December 5, 1988

Docket No. 50-483

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Mr. Donald F. Schnell
Vice President - Nuclear
Union Electric Company
Post Office Box 149
St. Louis, Missouri 63166

Dear Mr. Schnell:

The Commission has issued the enclosed Amendment No. 40 to Facility Operating License No. NPF-30 for the Callaway Plant, Unit 1. This amendment revises the Technical Specifications in response to your application dated July 12, 1988.

The amendment revises Technical Specification 3.5.1, Accumulators, to allow the plant to remain in Hot Standby with reactor coolant system pressure less than or equal to 1000 psig with one accumulator inoperable, and to allow closing one accumulator isolation valve for up to 2 hours to perform leakage testing of system or check valves.

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,

/s/

Thomas W. Alexion, Project Manager
Project Directorate III-3
Division of Reactor Projects - III,
IV, V and Special Projects

Enclosures:
1. Amendment No. 40 to
   License No. NPF-30
2. Safety Evaluation

cc w/enclosures:
See next page

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

UNION ELECTRIC COMPANY

CALLAWAY PLANT, UNIT 1

DOCKET NO. STN 50-483

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 40
License No. NPF-30

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

   A. The application for amendment filed by Union Electric Company (UE, the licensee) dated July 12, 1988, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and 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. 40, and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, are hereby incorporated into the license. UE shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

for Thomas V. Wambach
John N. Hannon, Director
Project Directorate III-3
Division of Reactor Projects - III,
IV, V and Special Projects

Attachment:
Changes to the Technical
Specifications

Date of Issuance: December 5, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 40

OPERATING LICENSE NO. NPF-30

DOCKET NO. 50-483

Revise Appendix A Technical Specifications by removing the pages identified below and inserting the enclosed pages. The revised pages are identified by the captioned amendment number and contain marginal lines indicating the area of change. Corresponding overleaf pages are provided to maintain document completeness.

REMOVE	INSERT
3/4 5-1	3/4 5-1
B 3/4 5-1	B 3/4 5-1

3/4.5 EMERGENCY CORE COOLING SYSTEMS

3/4.5.1 ACCUMULATORS

LIMITING CONDITION FOR OPERATION

3.5.1 Each Reactor Coolant System accumulator shall be OPERABLE with:

a. The isolation valve open and power removed,

b. A contained borated water volume of between 6061 and 6655 gallons,

c. A boron concentration of between 1900 and 2100 ppm, and

d. A nitrogen cover-pressure of between 602 and 648 psig.

APPLICABILITY: MODES 1, 2 and 3*.

ACTION:

a. With one accumulator inoperable, except as a result of a closed isolation valve, restore the inoperable accumulator to OPERABLE status within 1 hour or be in at least HOT STANDBY within the next 6 hours and reduce RCS pressure to less than 1000 psig within the following 6 hours.

b. With one accumulator inoperable due to the isolation valve being closed#, either immediately open the isolation valve or be in at least HOT STANDBY within 6 hours and reduce RCS pressure to less than 1000 psig within the following 6 hours.

SURVEILLANCE REQUIREMENTS

4.5.1.1 Each accumulator shall be demonstrated OPERABLE:

a. At least once per 12 hours by:

1) Verifying, by the absence of alarms, the contained borated water volume and nitrogen cover-pressure in the tanks, and

2) Verifying that each accumulator isolation valve is open.

* RCS pressure above 1000 psig.

One accumulator isolation valve may be closed for up to 2 hours in mode 3* for surveillance testing per 4.0.5 or 4.4.6.2.2.

SURVEILLANCE REQUIREMENTS (Continued)

b. At least once per 31 days and within 6 hours after each solution volume increase of greater than or equal to 70 gallons by verifying the boron concentration of the accumulator solution; and

c. At least once per 31 days when the RCS pressure is above 1000 psig by verifying that the circuit breaker supplying power to the isolation valve operator is open.

4.5.1.2 Each accumulator water level and pressure channel shall be demonstrated OPERABLE at least once per 18 months by the performance of a CHANNEL CALIBRATION.

3/4.5.1 ACCUMULATORS

The OPERABILITY of each Reactor Coolant System (RCS) accumulator ensures that a sufficient volume of borated water will be immediately forced into the core through each of the cold legs in the event the RCS pressure falls below the pressure of the accumulators. This initial surge of water into the core provides the initial cooling mechanism during large RCS pipe ruptures.

The limits on accumulator volume, boron concentration and pressure ensure that the assumptions used for accumulator injection in the safety analysis are met.

The accumulator power operated isolation valves are considered to be "operating bypasses" in the context of IEEE Std. 279-1971, which requires that bypasses of a protective function be removed automatically whenever permissive conditions are not met. In addition, as these accumulator isolation valves fail to meet single failure criteria, removal of power to the valves is required.

The limits for operation with an accumulator inoperable for any reason except an isolation valve closed minimizes the time exposure of the plant to a LOCA event occurring concurrent with failure of an additional accumulator which may result in unacceptable peak cladding temperatures. If a closed isolation valve cannot be immediately opened, the full capability of one accumulator is not available and prompt action is required to place the reactor in a MODE where this capability is not required. In order to perform check valve surveillance testing per 4.0.5 or 4.4.6.2.2 above 1000 psig RCS pressure, one accumulator isolation valve may be closed for up to 2 hours in mode 3 only.

The requirement to verify accumulator isolation valves shut with power removed from the valve operator when the pressurizer is solid ensures the accumulators will not inject water and cause a pressure transient when the Reactor Coolant System is on solid plant pressure control.

3/4.5.2, 3/4.5.3, and 3/4.5.4 ECCS SUBSYSTEMS

The OPERABILITY of two independent ECCS subsystems ensures that sufficient emergency core cooling capability will be available in the event of a LOCA assuming the loss of one subsystem through any single failure consideration. Either subsystem operating in conjunction with the accumulators is capable of supplying sufficient core cooling to limit the peak cladding temperatures within acceptable limits for all postulated break sizes ranging from the double ended break of the largest RCS cold leg pipe downward. In addition, each ECCS subsystem provides long-term core cooling capability in the recirculation mode during the accident recovery period.

With the RCS temperature below 350°F, one OPERABLE ECCS subsystem is acceptable without single failure consideration on the basis of the stable reactivity condition of the reactor and the limited core cooling requirements.

ECCS SUBSYSTEMS (Continued)

The limitation for a maximum of one centrifugal charging pump to be OPERABLE and the Surveillance Requirement to verify all charging pumps and Safety Injection pumps except the required OPERABLE charging pump to be inoperable in MODES 4 and 5 and in MODE 6 with the reactor vessel head on provides assurance that a mass addition pressure transient can be relieved by the operation of a single PORV or RHR suction relief valve.

The Surveillance Requirements provided to ensure OPERABILITY of each component ensure, that at a minimum, the assumptions used in the safety analyses are met and that subsystem OPERABILITY is maintained. Surveillance Requirements for throttle valve position stops and flow balance testing provide assurance that proper ECCS flows will be maintained in the event of a LOCA. Maintenance of proper flow resistance and pressure drop in the piping system to each injection point is necessary to: (1) prevent total pump flow from exceeding runout conditions when the system is in its minimum resistance configuration, (2) provide the proper flow split between injection points in accordance with the assumptions used in the ECCS-LOCA analyses, and (3) provide an acceptable level of total ECCS flow to all injection points equal to or above that assumed in the ECCS-LOCA analyses. The Surveillance Requirements for leakage testing of ECCS check valves ensure that a failure of one valve will not cause an intersystem LOCA. The Surveillance Requirement to vent the ECCS pump casings and accessible, i.e., can be reached without personnel hazard or high radiation dose, 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 with all control rods inserted except for the most reactive control assembly. These assumptions are consistent with the LOCA analyses.

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 pH value of between 8.5 and 11.0 for the solution recirculated within containment after a LOCA. This pH band 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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 40 TO FACILITY OPERATING LICENSE NO. NPF-30

UNION ELECTRIC COMPANY
CALLAWAY PLANT, UNIT 1
DOCKET NO. STN 50-483

1.0 INTRODUCTION

By letter dated July 12, 1988, Union Electric Company submitted a request for changes to Technical Specification 3.5.1, Accumulators.

The amendment would allow the plant to remain in Hot Standby with reactor coolant system pressure less than or equal to 1000 psig with one accumulator inoperable, and it would allow closing one accumulator isolation valve for up to 2 hours to perform leakage testing of system check valves.

2.0 DISCUSSION

The accumulators function as part of the Emergency Core Cooling System. The main function is to provide emergency core cooling in the event of a loss of coolant accident and to provide cooling water and boration in the event of a steam line break or a feedwater line break. All accumulators feed into the cold legs.

3.0 EVALUATION

3.1 Clarification of Applicability

Technical Specification 3.5-1 is applicable in modes 1, 2 and 3 and when the reactor coolant system (RCS) pressure is above 1,000 psig, i.e., when all accumulators are operable. (The accumulator nitrogen cover-pressure at Callaway Plant is between 602 and 648 psig.) Normal operation procedures require the control room operators to close the accumulator discharge valves whenever the RCS pressure is reduced below 1,000 psig.

The present Technical Specification 3.5-1 ACTION statements require the plant to be in Hot Standby (mode 3) within 7 hours from the moment an accumulator has been declared inoperable and in Hot Shutdown (mode 4) within the following 6 hours. Also, the present (and proposed) specification limiting condition for operation is applicable in modes 1 and 2, and in mode 3 with

RCS pressure above 1,000 psig. The proposed amendment would revise the ACTION statements to require the plant to be in mode 3 within 7 hours and require a reduction of the RCS pressure to less than or equal to 1,000 psig within the following 6 hours.

Since the accumulators are not required to be operable with the RCS pressure below 1,000 psig and the plant in mode 3 (or modes 4, 5 and 6), the proposed requirement brings into consistency the technical specification limiting condition of operation and the corresponding ACTION statement. The proposed requirement also avoids mode 4 which would impose thermal cycling on the reactor coolant system containment and reactor internals, and it does not affect the scope of the technical specification.

Based on the above evaluation, the staff agrees that this part of the proposed change is acceptable. The staff did, however, suggest and the licensee agreed to slight changes in wording for further consistency and clarification of the technical specification. The staff noted that RCS pressure and pressurizer pressure in the licensee's present and proposed technical specification are used interchangeably (the pressurizer is part of the RCS). The staff suggested that the licensee select the more appropriate wording and use it throughout the technical specification. The licensee selected RCS pressure since the pressurizer pressure indicator has only narrow range indication (1700-2500 psig) while the RCS pressure indicator has wide range indication (0-3000 psig). The staff agrees with the licensee's selection of RCS pressure.

3.2 Clarification of Surveillance Testing

The second proposed change would allow an accumulator isolation valve to be closed for a specified period of up to 2 hours, with the reactor in mode 3 and reactor coolant system pressure greater than 1,000 psig, for testing of system check valves. This would require a deliberate action to close the valve for testing and not imply that immediate action should be taken to reopen the valve as currently stated in Technical Specification 3.5.1 ACTION statement b.

Justification for this change is that it is an administrative change to clarify the ACTION statement associated with a closed isolation valve. The current ACTION statement requires a closed isolation valve to be opened immediately or to be in mode 3 within the next 6 hours. This proposed change is to allow the isolation valve to be closed for up to 2 hours in mode 3 for surveillance testing per specification 4.0.5 or 4.4.6.2.2. Since this 2-hour period is a reasonable amount of time to perform surveillance testing and it is less than the 6 hours allowed by the ACTION statement, the proposed change is simply an added note to clarify the ACTION statement and it does not affect the scope of the technical specification. Therefore, this part of the amendment request is also acceptable.

4.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change to a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 or a change to a surveillance requirement. The 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 this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this 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 this amendment.

5.0 CONCLUSION

The staff 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; and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

6.0 ACKNOWLEDGEMENT

Principal Contributors: T. Alexion, PDIII-3

Dated: December 5, 1988