buttonheads protruding on the shop end after the lift-off was performed and the stressing ram removed. Non-conformance report FN-1117-002 was written by PSC Quality Control personnel, and Callaway Responsible Engineer was notified. CAR 201504832 was initiated in accordance with the Callaway Corrective Action Program to evaluate the condition. Two (2) buttonheads were found to be broken at the field end of the tendon – a condition that had previously been reported.

Vertical tendon V26 had two (2) double buttonheads on the field end.

No other missing or protruding buttonheads that were not previously reported were identified during this surveillance.

5. **ANCHORAGE INSPECTION (CORROSION LEVELS / CRACKS)** (SQ 8.0)

All inspected tendon anchorage components were found with an acceptable corrosion level of 1, per IWL-3221.3(b).

Common tendon 45BA was found with five (5) split/cracked buttonheads on the shop end. This finding was recorded in Appendix A.

No other cracks were observed on any inspected tendon end during this surveillance, and tendon anchorage was found acceptable for all other tendons, per IWL-3221.3(a).

6. **BEARING PLATE CONCRETE INSPECTION** (SQ 8.3)

All cracks observed within the 24" perimeter of the concrete surrounding each inspected bearing plate were less than 0.01" in width, per IWL-3221.3(d).



7. ANCHORHEAD THREAD MEASUREMENTS (SQ 7.1)

Thread measurements taken at anchorheads of all inspected tendon ends were within the acceptable ranges with respect to the stressing ram adaptor that was used for performing lift-offs at that tendon end.

8. HYDRAULIC JACK (STRESSING RAM) CALIBRATIONS

The hydraulic jacks used for tendon lift-offs were calibrated before and after the surveillance period, and were found to be within an acceptable variation of +/- 1.5%.

9. TENDON LIFT-OFF FORCES (SQ 9.0)

All as-found tendon lift-off forces exceeded the predicted lower limit (PLL) value, and thus the 95% of the PLL, for the 30th year surveillance period. Additionally, the group force average for each type of tendon was greater than the minimum prestress force for the respective tendon group.

10. COMPARISON WITH ORIGINAL INSTALLATION DATA

In examining the average group percentage loss from the original lock-off force values to the as-found lift-off force values during the 30th year surveillance, no abnormal losses were observed.

Additionally, a regression analysis was done to verify that the prestress force losses did not result in values below the minimum design value at the next surveillance period. Both of these analyses indicate that no abnormal average force differences were observed during this surveillance period. The average prestress force for each tendon group is expected to exceed the minimum design prestress force at the next scheduled examination, and the tendon forces are deemed acceptable per IWL-3221.1(c).

11. WIRE VISUAL INSPECTION & TENSILE TESTING (SQ 10.2 / SQ 10.3)

All test wires removed and tested were found to have acceptable corrosion levels of 1, diameter values within the acceptable range, and acceptably high yield stress, ultimate stress, and elongation percent values, per IWL-3221.2.

12. TENDON RESTRESSING (SQ 11.0)

All detensioned tendons were retensioned to acceptable forces and had acceptable elongations, per IWL-2523.

13. GREASE CAP & GREASE REPLACEMENT (SQ 12.0 / SQ 12.1)

All tendon grease caps were properly installed to their respective tendon ends, and all tendon caps were refilled with grease to acceptable levels, per IWL-3221.4.

14. EXTERIOR CONCRETE SURFACE EXAMINATION (SQ 8.4)

There were no changes observed from the last inspection, and the noted observations involving small bug holes and shrinkage cracks were recorded as "IO" (information only) items. The condition of the exterior concrete surface was deemed acceptable, per IWL-3211.

15. GREASE CAP INSPECTIONS (SQ8.4GC)

All inspected grease caps for both the Hoop and Vertical tendons were found in acceptable condition, per IWL-3211.

➤ Abstract Summary:

In summary, the Final Report for the 30th Year Tendon Surveillance at Callaway has concluded that the functional integrity of the selected post-tensioning system has met the applicable code requirements, unless noted otherwise with non-conformance items, which are recorded, identified, and presented within this document and attached appendices, as required.