

August 17, 1998

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

SUBJECT: AMENDMENT NO. 127 TO FACILITY OPERATING LICENSE NO. NPF-30 -
CALLAWAY PLANT, UNIT 1 (TAC NO. MA1295)

Dear Mr. Randolph:

The Commission has issued the enclosed Amendment No. 127 to Facility Operating License No. NPF-30 for the Callaway Plant, Unit 1. The amendment consists of changes to the Technical Specifications (TS) in response to your application dated March 9, 1998, as supplemented by letter dated July 8, 1998.

The amendment revises TS 4.5.2b.1 and its associated Bases to eliminate the requirement to vent the centrifugal charging pump casings.

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

Sincerely,

Original Signed By

Kristine M. Thomas, Project Manager
Project Directorate IV-2
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Docket No. 50-483

Enclosures: 1. Amendment No.127to NPF-30
2. Safety Evaluation

cc w/encls: See next page

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*For previous concurrences see attached ORC

DOCUMENT NAME: CAL1295.AMD

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

UNION ELECTRIC COMPANY

CALLAWAY PLANT, UNIT 1

DOCKET NO. 50-483

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 127
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 March 9, 1998, as supplemented by letter dated July 8, 1998, 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:

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(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 127 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 to be implemented within 30 days from the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Kristine M. Thomas

Kristine M. Thomas, Project Manager
Project Directorate IV-2
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: August 17, 1998

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 127 TO FACILITY OPERATING LICENSE NO. NPF-30

DOCKET NO. 50-483

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised pages are identified by amendment number and contain vertical lines indicating the areas of change. The corresponding overleaf pages are also provided to maintain document completeness.

REMOVE

3/4 5-4
B 3/4 5-4

INSERT

3/4 5-4
B 3/4 5-4

EMERGENCY CORE COOLING SYSTEMS

3/4.5.2 ECCS SUBSYSTEMS - $T_{avg} \geq 350^{\circ}\text{F}$

LIMITING CONDITION FOR OPERATION

3.5.2 Two independent Emergency Core Cooling System (ECCS) subsystems shall be OPERABLE with each subsystem comprised of:

- a. One OPERABLE centrifugal charging pump,
- b. One OPERABLE Safety Injection pump,
- c. One OPERABLE RHR heat exchanger,
- d. One OPERABLE RHR pump, and
- e. An OPERABLE flow path capable of taking suction from the refueling water storage tank on a Safety Injection signal and automatically transferring suction to the containment sump during the recirculation phase of operation.

APPLICABILITY: MODES 1, 2, and 3.*

ACTION:

- a. With one ECCS subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- b. In the event the ECCS is actuated and injects water into the Reactor Coolant System, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 90 days describing the circumstances of the actuation and the total accumulated actuation cycles to date. The current value of the usage factor for each affected Safety Injection nozzle shall be provided in this Special Report whenever its value exceeds 0.70.

*The provisions of Specifications 3.0.4 and 4.0.4 are not applicable for entry into MOD 3 for the centrifugal charging pump and the Safety Injection pumps declared inoperable pursuant to Specification 4.5.3.2 provided the centrifugal charging pump and the Safety Injection pumps are restored to OPERABLE status within 4 hours prior to the temperature of one or more of the RCS cold legs exceeding 375°F .

EMERGENCY CORE COOLING SYSTEMS

SURVEILLANCE REQUIREMENTS

4.5.2 Each ECCS subsystem shall be demonstrated OPERABLE:

- a. At least once per 12 hours by verifying that the following valves are in the indicated positions with power to the valve operators removed:

<u>Valve Number</u>	<u>Valve Function</u>	<u>Valve Position</u>
BN-HV-8813	Safety Injection to RWST Isolation Vlv	Open
EM-HV-8802A(B)	SI Pump Discharge Hot Leg Iso Vlv	Closed
EM-HV-8835	Safety Injection Cold Leg Iso Valve	Open
EJ-HV-8840	RHR/SI Hot Leg Recirc Iso Valve	Closed
EJ-HV-8809A	RHR to Accum Inj Loops 1 & 2 Iso Vlv	Open
EJ-HV-8809B	RHR to Accum Inj Loops 3 & 4 Iso Vlv	Open

- b. At least once per 31 days by:

- 1) Verifying that the ECCS piping is full of water by venting the RHR and SI pump casings and accessible ECCS discharge piping high points, and
- 2) Verifying that each valve (manual, power-operated, or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.

- c. By a visual inspection which verifies that no loose debris (rags, trash, clothing, etc.) is present in the containment which could be transported to the containment sump and cause restriction of the pump suction during LOCA conditions. This visual inspection shall be performed:

- 1) For all accessible areas of the containment prior to establishing CONTAINMENT INTEGRITY, and
- 2) Of the areas affected within containment at the completion of each containment entry when CONTAINMENT INTEGRITY is established.

- d. At least once per 18 months by:

- 1) Verifying automatic isolation action of the RHR System from the Reactor Coolant System by ensuring that, with a simulated or actual Reactor Coolant System pressure signal greater than or equal to 425 psig, the interlocks prevent the valves from being opened.

EMERGENCY CORE COOLING SYSTEMS

BASES

ECCS SUBSYSTEMS (Continued)

The centrifugal charging pump maximum total pump flow Surveillance Requirement ensures the maximum injection flow limit of 550 gpm is not exceeded. This value of flow is comprised of the total flow to the four branch lines of 469 gpm and a seal injection flow of 79 gpm plus 2 gpm for instrument uncertainties.

The safety injection pump maximum total pump flow Surveillance Requirement ensures the maximum injection flow limit of 675 gpm is not exceeded. This value of flow includes a nominal 30 gpm of mini-flow.

The test procedure places requirements on instrument accuracy (20 inches of water column for the charging branch lines and 10 inches of water column for the safety injection branch lines) and setting tolerance (30 inches of water column for both the charging and safety injection branch lines) such that branch line flow imbalance remains within the assumptions of the safety analyses.

The maximum and minimum potential pump performance curves, in conjunction with the maximum and minimum flow Surveillance Requirements, the maximum total system resistance, and the test procedure requirements, ensure that the assumptions of the safety analyses remain valid.

The surveillance flow and differential pressure requirements are the Safety Analysis Limits and do not include instrument uncertainties. These instrument uncertainties will be accounted for in the surveillance test procedure to assure that the Safety Analysis Limits are met.

The Surveillance Requirements for leakage testing of ECCS check valves ensure that a failure of one valve will not cause an inter-system LOCA. The Surveillance Requirement to vent the RHR and SI pump casings and accessible, i.e., can be reached without personnel hazards or high radiation dose, ECCS discharge piping ensures against inoperable pumps caused by gas binding or water hammer in ECCS piping.

3/4.5.5 REFUELING WATER STORAGE TANK

The OPERABILITY of the refueling water storage tank (RWST) as part of the ECCS ensures that a sufficient supply of borated water is available for injection by the ECCS in the event of a LOCA. The limits on RWST minimum volume and boron concentration ensure that: (1) sufficient water is available within containment to permit recirculation cooling flow to the core, and (2) the reactor will remain subcritical in the cold condition following mixing of the RWST and the RCS water volumes assuming all the control rods are out of the core. These assumptions are consistent with the LOCA analyses.

EMERGENCY CORE COOLING SYSTEMS

BASES

REFUELING WATER STORAGE TANK (Continued)

The contained water volume limit includes an allowance for water not usable because of tank discharge line location or other physical characteristics.

The limits on contained water volume and boron concentration of the RWST also ensure a minimum equilibrium sump pH of 7.1 for the solution recirculated within containment after a LOCA. This pH level minimizes the evolution of iodine and minimizes the effect of chloride and caustic stress corrosion on mechanical systems and components.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 127 TO FACILITY OPERATING LICENSE NO. NPF-30

UNION ELECTRIC COMPANY

CALLAWAY PLANT, UNIT 1

DOCKET NO. 50-483

1.0 INTRODUCTION

By letter dated March 9, 1998, as supplemented by letter dated July 8, 1998, Union Electric Company (UE), requested changes to the Technical Specifications (Appendix A to Facility Operating License No. NPF-30) for the Callaway Plant, Unit 1. The proposed changes would revise Technical Specification Surveillance Requirement 3/4.5.2b.1 and its associated Bases to add clarification in regard to venting the emergency core cooling system (ECCS) pump casings and accessible discharge piping high points.

The July 8, 1998, supplemental letter provided additional clarifying information and did not change the staff's original no significant hazards consideration determination or expand the scope of the original Federal Register notice published on May 6, 1998 (63 FR 25118).

2.0 EVALUATION

Technical Specification Surveillance Requirement 3/4.5.2b.1 requires verification that the ECCS piping is full of water at least once per 31 days by venting the ECCS pump casings, i.e., the safety injection (SI) pump, residual heat removal (RHR) pump, and centrifugal charging pump (CCP) casings and accessible discharge piping high points. The associated Bases section states that this surveillance requirement ensures the pumps remain water filled and gas binding or water hammer in ECCS piping will not occur. The proposed change to vent only the safety injection and residual heat removal pump casings is being requested since the CCP casings do not require venting and do not have installed casing vents.

The ECCS is designed to supply core cooling and negative reactivity to ensure the reactor is cooled and shut down following a postulated accident. The ECCS pumps include the high head safety injection pumps, or CCPs, the intermediate head safety injection pumps, or SI pumps, and the low head safety injection pumps, or RHR pumps. The SI and RHR pumps are designed with installed pump casing vents.

The CCPs are eleven stage, multi-diffuser type pumps manufactured by Pacific Pumps with no installed pump casing vent. The CCPs are designed with top-mounted suction and discharge nozzles. This design allows noncondensable gases in the pump to escape through the nozzles

and be effectively vented at a location on the discharge piping. The licensee has concluded, after consultation with the pump manufacturer, that the mechanical effects of starting the pumps with small quantities of gas will be insignificant.

In order to verify the CCP pump casings are properly vented, the licensee has utilized flushing connections off of the side of discharge CCP piping. During the last quarter of 1997 the licensee installed new vent assemblies to the high point of the CCP discharge piping above the "A" and "B" CCP discharge nozzles. The licensee has concluded that venting at these new locations ensures the CCP casings will be completely vented from discharge piping high points and the venting will assure that no gas is left in the discharge line or pump. Only the pump discharge side of piping is vented since the suction side piping to the CCPs is vented back to the normally running Normal Charging Pump. The license also verified that there are no relative high points in the pump suction and, as a result, gas will not form in the suction piping and become trapped.

The staff has reviewed the information provided by the licensee and the licensee conclusion that (1) the CCPs do not require casing vents and the mechanical effects of starting the pump with small amounts of gas are insignificant, (2) the installation and use of new discharge vents assure there is no gas in the pump or discharge piping, and (3) the suction piping of the CCPs contain no loop seals, and gas will not form and be trapped in the suction piping. Based on its review, the staff finds the amendment acceptable. As a result, the staff concludes the changes to Technical Specification 3/4.5.2b.1 and its associated Bases in regard to venting the emergency core cooling system (ECCS) pump casings and accessible discharge piping high points will make the TS surveillance requirements consistent with the design of the ECCS system, and that the TS surveillance, as modified, will provide continued confidence that unacceptable accumulation of gases will not occur in the ECCS.

3.0 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.

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a surveillance requirement. 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 (63 FR 25118). 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.

5.0 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: Mel Gray

Date: August 17, 1998