



November 09, 2015

ULNRC-06264

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

10 CFR 50.90

Ladies and Gentlemen:

**DOCKET NUMBER 50-483  
CALLAWAY PLANT UNIT 1  
UNION ELECTRIC CO.  
RENEWED FACILITY OPERATING LICENSE NPF-30  
REVISION OF TS 2.1.1.1 AND 5.6.5 TO REMOVE UNCERTAINTIES FROM THE DNBR  
SAFETY LIMIT AND ADOPT APPROVED WCAP-14565-P-A METHODOLOGY**

Reference: ULNRC-06215 Letter from S.A. Maglio (Ameren Missouri) to U.S. Nuclear Regulatory Commission, "Revision of TS 2.1.1.1 and 5.6.5 to Remove Uncertainties from the DNBR Safety Limit and Adopt Approved WCAP-14565-P-A Methodology," dated May 8, 2015 [NRC ADAMS Accession Number ML15132A137]

In the referenced document above, Ameren Missouri submitted an application for amendment to Renewed Facility License Number NPF-30 for the Callaway Plant. That amendment application proposed changes to Technical Specification (TS) requirements to adopt the NRC approved methodology described in WCAP-14565-P-A Addendum 2-P-A, "Extended Application of ABB-NV Correlation and Modified ABB-NV Correlation WLOP for PWR Low Pressure Applications," and revise TS 2.1.1.1 to provide a safety limit for the Departure from Nucleate Boiling Ratio (DNBR) that is aligned with the original intent of approved topical report WCAP-14483, "Generic Methodology for Expanded Core Operating Limits Report."

From the NRC staff's review, a request for additional information (RAI) was identified and issued electronically on October 13, 2015 with a response requested by November 12, 2015. Attachment 1 provides the requested information. The information provided in Attachment 1 does not affect the licensing evaluations submitted in the referenced amendment application, nor does Attachment 1 alter the conclusions of those licensing evaluations.

Ameren Missouri continues to request approval of this license amendment request prior to reactor criticality during the restart from the upcoming Refuel 21 outage. Reactor criticality is currently scheduled for May 04, 2016. As noted in Ameren Missouri's May 08, 2015 letter, Ameren Missouri

requests that the license amendment be made effective upon NRC issuance, to be implemented within 90 days from the date of issuance.

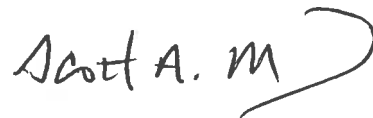
This submittal does not contain new commitments.

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

I declare under penalty of perjury that the foregoing is true and correct.

Sincerely,

Executed on: 11/9/2015

A handwritten signature in black ink that reads "Scott A. Maglio". The signature is written in a cursive style with a large, sweeping flourish at the end.

Scott A. Maglio  
Manager, Regulatory Affairs

TAW

Attachments:

1. Response to NRC Request for Additional Information Regarding LDCN 15-0005

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November 06, 2015  
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ATTACHMENT 1

RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION  
REGARDING LDCN 15-0005

REQUEST FOR ADDITIONAL INFORMATION  
CALLAWAY PLANT, UNIT 1  
UNION ELECTRIC CO.  
LICENSE AMENDMENT APPLICATION TO REVISE TS 2.1.1.1 AND 5.6.5 TO  
REMOVE UNCERTAINTIES FROM THE DNBR SAFETY LIMIT  
AND ADOPT APPROVED WCAP-14565-P-A METHODOLOGY

The NRC staff requests additional information to complete its review of the license amendment request (LAR) to revise Technical Specification (TS) 2.1.1.1 and 5.6.5 to remove uncertainties from the Departure from Nucleate Boiling Ratio (DNBR) safety limit and adopt approved WCAP-14565-P-A methodology.

By letter dated May 08, 2015 (NRC ADAMS Accession No. ML15132A137), Ameren Missouri (the licensee) requested the removal of analytical uncertainties from TS 2.1.1.1 consistent with the intent of WCAP-14483-A. From NRC staff review of the provided application, the NRC staff has the following question listed below.

**Question 1**

10 CFR 50.36(c) requires licensees to include safety limits in the TS, defined as limits upon important process variables that are found to be necessary to reasonably protect the integrity of certain of the physical barriers that guard against the uncontrolled release of radioactivity. The Departure from Nucleate Boiling Ratio (DNBR) limit is one such safety limit, since it protects the integrity of the fuel cladding.

The proposed change to TS 2.1.1.1 would only specify the 95/95 DNBR limit associated with the WRB-2 correlation. However, the license amendment request is requesting approval of two additional alternative DNB correlations, each of which has its own unique DNBR limit.

Please explain why the DNBR limits associated with the ABB-NV and Westinghouse Low Pressure Departure from Nucleate Boiling correlations are not being included in TS 2.1.1.1.

**RAI Response**

The proposed Technical Specification (TS) 2.1.1.1 content provided in Reference 1 is consistent with the format in Volume 1 of NUREG-1431, Revision 4 (Reference 2). The current format for TS 2.1.1.1 in Reference 2 is based on the approved topical report WCAP-14483-A, "Generic Methodology for Expanded Core Operating Limits Report," (Reference 3).

The Safety Evaluation Report (SER) for Reference 3 states that the safety limits, which were originally included in the Westinghouse TS as the Reactor Core Limits figure (Figure 2.1.1-1) to satisfy 10CFR50.36, are "intended to provide the relationship between the process variables that are available

to the operator (i.e., T-avg, pressurizer pressure, and thermal power) and the DNB design basis safety limit." With the approval of Reference 3, the Reactor Core Limits figure itself was moved from TS 2.1.1.1 to the COLR, and replaced with the true safety limits (DNBR and fuel melting limits) that are protected by staying within the bounds for the process variables defined by the Reactor Core Limits figure, thereby ensuring that the intent of 10CFR50.36 is satisfied. Since the WRB-2 correlation is the only DNB correlation used to establish the COLR Reactor Core Limits figure for the Callaway plant, only the WRB-2 correlation and the associated 95/95 DNBR limit are specifically listed in TS 2.1.1.1. This is consistent with the format for TS 2.1.1.1 as specified in Reference 2.

While the ABB-NV and Westinghouse Low Pressure (WLOP) DNB correlations will be used in the safety analyses for the Callaway plant, these correlations are neither applicable to nor will they be used for the establishment of the COLR Reactor Core Limits figure. It is not appropriate to list any DNB correlations and their associated limits in TS 2.1.1.1 that are not used in the establishment of the COLR Reactor Core Limits figure.

References:

1. Letter from S.A. Maglio (Ameren Missouri) to U.S. Nuclear Regulatory Commission, "Revision of TS 2.1.1.1 and 5.6.5 to Remove Uncertainties from the DNBR Safety Limit and Adopt Approved WCAP-14565-P-A Methodology" dated May 8, 2015 [Nuclear Regulatory Commission ADAMS Accession Number ML15132A137].
2. Standard Technical Specifications – Westinghouse Plants: Volume 1, Specifications, NUREG-1431, Revision 4, April, 2012.
3. D.S. Huegel, J.D. Andrachek, and C.E. Morgan, "Generic Methodology for Expanded Core Operating Limits Report," WCAP-14483-A, January, 1999.