February 5, 2002

Mr. Garry L. Randolph
Vice President and Chief Nuclear Officer
Union Electric Company
Post Office Box 620
Fulton, MO 65251

SUBJECT: CALLAWAY PLANT, UNIT 1 - ISSUANCE OF AMENDMENT RE: REACTOR TRIP SYSTEM INSTRUMENTATION (TAC NO. MB3385)

Dear Mr. Randolph:

The Commission has issued the enclosed Amendment No. 148 to Facility Operating License No. NPF-30 for the Callaway Plant, Unit 1. The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated November 7, 2001 (ULNRC-04557).

The amendment revises Surveillance Requirements (SRs) 3.3.1.2 and 3.3.1.3 in the TSs on reactor trip system (RTS) instrumentation. The proposed change to SR 3.3.1.2 would replace the reference to the nuclear instrumentation system channel output by a reference to the power range channel output and would delete Note 1 to the SR. The change to SR 3.3.1.3 is editorial.

A copy of the related Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,

/RA/
Jack Donohew, Senior Project Manager, Section 2
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-483

Enclosures: 1. Amendment No. 148 to NPF-30
2. Safety Evaluation

cc w/encls: See next page

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UNION ELECTRIC COMPANY

CALLAWAY PLANT, UNIT 1

DOCKET NO. 50-483

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 148
License No. NPF-30

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Union Electric Company (UE, the licensee) dated November 7, 2001, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. NPF-30 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 148 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This amendment is effective as of its date of issuance and shall be implemented, including adding the changes to the Bases of the Technical Specifications as described in the licensee's application of November 7, 2001, before the startup from refueling outage 12, which is scheduled for the Fall of 2002.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/
Stephen Dembek, Chief, Section 2
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: February 5, 2002

ATTACHMENT TO LICENSE AMENDMENT NO. 148

FACILITY OPERATING LICENSE NO. NPF-30

DOCKET NO. 50-483

Replace the following page of the Appendix A Technical Specifications with the attached revised page. The revised page is identified by amendment number and contains vertical lines indicating the areas of change.

REMOVE	INSERT
3.3-12	3.3-12

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 148 TO FACILITY OPERATING LICENSE NO. NPF-30

UNION ELECTRIC COMPANY

CALLAWAY PLANT, UNIT 1

DOCKET NO. 50-483

1.0 INTRODUCTION

By application dated November 7, 2001, Union Electric Company (the licensee) requested changes to the Technical Specifications (TSs, Appendix A to Facility Operating License No. NPF-30) for the Callaway Plant, Unit 1 (Callaway). The proposed amendment would revise Surveillance Requirements (SRs) 3.3.1.2 and 3.3.1.3 in the TSs on reactor trip system (RTS) instrumentation. The proposed change to SR 3.3.1.2 would replace the reference to the nuclear instrumentation system channel output by a reference to the power range channel output and would delete Note 1 to the SR. The change to SR 3.3.1.3 is editorial. The licensee also provided the associated changes to the Bases of the TSs in Attachment 4 to the application.

2.0 BACKGROUND

The nuclear instrumentation system (NIS) power range channels provide indications of reactor power to the RTS. This is for the RTS trip of the reactor on power range high neutron flux. The daily NIS power range surveillance of SR 3.3.1.2 is for the power range channels to accurately reflect the reactor power based on the calorimetric heat balance calculation. A low power indication in the NIS power range channels would affect the RTS, and thus the protection of the reactor.

In its application, the licensee stated that the proposed changes address the potential effects of decalibrating the NIS power range channels at less than 100 percent power operation, as discussed in Westinghouse Technical Bulletin (TB) ESBU-TB-92-14-R1, "Decalibration Effects of Calorimetric Power Measurements on the NIS High Power Reactor Trip at Power Levels less than 70% RTP [Rated Thermal Power]," dated February 6, 1996. The TB identified potential effects for such decalibration, which can occur due to the increased uncertainty of the secondary side power calorimetric when performed at part-power operation. The plant-specific part-power level where this occurs can be determined following the guidance in the TB. The calculation of the power level below which NIS power range channel adjustments in a decreasing power direction become a concern for Callaway is in Appendix A to the application. As stated in the application, this power level for Callaway is less than 40 percent RTP.

The licensee stated that Westinghouse recommends in TB ESBU-TB-92-14-R1 that caution should be exercised if the NIS power range channels are adjusted in the decreasing power direction when the power channels indicate a higher power than the secondary side power calorimetric measurement at power levels below a plant-specific value (which is the 40 percent RTP for Callaway discussed above). This recommendation is in conflict with SR 3.3.1.2, which requires channel adjustment when the absolute difference is less than 2 percent RTP and the plant is greater than or equal to 15 percent RTP. In its application, the licensee stated that in accordance with NRC Administrative Letter 98-10, "Dispositioning of Technical Specifications that are Insufficient to Assure Plant Safety," it had implemented administrative controls soon after it had discovered this issue involving the SR. Additional restrictions have been imposed since that time.

The proposed amendment removes the requirement to adjust the NIS power range channels in the decreasing power direction when the indicated power is greater than the calorimetric heat balance calculation by more than 2 percent RTP. The licensee stated that compliance with SR 3.3.1.2 may result in a non-conservative channel calibration during reduced power operation. The licensee's presentation of the changes to TS Bases for SR 3.3.1.2 provides a description of the potential decalibration of the NIS power range channels at part-power operation.

3.0 EVALUATION

The licensee has proposed to revise SR 3.3.1.2 to (1) move the content of Note 1 to the body of the SR, and (2) state that the NIS power range channel would be adjusted if the results of the calorimetric heat balance calculation are greater than the channel output by more than 2 percent RTP of the reactor core. The revised SR 3.3.1.2 would state the following:

> Compare results of calorimetric heat balance calculation to the power range channel output. Adjust power range channel output if calorimetric heat balance calculation results exceed power range channel output by more than +2% RTP.

The NIS channel for SR 3.3.1.2, as shown in item 2.a of TS Table 3.3.1-1, is the power range channel. The current SR 3.3.1.2 requires the power range channel output to be adjusted when the absolute difference between the channel output and the calorimetric heat balance calculation is greater than 2 percent RTP. With the content of Note 1 moved to the SR, the revised SR 3.3.1.2 is same as the current SR 3.3.1.2 except that the revised SR would require the power range channel to be adjusted only when the calorimetric heat balance calculation results exceed the power range channel output by 2 percent RTP. Therefore, if the power range channels are underestimating reactor power by more than 2 percent RTP, the channels are required to be adjusted to indicate power more accurately. The 2 percent RTP limit and the 24-hour surveillance frequency is to ensure that the power range high neutron flux high setpoint reactor trip signal will be generated prior to the safety analysis limit. The calorimetric heat balance calculation is considered the more accurate determination of reactor power.

As stated above, Westinghouse TB ESBU-TB-92-14-R1 addresses potential effects of decalibrating the NIS power range channels at part-power operation. The licensee has proposed to require the readjustment of the power range channel output only if the channel output is less than the calorimetric heat balance calculation result when the channel input to the RTS for reactor power could be too low for a reactor trip. The revised SR 3.3.1.2 would act to have the channel outputs underestimate the reactor power which would be a conservative

input to the RTS and compensate for the potential decalibration addressed in TB ESBU-TB-92-14-R1.

The licensee further stated in its application that it also considered the effect of the potential decalibration of the NIS power range channels addressed in TB ESBU-TB-92-14-R1 on the following RTS design functions: power range indications, power range RTS trip functions (other than the high neutron flux), power range RTS permissive functions, power range control functions, and miscellaneous alarm functions. None of these RTS design functions were adversely impacted by the potential decalibration addressed in the TB.

For SR 3.3.1.3, the licensee has proposed to move the content of Note 1 to the body of SR 3.3.1.3 for consistency with the proposed change to SR 3.3.1.2. The proposed change to SR 3.3.1.3 is editorial in nature because the requirements of SR 3.3.1.3 are not being changed. The proposed change moves the requirement in Note 1 of SR 3.3.1.3 into the body of the SR and the acronym NIS is spelled out because it no longer appears in SR 3.3.1.2. The surveillance requirement in SR 3.3.1.3 remains that the excore NIS channels are adjusted every 31 effective full power days if the absolute difference between the incore and excore axial flux difference (AFD) is greater or equal to 2 percent RTP.

Based on the above evaluation, the staff concludes that the proposed change to SR 3.3.1.2 is conservative, accounts for potential effects of decalibrating the NIS power range channels at part-power operation, and will ensure that the power range high neutron flux high setpoint reactor trip signal will be generated prior to the safety analysis limit. For the proposed change to SR 3.3.1.3, the staff concludes that the change is editorial in nature and does not change the surveillance requirement of SR 3.3.1.3. Based on these conclusions, the staff further concludes that the prosed amendment is acceptable.

In its application, the licensee presented the changes to be made to the TS Bases for the proposed amendment that address the potential decalibration of the NIS power range channels at part-power operation. The staff agrees with the changes to be made to the TS Bases and concludes that it is necessary to have this description in the TS Bases for SR 3.3.1.2. Therefore, in the conference call of January 9, 2002, the licensee agreed to incorporate the changes to the TS Bases as part of the implementation of the amendment.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Missouri State official was notified of the proposed issuance of the amendment. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration and there has been no public comment on such finding (66 FR 64308). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Jack Donohew

Date: February 5, 2002