

August 31, 2005

Mr. Charles D. Naslund
Senior Vice President and Chief Nuclear Officer
Union Electric Company
Post Office Box 620
Fulton, MO 65251

SUBJECT: CALLAWAY PLANT, UNIT 1 - REQUEST FOR ADDITIONAL INFORMATION
RELATED TO TECHNICAL SPECIFICATION 3.1.9, "RCS BORON
LIMITATIONS < 500°F" (TAC NO. MC6897)

Dear Mr. Naslund:

By letter dated April 14, 2005 (ULNRC-05138), Union Electric Company (the licensee) requested Nuclear Regulatory Commission (NRC) approval for changes to the Technical Specifications (TSs) for the Callaway Plant, Unit 1 to add a new TS 3.1.9, "RCS [Reactor Coolant System] Boron Limitations < 500°F," and revise TS 3.3.1, "Reactor Trip System (RTS) Instrumentation." In the application, the licensee states that its license amendment request (LAR) would ensure that the required mitigative capability is available, in the form of adequate shutdown margin or an automatic reactor trip, for an uncontrolled rod withdrawal event that may be postulated to occur during low power or subcritical (e.g., startup) conditions.

Following an initial review of the above LAR regarding proposed TS changes to add RCS boron limitations and RTS requirements, the NRC staff concluded that it needed additional information identified in the enclosed request for additional information to complete its review of the LAR. The additional information needed by the NRC staff has been discussed with your staff, and, because of the upcoming refueling outage, they stated that the additional information will be provided after the outage, but no later than December 31, 2005.

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

Enclosure: Request for Additional Information

cc w/encl: See next page

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NRR-088

*See memo dated 8/1/05

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| DATE | 8/31/05 | 8/31/05 | 08/01/2005 | 8/31/05 |

REQUEST FOR ADDITIONAL INFORMATION
RELATED TO LICENSE AMENDMENT REQUEST ON
REACTOR COOLANT SYSTEM (RCS) BORON CONCENTRATION
UNION ELECTRIC COMPANY
CALLAWAY PLANT, UNIT 1
DOCKET NO. 50-483

By letter dated April 14, 2005, Union Electric Company (the licensee) requested Nuclear Regulatory Commission's (NRC's) approval for changes to the Technical Specifications (TSs) for the Callaway Plant, Unit 1 (Callaway) to add a new TS 3.1.9, "RCS Boron Limitations < 500°F," and revise TS 3.3.1, "Reactor Trip System (RTS) Instrumentation." The licensee stated that its license amendment request (LAR) would ensure that the required mitigative capability is available, in the form of adequate shutdown margin or an automatic reactor trip, for an uncontrolled rod withdrawal event that may be postulated to occur during low power or subcritical (e.g., startup) conditions.

Following an initial review of the above LAR regarding proposed TS changes to add RCS boron limitations and RTS requirements, the NRC staff concluded that it needed additional information to complete its review of the LAR. The following questions identify the additional information needed:

1. In its LAR, the licensee described the addition of a new TS Limiting Condition for Operation (LCO) 3.1.9, "RCS Boron Limitations < 500°F." This new LCO is designed to assure the required mitigative capability is available, in the form of adequate shutdown margin, for an uncontrolled rod withdrawal event that may be postulated to occur during low power or subcritical conditions. However, a description of the methodology that will be used to determine the all rods out (ARO) critical boron concentration contained in the new LCO 3.1.9 was not provided. Since the function of the new LCO will be to ensure sufficient mitigative capability for the rod withdrawal from low power or subcritical conditions, the NRC staff requests that the licensee provide additional information describing the NRC-approved methodology that will be used to calculate the ARO critical boron concentration.
2. A key component of the licensee's proposed change to add LCO 3.1.9 is the assurance of "adequate" SHUTDOWN MARGIN. In Section 4.3.1.5, "Shutdown Margins," of Callaway's Updated Final Safety Analysis Report, the licensee states that the "Minimum shutdown margin as specified in the COLR [Core Operating Limits Report] is required at any power operating conditions, in the hot standby shutdown condition, and in the cold shutdown condition." The NRC staff requests that the licensee provide additional information to describe the meaning of the term "adequate" shutdown margins as it is

used in the LAR and the proposed TS bases for LCO 3.1.9 submitted with the request. Specifically, the NRC staff requests that the licensee provide additional information sufficient to demonstrate that the interpretation of adequate shutdown margins is consistent with the licensee's current licensing basis regarding shutdown margin.

3. As part of its proposed new LCO 3.1.9, the licensee included Surveillance Requirement (SR) 3.1.9.1, that states the following: "Verify RCS boron concentration is greater than the ARO critical boron concentration." The proposed surveillance test interval (STI) is 24 hours. Upon reviewing the LAR, the NRC staff was unable to determine the technical justification for the 24-hour STI. The proposed TS Bases for LCO 3.1.9 provides a passing reference to the adequacy of the 24-hour interval but does not provide sufficient information to justify its selection for the STI. Therefore, the NRC staff requests that the licensee provide additional information that supports the conclusion that a 24-hour STI is adequate for the proposed SR 3.1.9.1.
4. As part of the proposed changes to TS 3.3.1, "Reactor Trip System (RTS) Instrumentation," the licensee provided revised conditions and required actions for inoperable Power Range Neutron Flux - Low channels. In the LAR and the proposed TS changes, the licensee states that one of the acceptable actions is to "place the Rod Control System [RCS] in a condition incapable of rod withdrawal." However, the LAR does not provide a description of how this condition will be met. Therefore, the NRC staff requests that the licensee provide additional information that demonstrates (1) how this condition will be satisfied and (2) that it will accomplish its intended safety function to prevent a rod withdrawal from low power or subcritical conditions.
5. A major component of the proposed LCO 3.1.9 is its applicability only to cold leg temperatures less than 500EF for Modes 2 and 3 operations. The NRC staff was unable to determine the technical basis for the temperature limit proposed. Higher temperatures could still result in shielding of neutrons from the power range detectors resulting in a delay in the indicated power reaching the Power Range Neutron Flux-Low trip function setpoint, and this would result in higher peak power conditions for a rod withdrawal from low power or subcritical conditions. Therefore, the NRC staff requests that the licensee provide a technical basis for the 500EF temperature proposed.

Callaway Plant, Unit 1

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