

December 28, 1993

Docket No. 50-483

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

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Dear Mr. Schnell:

SUBJECT: AMENDMENT NO.87 TO FACILITY OPERATING LICENSE NO. NPF-30
(TAC NO. M84886)

The Commission has issued the enclosed Amendment No. 87 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 November 3, 1992, and clarified on December 4, 1992.

The amendment changes on Technical Specification Table 4.3-1, Note 5, to reflect that integral bias curves, rather than detector plateau curves, are used to calibrate the source range instrumentation. Intermediate Range and Power Range channels will continue to be calibrated using detector plateau curves.

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:

L. Raynard Wharton, Project Manager
Project Directorate III-3
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No.87 to License No. NPF-30
2. Safety Evaluation

cc w/enclosures:
See next page

LA:PDIII-3
MRushbrook

12/3/93

PM:PDIII-3
LRWharton:

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R.Rachmann
12/16/93

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UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

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Senior Vice President - Nuclear
Union Electric Company
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Sincerely,

A handwritten signature in cursive script that reads "L. Raynard Wharton".

L. Raynard Wharton, Project Manager
Project Directorate III-3
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

Enclosures:

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License No. NPF-30
2. Safety Evaluation

cc w/enclosures:
See next page

Mr. D. F. Schnell
Union Electric Company

Callaway Plant
Unit No. 1

cc:

Cermak Fletcher Associates
18225 Flower Hill Way #A
Gaithersburg, Maryland 20879-5334 .

Mr. Neil S. Carns
President and Chief
Executive Officer
Wolf Creek Nuclear Operating
Corporation
P.O. Box 411
Burlington, Kansas 66839

Gerald Charnoff, Esq.
Thomas A. Baxter, Esq.
Shaw, Pittman, Potts & Trowbridge
2300 N. Street, N.W.
Washington, D.C. 20037

Mr. Dan I. Bolef, President
Kay Drey, Representative
Board of Directors Coalition
for the Environment
6267 Delmar Boulevard
University City, Missouri 65130

Mr. S. E. Sampson
Supervising Engineer,
Site Licensing
Union Electric Company
Post Office Box 620
Fulton, Missouri 65251

U.S. Nuclear Regulatory Commission
Resident Inspectors Office
8201 NRC Road
Steedman, Missouri 65077-1302

Mr. Alan C. Passwater, Manager
Licensing and Fuels
Union Electric Company
Post Office Box 149
St. Louis, Missouri 63166

Manager - Electric Department
Missouri Public Service Commission
301 W. High
Post Office Box 360
Jefferson City, Missouri 65102

Regional Administrator
U.S. NRC, Region III
801 Warrenville Road
Lisle, Illinois 60532-4351

Mr. Ronald A. Kucera, Deputy Director
Department of Natural Resources
P.O. Box 176
Jefferson City, Missouri 65102



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. 87
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 November 3, 1992, and clarified on December 4, 1992, 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. 87, 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. The Technical Specifications are to be implemented within 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

L. Raynard Wharton

L. Raynard Wharton, Project Manager
Project Directorate III-3
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of issuance: December 28, 1993

ATTACHMENT TO LICENSE AMENDMENT NO. 87

OPERATING LICENSE NO. NPF-30

DOCKET NO. 50-483

Revise Appendix A Technical Specifications by removing the page identified below and inserting the enclosed page. The revised page is identified by the captioned amendment number and contains a marginal line indicating the area of change. Corresponding overleaf page is provided to maintain document completeness.

REMOVE

3/4 3-12

INSERT

3/4 3-12

TABLE 4.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>FUNCTIONAL UNIT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>ANALOG CHANNEL OPERATIONAL TEST</u>	<u>TRIP ACTUATING DEVICE OPERATIONAL TEST</u>	<u>ACTUATION LOGIC TEST</u>	<u>MODES FOR WHICH SURVEILLANCE IS REQUIRED</u>
18. Reactor Trip System Interlocks (Continued)						
d. Power Range Neutron Flux, P-10	N.A.	R(4)	R	N.A.	N.A.	1,2
e. Turbine Impulse Chamber Pressure, P-13	N.A.	R	R	N.A.	N.A.	1
19. Reactor Trip Breaker	N.A.	N.A.	N.A.	M (7, 11)	N.A.	1,2,3*,4*,5*
20. Automatic Trip and Interlock Logic	N.A.	N.A.	N.A.	N.A.	M(7)	1,2,3*,4*,5*
21. Reactor Trip Bypass Breaker	N.A.	N.A.	N.A.	M(17), R(18)	N.A.	1,2,3*,4*,5*

TABLE 4.3-1 (Continued)

TABLE NOTATIONS

*Only if the Reactor Trip System breakers happen to be closed and the Control Rod Drive System is capable of rod withdrawal.

#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.

##Below P-6 (Intermediate Range Neutron Flux interlock) Setpoint.

###Below P-10 (Low Setpoint Power Range Neutron Flux interlock) Setpoint.

- (1) If not performed in previous 31 days.
- (2) Comparison of calorimetric to excore power indication above 15% of RATED THERMAL POWER. Adjust excore channel gains consistent with calorimetric power if absolute difference is greater than 2%. The provisions of Specification 4.0.4 are not applicable for entry into MODE 2 or 1.
- (3) Single point comparison of incore to excore AXIAL FLUX DIFFERENCE above 15% of RATED THERMAL POWER. Recalibrate if the absolute difference is greater than or equal to 2%. The provisions of Specification 4.0.4 are not applicable for entry into Mode 2 or 1.
- (4) Neutron detectors may be excluded from CHANNEL CALIBRATION.
- (5) For Source Range detectors, integral bias curves are obtained, evaluated, and compared to manufacturer's data. For Intermediate Range and Power Range channels, detector plateau curves shall be obtained, evaluated, and compared to manufacturer's data. For the Intermediate Range and Power Range Neutron Flux channels the provisions of Specification 4.0.4 are not applicable for entry into MODE 2 or 1.
- (6) Incore - Excore Calibration, above 75% of RATED THERMAL POWER. The provisions of Specification 4.0.4 are not applicable for entry into MODE 2 or 1. Determination of the loop specific vessel ΔT value should be made when performing the Incore/Excore quarterly recalibration, under steady state conditions.
- (7) Each train shall be tested at least every 62 days on a STAGGERED TEST BASIS. The TRIP ACTUATING DEVICE OPERATIONAL TEST shall independently verify the OPERABILITY of the Undervoltage and Shunt Trip Attachments of the Reactor Trip Breakers.
- (8) Deleted
- (9) Quarterly surveillance in MODES 3*, 4*, and 5* shall also include verification that permissives P-6 and P-10 are in their required state for existing plant conditions by observation of the permissive annunciator window. Quarterly surveillance shall include verification of the Boron Dilution Alarm Setpoint of less than or equal to an increase of twice the count rate within a 10-minute period.

TABLE 4.3-1 (Continued)

TABLE NOTATIONS

*Only if the Reactor Trip System breakers happen to be closed and the Control Rod Drive System is capable of rod withdrawal.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 87 TO FACILITY OPERATING LICENSE NO. NPF-30

UNION ELECTRIC COMPANY

CALLAWAY PLANT, UNIT 1

DOCKET NO. 50-483

1.0 INTRODUCTION

By application for license amendment dated November 3, 1992, and clarifying information dated December 4, 1992, Union Electric Company (the licensee) requested changes to Technical Specification Table 4.3-1, "Reactor Trip Instrumentation Surveillance Requirements," Note 5 for Callaway Plant, Unit 1. The change reflects that integral bias curves, rather than detector plateau curves, are used to calibrate the source range instrumentation. Both calibration methods measure the BF_3 gas multiplication in the Nuclear Instrumentation detectors. Integral bias curves have been used to calibrate the source range instrumentation at Callaway since the initial startup of the plant.

2.0 EVALUATION

The implementation of the Boron Dilution Mitigation System into the NIS at Callaway, Unit 1, caused the source range to add a "low noise" preamplifier to the original (pre-operating license) design. The Westinghouse NIS manual recommends the integral bias curve as the required calibration method for source range instrumentation calibration in NIS systems which have low noise preamplifiers. The integral bias curve is considered to be a more inclusive calibration which provides the same information as the detector plateau curve (i.e., high voltage setpoint).

According to Westinghouse, the source range high voltage setting cannot be acquired by using the detector (high voltage) plateau curves in systems which have low noise preamplifiers used with source range NIS channels. The detector plateau curves are a charge sensitive design with the purpose of integrating the pulses in the area under the curve which could result in erroneous settings if gamma pulses and noise are present. Since the low noise preamplifier is a voltage sensitive design, the high voltage plateau curve will not retain the typical "knee" of the curve and the characteristic few hundred volt plateau length.

The integral bias curves set up the high voltage as well as the gains and the discriminator bias. The alignment and calibration procedure for the integral bias curve utilizes a pulse height method to determine the detector high voltage setpoint. This procedure counts the statistically expected minimum pulse height that exceeds the discriminator setting and also counts the statistically expected maximum pulse height that will not saturate the source range pulse amplifier electronics.

The gas multiplication efficiency for the source range detector is determined from the performance of the integral bias curve and a subsequent comparison of the present high voltage operating point with the high voltage operating point obtained from previous integral bias curves. The gas multiplication efficiency of the source range detector provides information regarding the life expectancy of the detector. As the detector ages, the pulse amplitude decreases due to a reduction in the gas multiplication. The decrease in the pulse amplitude for a given high voltage setting can be adjusted by increasing the detector high voltage to compensate for the lower gas multiplication efficiency.

The NRC staff has verified that the new Revised Standardized Technical Specifications (RSTS) reflect the applicability of the integral bias curves as a method for source range instrumentation calibration. The staff has reviewed the proposed change to the Callaway Technical Specifications and finds it consistent with the staff's position. Therefore, the staff has concluded that the proposed change is acceptable. The intermediate range and power range instrumentation will continue to be calibrated using the detector plateau curves.

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 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 (58 FR 601). 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, (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 Contributors: K. R. Marcus
L. R. Wharton

Date: December 28, 1993