December 7, 1995

50-483

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| RLaufer | EAdensam | |

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

SUBJECT: AMENDMENT NO. 105 TO FACILITY OPERATING LICENSE NO. NPF-30 - CALLAWAY PLANT, UNIT 1 (TAC NO. M92974)

Dear Mr. Schnell:

The Commission has issued the enclosed Amendment No. 105 to Facility Operating License No. NPF-30 for the Callaway Plant, Unit 1. This amendment revises the Technical Specifications (TS) in response to your application dated June 23, 1995 (ULNRC-03230).

The amendment revises TS 4.1.3.1.2, TS 4.4.6.2.2.b, TS 4.4.3.2, TS 4.6.2.1.d, TS 4.6.4.2, and TS Table 4.3-3 to implement the recommendations of NRC Generic Letter (GL) 93-05, "Line Item Technical Specification Improvements to Reduce Surveillance Requirements for Testing During Power Operations." Additionally, the amendment revises TS 4.1.1.1.1, TS 4.1.1.2, TS 3/4.1.3.1 and the associated Bases to implement portions of NUREG-1431, "Standard Technical Specifications - Westinghouse Plants."

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. 105 to NPF-30
2. Safety Evaluation

cc w/encls: See next page

DOCUMENT NAME: CAL92974.AMD

| OFC | LA:PDIV-2 | PDIV-2 | PDIII-3 | BC:OTSB | OGC* |
|---|---|---|---|---|---|
| NAME | EPeyton | KThomas:pk | RLaufer | CGrimes | CMarco |
| DATE | 11/7/95 | 11/4/95 | 11/7/95 | 11/14/95 | 11/17/95 |

*note change

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December 7, 1995

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| Docket File | GHill (2) | LHurley, RIV |
| PUBLIC | JRoe | BJohnson, RIV |
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Docket No. 50-483

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cc w/encls: See next page

DOCUMENT NAME: CAL92974.AMD

| OFC | LA:PDIV-2 | PDIV-2 | PDIII-3 | BC:OTSB 95-180 | OGC *note change |
|---|---|---|---|---|---|
| NAME | EPeyton | KThomas:pk | RLaufer | CGrimes | CMarco |
| DATE | 11/7/95 | 11/4/95 | 11/8/95 | 11/14/95 | 11/17/95 |

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

December 7, 1995

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

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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. 105 to NPF-30
2. Safety Evaluation

cc w/encls: See next page

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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. 105
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 June 23, 1995, 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. 105, 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 its date of 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: December 7, 1995

ATTACHMENT TO LICENSE AMENDMENT NO. 105

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 vertical lines indicating the area of change. Overleaf pages are provided to maintain document completeness.

| REMOVE | INSERT |
|---|---|
| 3/4 1-1 | 3/4 1-1 |
| 3/4 1-3 | 3/4 1-3 |
| 3/4 1-4* | 3/4 1-4* |
| 3/4 1-14 | 3/4 1-14 |
| 3/4 1-15 | 3/4 1-15 |
| 3/4 3-41 | 3/4 3-41 |
| 3/4 4-9 | 3/4 4-9 |
| 3/4 4-10* | 3/4 4-10* |
| 3/4 4-19* | 3/4 4-19* |
| 3/4 4-20 | 3/4 4-20 |
| 3/4 6-13 | 3/4 6-13 |
| 3/4 6-32 | 3/4 6-32 |
| B 3/4 1-4 | B 3/4 1-4 |
| B 3/4 1-5 | B 3/4 1-5 |

*Denotes overleaf page

## 3/4.1 REACTIVITY CONTROL SYSTEMS

### 3/4.1.1 BORATION CONTROL

### SHUTDOWN MARGIN - $T_{avg}$ > 200°F

### LIMITING CONDITION FOR OPERATION

3.1.1.1 The SHUTDOWN MARGIN shall be greater than or equal to 1.3% Δk/k.

APPLICABILITY: MODES 3 and 4.

ACTION:

With the SHUTDOWN MARGIN less than 1.3% Δk/k, within 15 minutes initiate and continue boration at greater than or equal to 30 gpm of a solution containing greater than or equal to 7000 ppm boron or equivalent until the required SHUTDOWN MARGIN is restored.

### SURVEILLANCE REQUIREMENTS

4.1.1.1.1 The SHUTDOWN MARGIN shall be determined to be greater than or equal to 1.3% Δk/k:

a. Within 1 hour after detection of an inoperable (untrippable) rod(s) and at least once per 12 hours thereafter while the rod(s) is inoperable. The above required SHUTDOWN MARGIN shall be verified acceptable with an increased allowance for the withdrawn worth of the untrippable rod(s):

b. At least once per 24 hours by consideration of the following factors:

   1) Reactor Coolant System boron concentration,

   2) Control rod position,

   3) Reactor Coolant System average temperature,

   4) Fuel burnup based on gross thermal energy generation,

   5) Xenon concentration, and

   6) Samarium concentration.

## SHUTDOWN MARGIN - $T_{avg} \leq 200°F$

### LIMITING CONDITION FOR OPERATION

3.1.1.2 The SHUTDOWN MARGIN shall be greater than or equal to 1% $\Delta k/k$.

APPLICABILITY: MODE 5.

ACTION:

With the SHUTDOWN MARGIN less than 1% $\Delta k/k$, within 15 minutes initiate and continue boration at greater than or equal to 30 gpm of a solution containing greater than or equal to 7000 ppm boron or equivalent until the required SHUTDOWN MARGIN is restored.

### SURVEILLANCE REQUIREMENTS

4.1.1.2 The SHUTDOWN MARGIN shall be determined to be greater than or equal to 1% $\Delta k/k$ at least once per 24 hours by consideration of the following factors:

1) Reactor Coolant System boron concentration,
2) Control rod position,
3) Reactor Coolant System average temperature,
4) Fuel burnup based on gross thermal energy generation,
5) Xenon concentration, and
6) Samarium concentration.

## MODERATOR TEMPERATURE COEFFICIENT

### LIMITING CONDITION FOR OPERATION

3.1.1.3 The moderator temperature coefficient (MTC) shall be within the limits specified in the Core Operating Limits Report (COLR). The maximum upper limit shall be less positive than +5 pcm/°F for power levels up to 70% RATED THERMAL POWER and a linear ramp from that point to 0 pcm/°F at 100% RATED THERMAL POWER for the all rods withdrawn, beginning of cycle life (BOL) condition.

APPLICABILITY: Beginning of Cycle Life (BOL) Limit - MODES 1 and 2*#
End of Cycle Life (EOL) Limit - MODES 1, 2, and 3#

ACTION:

a. With the MTC more positive than the BOL limit specified in the COLR, operation in MODES 1 and 2 may proceed provided:

   1. Control rod withdrawal limits are established and maintained sufficient to restore the MTC to within the BOL limits specified in the COLR within 24 hours or be in HOT STANDBY within the next 6 hours. These withdrawal limits shall be in addition to the insertion limits of Specification 3.1.3.6;

   2. The control rods are maintained within the withdrawal limits established above until a subsequent calculation verifies that the MTC has been restored to within its limit for the all rods withdrawn condition; and

   3. A Special Report is prepared and submitted to the Commission pursuant to Specification 6.9.2 within 10 days, describing the value of the measured MTC, the interim control rod withdrawal limits, and the predicted average core burnup necessary for restoring the positive MTC to within its limit for the all rods withdrawn condition.

b. With the MTC more negative than the EOL limit specified in the COLR, be in HOT SHUTDOWN within 12 hours.

---

* With $K_{eff}$ greater than or equal to 1.

# See Special Test Exception Specification 3.10.3.

## 3/4.1.3 MOVABLE CONTROL ASSEMBLIES

### GROUP HEIGHT

### LIMITING CONDITION FOR OPERATION

3.1.3.1 All full-length shutdown and control rods shall be OPERABLE and positioned within ±12 steps (indicated position) of their group step counter demand position.

APPLICABILITY: MODES 1* and 2*.

ACTION:

The ACTION to be taken is based on the cause of rod inoperability as follows:

| CAUSE OF INOPERABILITY | ACTION | |
|---|---|---|
| | One Rod | More Than One Rod |
| 1. One or more rods untrippable. | (a) | (a) |
| 2. Misaligned by more than ±12 steps (indicated position) from its group step counter demand height or from any other rod in its group. | (c) | (b) |

ACTION a - 1.1 Determine that the SHUTDOWN MARGIN is greater than or equal to 1.3% Δk/k, with an increased allowance for the withdrawn worth of the untrippable rod(s), within 1 hour, or

1.2 Initiate boration to restore the SHUTDOWN MARGIN to greater than or equal to 1.3% Δk/k, within 1 hour;

and

2. Be in HOT STANDBY within 6 hours.

ACTION b - Be in HOT STANDBY within 6 hours.

ACTION c - POWER OPERATION may continue provided that within 1 hour:

1. The rod is restored to OPERABLE status within the above alignment requirements, or

* See Special Test Exceptions Specifications 3.10.2 and 3.10.3.

LIMITING CONDITION FOR OPERATION

ACTION (Continued)

2. The rod is declared inoperable and the remainder of the rods in the group with the inoperable rod are aligned to within ±12 steps of the inoperable rod while maintaining the rod sequence and insertion limits of Specification 3.1.3.6. The THERMAL POWER level shall be restricted pursuant to Specification 3.1.3.6 during subsequent operation, or

3. The rod is declared inoperable and the SHUTDOWN MARGIN is greater than or equal to 1.3% $\Delta k/k$. POWER OPERATION may then continue provided that:

   a) A reevaluation of each accident analysis of Table 3.1-1 is performed within 5 days; this reevaluation shall confirm that the previously analyzed results of these accidents remain valid for the duration of operation under these conditions;

   b) A power distribution map is obtained from the movable incore detectors and $F_Q(Z)$ and $F_{\Delta H}^N$ are verified to be within their limits with 72 hours; and

c) The THERMAL POWER level is reduced to less than or equal to 75% of RATED THERMAL POWER within the next hour and within the following 4 hours the High Neutron Flux Trip Setpoint is reduced to less than or equal to 85% of RATED THERMAL POWER.

SURVEILLANCE REQUIREMENTS

4.1.3.1.1 The position of each full-length rod shall be determined to be within the group demand limit by verifying the individual rod positions at least once per 12 hours except during time intervals when the rod position deviation monitor is inoperable, then verify the group positions at least once per 4 hours.

4.1.3.1.2 Each full-length rod not fully inserted in the core shall be determined to be OPERABLE (trippable) by movement of at least 10 steps in any one direction at least once per 92 days.

4.1.3.1.3 Prior to reactor criticality, the rod drop time of the individual full-length shutdown and control rods from the fully withdrawn position shall be demonstrated to be less than or equal to 2.7 seconds from the beginning of decay of stationary gripper coil voltage to dashpot entry with $T_{avg} \geq 551°F$ and all reactor coolant pumps operating:

a. For all rods following each removal of the reactor vessel head, and

b. For specifically affected individual rods following any maintenance on or modification to the Control Rod Drive System which could affect the drop time of those specific rods.

TABLE 4.3-3

RADIATION MONITORING INSTRUMENTATION FOR PLANT OPERATIONS SURVEILLANCE REQUIREMENTS

| FUNCTIONAL UNIT | CHANNEL CHECK | CHANNEL CALIBRATION | ANALOG CHANNEL OPERATIONAL TEST | MODES FOR WHICH SURVEILLANCE IS REQUIRED |
|---|---|---|---|---|
| 1. Containment | | | | |
| a. Gaseous Radioactivity-RCS Leakage Detection (GT-RE-31 & 32) | S | R | Q | 1, 2, 3, 4 |
| b. Particulate Radioactivity - RCS Leakage Detection | S | R | Q | 1, 2, 3, 4 |
| 2. Fuel Building | | | | |
| a. Fuel Building Exhaust - Gaseous Radioactivity-High (GG-RE-27 & 28) | S | R | Q | ** |
| b. Criticality-High Radiation Level | S | R | Q | * |
| 1) Spent Fuel Pool (SD-RE-37 & 38) | | | | |
| 2) New Fuel Pool (SD-RE-35 & 36) | S | R | Q | * |
| 3. Control Room | | | | |
| Air Intake-Gaseous Radioactivity-High (GK-RE-04 & 05) | S | R | Q | All |

*With fuel in the respective fuel storage pool.
**With irradiated fuel in the fuel storage areas or fuel building.

## 3/4.4.3 PRESSURIZER

### LIMITING CONDITION FOR OPERATION

3.4.3 The pressurizer shall be OPERABLE with at least two groups of backup pressurizer heaters each having a capacity of at least 150 kW and a water level of less than or equal to 92% (1657 cubic feet).

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

a. With one group of backup pressurizer heaters inoperable, restore at least two groups of backup heaters 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. With the pressurizer otherwise inoperable, be in at least HOT STANDBY with the Reactor trip breakers open within 6 hours and in HOT SHUTDOWN within the following 6 hours.

### SURVEILLANCE REQUIREMENTS

4.4.3.1 The pressurizer water level shall be determined to be within its limit at least once per 12 hours.

4.4.3.2 The capacity of each of the above required groups of pressurizer heaters shall be verified by energizing the heaters and measuring circuit current at least once each refueling interval.

## 3/4.4.4 RELIEF VALVES

### LIMITING CONDITION FOR OPERATION

3.4.4 Both power-operated relief valves (PORVs) and their associated block valves shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.*

ACTION:

a. With one or both PORV(s) inoperable because of excessive seat leakage, within 1 hour either restore the PORV(s) to OPERABLE status or close the associated block valve(s) with power maintained to the block valve(s); otherwise, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

b. With one PORV inoperable due to causes other than excessive seat leakage, within 1 hour either restore the PORV to OPERABLE status, or close its associated block valve and remove power from the block valve; restore the PORV to OPERABLE status within the following 72 hours or be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

c. With both PORV(s) inoperable due to causes other than excessive seat leakage, within 1 hour either restore at least one PORV to OPERABLE status or close its associated block valve and remove power from the block valve and be in HOT STANDBY within the next 6 hours and HOT SHUTDOWN within the following 6 hours.

d. With one or both block valves inoperable, within 1 hour restore the block valve(s) to OPERABLE status or place its associated PORV(s) in manual control. Restore at least one block valve to OPERABLE status within the next hour if both valves are inoperable; restore any remaining inoperable block valve to OPERABLE status within 72 hours; otherwise, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

e. The provisions of Specification 3.0.4 are not applicable.

### SURVEILLANCE REQUIREMENTS

4.4.4.1 In addition to the requirements of Specification 4.0.5, each PORV shall be demonstrated OPERABLE at least once per 18 months by performance of a CHANNEL CALIBRATION of the actuation instrumentation.

4.4.4.2 Each block valve shall be demonstrated OPERABLE at least once per 92 days by operating the valve through one complete cycle of full travel unless the block valve is closed in order to meet the requirements of ACTION b. or c. in Specification 3.4.4.

*With all RCS cold leg temperatures above 368°F.

LIMITING CONDITION FOR OPERATION

3.4.6.2 Reactor Coolant System leakage shall be limited to:

a. No PRESSURE BOUNDARY LEAKAGE,

b. 1 gpm UNIDENTIFIED LEAKAGE.

c. 1 gpm total reactor-to-secondary leakage through all steam generators not isolated from the Reactor Coolant System and 500 gallons per day through any one steam generator,

d. 10 gpm IDENTIFIED LEAKAGE from the Reactor Coolant System,

e. 8 gpm per RC pump CONTROLLED LEAKAGE at a Reactor Coolant System pressure of 2235 ± 20 psig, and

f. The leakage from each Reactor Coolant System Pressure Isolation Valve specified in Table 3.4-1 shall be limited to 0.5 gpm per nominal inch of valve size up to a maximum of 5 gpm, at a Reactor Coolant System pressure of 2235 ± 20 psig.*

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

a. With any PRESSURE BOUNDARY LEAKAGE, be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With any Reactor Coolant System leakage greater than any one of the above limits, excluding PRESSURE BOUNDARY LEAKAGE and leakage from Reactor Coolant System Pressure Isolation Valves, reduce the leakage rate to within limits within 4 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. With any Reactor Coolant System Pressure Isolation Valve leakage greater than the above limit, reduce the leakage rate to within limits within 4 hours, or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 12 hours with an RCS pressure of less than 600 psig.

*Test pressures less than 2235 psig but greater than 150 psig are allowed. Observed leakage shall be adjusted for the actual test pressure up to 2235 psig assuming the leakage to be directly proportional to pressure differential to the one-half power.

SURVEILLANCE REQUIREMENTS

4.4.6.2.1 Reactor Coolant System leakages shall be demonstrated to be within each of the above limits by:

a. Monitoring the containment atmosphere gaseous or particulate radioactivity monitor at least once per 12 hours;

b. Monitoring the containment normal sump inventory and discharge at least once per 12 hours;

c. Measurement of the CONTROLLED LEAKAGE from the reactor coolant pump seals when the Reactor Coolant System pressure is 2235 ± 20 psig at least once per 31 days. The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 or 4;

d. Performance of a Reactor Coolant System water inventory balance at least once per 72 hours; and

e. Monitoring the Reactor Head Flange Leakoff System at least once per 24 hours.

4.4.6.2.2 Each Reactor Coolant System Pressure Isolation Valve specified in Table 3.4-1 shall be demonstrated OPERABLE by verifying leakage to be within its limit:

a. At least once per 18 months;

b. Prior to entering MODE 2 whenever the unit has been in COLD SHUTDOWN for 7 days or more and if leakage testing has not been performed in the previous 9 months;

c. Prior to returning the valve to service following maintenance, repair or replacement work on the valve; and

d. Within 24 hours following valve actuation due to automatic or manual action or flow through the valve except for valves BBPV8702 A/B and EJHV8701 A/B.

The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 or 4.

## 3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

### CONTAINMENT SPRAY SYSTEM

### LIMITING CONDITION FOR OPERATION

3.6.2.1 Two independent Containment Spray Systems shall be OPERABLE with each Containment Spray System capable of taking suction from the RWST and transferring suction to the containment sump.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With one Containment Spray System inoperable, restore the inoperable Containment Spray System to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours; restore the inoperable Containment Spray System to OPERABLE status within the next 48 hours or be in COLD SHUTDOWN within the following 30 hours.

### SURVEILLANCE REQUIREMENTS

4.6.2.1 Each Containment Spray System shall be demonstrated OPERABLE:

a. At least once per 31 days by 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;

b. By verifying, that on recirculation flow, each pump develops a discharge pressure of greater than or equal to 250 psig when tested pursuant to Specification 4.0.5;

c. At least once per 18 months during shutdown, by:

   1) Verifying that each automatic valve in the flow path actuates to its correct position on a Containment Pressure-High-3 (CSAS) test signal, and

   2)# Verifying that each spray pump starts automatically on a Containment Pressure-High-3 (CSAS) test signal.

d. At least once per 10 years by performing an air or smoke flow test through each spray header and verifying each spray nozzle is unobstructed.

---

#The specified 18 month frequency may be waived for Cycle I provided the surveillance is performed prior to restart following the first refueling outage or June 1, 1986, whichever occurs first. The provisions of Specification 4.0.2 are reset from performance of this surveillance.

## HYDROGEN CONTROL SYSTEMS

### LIMITING CONDITION FOR OPERATION

3.6.4.2 A Hydrogen Control System shall be OPERABLE with two independent Hydrogen Recombiner Systems.

APPLICABILITY: MODES 1 and 2

ACTION:

With one of the two independent Hydrogen Recombiner Systems inoperable, restore the inoperable Hydrogen Recombiner System to OPERABLE status within 30 days or be in at least HOT STANDBY within the next 6 hours.

### SURVEILLANCE REQUIREMENTS

4.6.4.2 Each Hydrogen Recombiner System shall be demonstrated OPERABLE:

a. At least once each refueling interval by verifying, during a Hydrogen Recombiner System functional test, that the heater air temperature increases to greater than or equal to 1150°F within 5 hours; and

b. At least once each refueling interval by:

1) Performing a CHANNEL CALIBRATION of all Hydrogen Recombiner System instrumentation and control circuits,

2) Verifying through a visual examination that there is no evidence of abnormal conditions within the Hydrogen Recombiner System enclosure (i.e., loose wiring or structural connections, deposits of foreign materials, etc.), and

3) Verifying the integrity of all heater electrical circuits by performing a resistance to ground test following the above required functional test. The resistance to ground for any heater phase shall be greater than or equal to 10,000 ohms.

CORE REACTIVITY (Continued)

Following evaluations of the core design and safety analysis, the cause of the reactivity anomaly may be resolved. If the cause of the reactivity anomaly is a mismatch in core conditions at the time of RCS boron concentration sampling, then a recalculation of the RCS boron concentration requirements may be performed to demonstrate that core reactivity is behaving as expected. If an unexpected physical change in the condition of the core has occurred, it must be evaluated and corrected, if possible. If the cause of the reactivity anomaly is in the calculation technique, then the calculational models must be revised to provide more accurate predictions. If any of these results are demonstrated, and it is concluded that the reactor core is acceptable for continued operation, then the boron letdown curve may be renormalized and power operation may continue. If operational restrictions or additional surveillance requirements are necessary to ensure the reactor core is acceptable for continued operation, then they must be defined.

The required completion time of 72 hours is adequate for preparing whatever operating restrictions or surveillances that may be required to allow continued reactor operation.

3/4.1.3 MOVABLE CONTROL ASSEMBLIES

The specifications of this section ensure that: (1) acceptable power distribution limits are maintained, (2) the minimum SHUTDOWN MARGIN is maintained, and (3) the potential effects of rod misalignment on associated accident analyses are limited. OPERABILITY of the control rod position indicators is required to determine control rod positions and thereby ensure compliance with the control rod alignment and insertion limits. Verification that the Digital Rod Position Indicator agrees with the demanded position within ±12 steps at 24, 48, 120 and 228 steps withdrawn for the Control Banks and 18, 210 and 228 steps withdrawn for the Shutdown Banks provides assurance that the Digital Rod Position Indicator is operating correctly over the full range of indication. Since the Digital Rod Position System does not indicate the actual shutdown rod position between 18 steps and 210 steps, only points in the indicated ranges are picked for verification of agreement with demanded position. Shutdown and control rods are positioned at 225 steps or higher for fully withdrawn.

For purposes of determining compliance with Specification 3.1.3.1, untrippability of any control or shutdown rod invokes ACTION statement 3.1.3.1.a. The rod is considered trippable if the rod was demonstrated OPERABLE during the last performance of Surveillance Requirement 4.1.3.1.2 and met the rod drop time criteria during the last performance of Surveillance Requirement 4.1.3.1.3.

Exercising each individual rod every 92 days provides increased confidence that all rods continue to be OPERABLE without exceeding the alignment limit, even if they are not regularly tripped. The 92 day frequency takes into consideration other information available to the operator in the control room and SR 4.1.3.1.1, which is performed more frequently and adds to the determination of OPERABILITY of the rods. Between required performances

MOVABLE CONTROL ASSEMBLIES (Continued)

of SR 4.1.3.1.2 (determination of rod OPERABILITY by movement), if a rod(s) is discovered to be immovable, but remains trippable and aligned, the rod(s) is considered to be OPERABLE. At any time, if a rod(s) is immovable, a determination of the trippability (OPERABILITY) of the rod must be made, and appropriate action taken.

The ACTION statements which permit limited variations from the basic requirements are accompanied by additional restrictions which ensure that the original design criteria are met. Misalignment of a rod requires measurement of peaking factors and a restriction in THERMAL POWER. These restrictions provide assurance of fuel rod integrity during continued operation. In addition, those safety analyses affected by a misaligned rod are reevaluated to confirm that the results remain valid during future operation.

The power reduction and shutdown time limits given in ACTION statements 3.1.3.2.a.2, 3.1.3.2.b.2, and 3.1.3.2.c.2, respectively, are initiated at the time of discovery that the compensatory actions required for POWER OPERATION can no longer be met.

The maximum rod drop time restriction is consistent with the assumed rod drop time used in the safety analyses. Measurement with $T_{avg}$ greater than or equal to 551°F and with all reactor coolant pumps operating ensures that the measured drop times will be representative of insertion times experienced during a Reactor trip at operating conditions.

Control rod positions and OPERABILITY of the rod position indicators are required to be verified on a nominal basis of once per 12 hours with more frequent verifications required if an automatic monitoring channel is inoperable. These verification frequencies are adequate for assuring that the applicable LCOs are satisfied.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 105 TO FACILITY OPERATING LICENSE NO. NPF-30

UNION ELECTRIC COMPANY

CALLAWAY PLANT, UNIT 1

DOCKET NO. 50-483

## 1.0 INTRODUCTION

By letter dated June 23, 1995, Union Electric Company (UE), requested an amendment to Operating License NPF-30, which would change the technical specifications (TS) for the Callaway Plant, Unit 1. The proposed amendment would revise the surveillance requirements (SRs) related to control rod movement testing (TS 4.1.3.1.2), radiation monitoring instrumentation (Table 4.3-3), reactor coolant system (RCS) isolation valve leak testing (TS 4.4.6.2.2.b), pressurizer heater capacity (TS 4.4.3.2), containment spray header testing (TS 4.6.2.1.d), and hydrogen recombiners (TS 4.6.4.2). The proposed changes implement the recommendations of Generic Letter (GL) 93-05, "Line-Item Technical Specifications Improvements to Reduce Surveillance Requirements for Testing During Power Operation," dated September 27, 1993. In addition, the licensee proposes revising TS 4.1.1.1.1 and TS 4.1.1.2 related to shutdown margin and TS 3/4.1.3.1 related to movable control assemblies to implement portions of NUREG-1431, "Standard Technical Specifications - Westinghouse Plants."

## 2.0 BACKGROUND

The NRC conducted a comprehensive examination of SRs in the TSs that require testing during power operation. The evaluation is documented in NUREG-1366, "Improvements to Technical Specification Surveillance Requirements," dated December 1992. The staff found that while the majority of testing at power is important, safety can be improved, equipment degradation decreased, and an unnecessary burden on personnel resources eliminated by relaxing a small fraction of the TS testing intervals. Based on the results of the evaluations, the NRC issued GL 93-05 to provide guidance to licensees for preparing license amendments to incorporate the TS changes recommended by NUREG-1366.

## 3.0 EVALUATION

### 3.1 TS Changes to Incorporate GL 93-05 Recommendations

The licensee has proposed the TS changes described below to incorporate the recommendations of GL 93-05.

TS 4.1.3.1.2 is changed to decrease the frequency of control rod movement testing from at least once per 31 days to at least once per 92 days. The Bases are also changed to reflect the 92-day frequency.

The reduction in testing frequency will reduce perturbations in the reactor systems and reduce the burden of testing on reactor operators. This change is consistent with the recommendations of GL 93-05 and with Callaway's operating experience since there have been no occurrences of mechanical binding of rods. Therefore, the staff finds this change acceptable.

TS Table 4.3-3 is modified to decrease the frequency of analog channel operational tests for radiation monitoring instrumentation from monthly to quarterly.

The reduction in testing frequency will increase the availability of each radiation monitor and reduce the burden on personnel for testing. This change is consistent with the recommendations of GL 93-05 and with Callaway's operating experience since the monitors have consistently met surveillance acceptance criteria. Therefore, the staff finds this change acceptable.

TS 4.4.6.2.2.b is modified to increase the time for remaining in cold shutdown without leak testing the RCS isolation valves from 72 hours to 7 days.

This change will eliminate unnecessary testing during short mid-cycle outages requiring less than 7 days in cold shutdown, thus minimizing the burden on personnel during such outages without reducing the overall effectiveness of the leak identification/quantification program. This change is consistent with the recommendations of GL 93-05 and with Callaway's operating experience since the RCS pressure isolation valves have consistently met the leakage criteria set forth in TS. Therefore, the staff finds this change acceptable.

TS 4.4.3.2 is modified to decrease the frequency of verifying the capacity of the pressurizer heaters from once per 92 days to once each refueling interval.

This change will reduce the testing burden on plant personnel and minimize unnecessary operation of RCS pressure control equipment. This change is consistent with the recommendations of GL 93-05 for plants, such as Callaway, without dedicated safety-related heaters. It is also consistent with Callaway's operating experience since there have been no failures of the back-up heaters to meet surveillance requirements. Therefore, the staff finds this change acceptable.

TS 4.6.2.1.d is modified to change the air or smoke flow test of the containment spray header from once per 5 years to once per 10 years.

This change is consistent with the recommendations of GL 93-05 and with Callaway's operating experience since the containment spray system has not had any failures associated with spray header/nozzle testing. Therefore, the staff finds this change acceptable.

TS 4.6.4.2 is modified to change the surveillance frequency of the hydrogen recombiner functional test from once per 6 months to once each refueling interval. The frequency of the hydrogen recombiner channel calibration, visual examination, and resistance to ground tests will be changed from at least once per 18 months to once per refueling interval.

The change to the functional test is consistent with the recommendations of GL 93-05 and with Callaway's operating experience since the hydrogen recombiners have never failed a functional test. Since Callaway is on an 18-month refueling interval, the change from every 18 months to each refueling interval for the channel calibration, visual examination, and resistance to ground tests does not change the frequency of the surveillances but makes the wording of the TS consistent. Therefore, the staff finds these changes acceptable.

3.2 Changes to Implement Portions of NUREG-1431

The licensee's proposal revises TS 4.1.1.1.1 and TS 4.1.1.2 related to shutdown margin and TS 3/4.1.3.1 related to movable control assemblies to implement portions of NUREG-1431, "Standard Technical Specifications - Westinghouse Plants."

TS 4.1.1.1.1 for Modes 3 and 4, and TS 4.1.1.2 for Mode 5 currently require that shutdown margin be determined to be within the limits:

a. Within 1 hour after detection of an inoperable control rod(s) and at least once per 12 hours thereafter while the rod(s) is inoperable. If the inoperable control rod is immovable or untrippable, the SHUTDOWN MARGIN shall be verified acceptable with an increased allowance for the withdrawn worth of the immovable or untrippable control rod(s);

The licensee's proposal eliminates TS 4.1.1.2.a and revises the wording for TS 4.1.1.1.1.a to read:

a. Within 1 hour after detection of an inoperable (untrippable) rod(s) and at least once per 12 hours thereafter while the rod(s) is inoperable. The above required SHUTDOWN MARGIN shall be verified acceptable with an increased allowance for the withdrawn worth of the untrippable rod(s);

In Mode 5 the rod alignment limits do not apply because the control rods are bottomed and the reactor is shut down and not producing fission power. Therefore, the proposed change to eliminate TS 4.1.1.2.a removes a requirement that is not applicable in the Mode specified for the surveillance. This change is also consistent with the requirements of NUREG-1431. Therefore, the staff finds this change acceptable.

The proposed change to TS 4.1.1.1.1.a clarifies that the 12-hour shutdown margin calculation is only required in Modes 3 and 4 if a rod is untrippable. Similar to the discussion above, in Modes 3 and 4 the rod alignment limits do not apply because the control rods are bottomed and the reactor is shut down and not producing fission power. In Mode 3, however, since the shutdown banks are moved during startup or shutdown, the licensee's proposed change retains the requirement for a one hour shutdown margin verification for untrippable rods. The proposed change eliminates a requirement that is not applicable in the mode specified for the surveillance. Therefore, the staff finds this change acceptable.

The licensee's proposal revises TS 3/4.1.3.1 related to movable control assemblies by eliminating action requirements for immovable but trippable rods and for problems in the rod control system that do not make rods untrippable. The action requirements for an untrippable rod are also modified to more closely reflect the actions of NUREG-1431.

Specifically, all references to rod control alarms, electrical failures, and rod immovability are eliminated. The deletion of these references does not change the requirement that rods be capable of inserting adequate negative reactivity upon a trip. The requirements for operability will continue to assure that acceptable power distribution limits are maintained; that the minimum shutdown margin is maintained; and, that the potential effects of rod misalignment on associated accident analyses are limited. These changes are also consistent with the specifications of NUREG-1431. Therefore, the staff finds these changes acceptable.

The proposal also modifies Action a for an untrippable rod by adding a requirement to initiate boration within 1 hour to restore shutdown margin. This change is more conservative and adds a requirement that is consistent with the specifications of NUREG-1431. Therefore, the staff finds this change acceptable.

TS 4.1.3.1.2 is modified to add the word "(trippable)" to clarify the intent of the test. This change is consistent with the changes discussed above and with the specifications of NUREG-1431. Therefore, the staff finds this change acceptable.

Finally, the Bases for TS 3/4.1.3 is changed to reflect the changes discussed above. The revised Bases accurately reflect the TS changes discussed above and are consistent with the Bases of NUREG-1431. Therefore, the staff finds the changes acceptable.

## 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 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 and changes surveillance requirements. 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 (60 FR 45187). 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.

## 6.0 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: R. Laufer

Date: December 7, 1995