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1/31/92

January 15, 1992

Docket No. 50-483

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

Dear Mr. Schnell:

SUBJECT: AMENDMENT NO. 65 TO FACILITY OPERATING LICENSE NO. NPF-30
 (TAC NO. M82112)

The Commission has issued the enclosed Amendment No. 65 to Facility Operating License No. NPF-30 for the Callaway Plant, Unit 1. This amendment revises the Technical Specifications (TSs) in response to your application dated November 15, 1991.

The amendment revises Surveillance Requirement 4.8.1.1.2.f.(2), concerning diesel generator load reject testing, by removing the reference to a numerical value for the largest single emergency load. This change will allow the current surveillance test, which the staff has found acceptable, to conform with the literal requirements of the TSs.

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:

James R. Hall, Sr. Project Manager
 Project Directorate III-3
 Division of Reactor Projects III/IV/V
 Office of Nuclear Reactor Regulation

- Enclosures:
 1. Amendment No. 65 to License No. NPF-30
 2. Safety Evaluation

cc w/enclosures:
 See next page

NRC FILE NUMBER COPY

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 P PDR

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 PKreutzer
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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. 65
License No. NPF-30

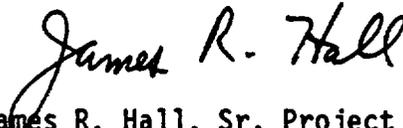
1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment filed by Union Electric Company (UE, the licensee) dated November 15, 1991 complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's 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. 65, 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



James R. Hall, Sr. 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: January 15, 1992

ATTACHMENT TO LICENSE AMENDMENT NO. 65

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

3/4 8-4

B 3/4 8-1

B 3/4 8-2

INSERT

3/4 8-4

B 3/4 8-1

B 3/4 8-2

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- 4.8.1.1.2 Each diesel generator shall be demonstrated OPERABLE:
- a. In accordance with the frequency specified in Table 4.8-1 on a STAGGERED TEST BASIS by:
 - 1) Verifying the fuel level in the day tank,
 - 2) Verifying the fuel level in the fuel storage tank,
 - 3) Verifying the fuel transfer pump starts and transfers fuel from the storage system to the day tank,
 - 4) Verifying the diesel starts and accelerates to at least 514 rpm in less than or equal to 12 seconds.** The generator voltage and frequency shall be 4000 ± 320 volts and 60 ± 1.2 Hz within 12 seconds** after the start signal. The diesel generator shall be started for this test by using one of the following signals:
 - a) Manual, or
 - b) Simulated loss-of-offsite power by itself, or
 - c) Safety Injection test signal.
 - 5) Verifying the generator is synchronized, gradually loaded to an indicated 6000 to 6201 kw*** for at least 60 minutes, and
 - 6) Verifying the diesel generator is aligned to provide standby power to the associated emergency busses.
 - b. At least once per 31 days and after each operation of the diesel where the period of operation was greater than or equal to 1 hour by checking for and removing accumulated water from the day tanks;
 - c. At least once per 31 days by checking for and removing accumulated water from the fuel oil storage tanks;
 - d. By sampling new fuel oil in accordance with ASTM-D4057 prior to addition to storage tanks and:
 - 1) By verifying in accordance with the tests specified in ASTM-D975-81 prior to addition to the storage tanks that the sample has:

**This test shall be preceded by an engine prelube period and/or other warmup procedures recommended by the manufacturer so that mechanical stress and wear on the diesel engine is minimized.

***This band is meant as guidance to avoid routine overloading of the engine. Loads in excess of this band for special testing under direct monitoring or momentary variations due to changing bus loads shall not invalidate this test.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- a) An API Gravity of within 0.3 degrees at 60°F, or a specific gravity of within 0.0016 at 60/60°F, when compared to the supplier's certificate, or an absolute specific gravity at 60/60°F of greater than or equal to 0.83 but less than or equal to 0.89, or an API gravity of greater than or equal to 27 degrees but less than or equal to 39 degrees;
 - b) A kinematic viscosity at 40°C of greater than or equal to 1.9 centistokes, but less than or equal to 4.1 centistokes, if gravity was not determined by comparison with the supplier's certification;
 - c) A flash point equal to or greater than 125°F; and
 - d) A clear and bright appearance with proper color when tested in accordance with ASTM-D4176-82.
- 2) By verifying within 30 days of obtaining the sample that the other properties specified in Table 1 of ASTM-D975-81 are met when tested in accordance with ASTM-D975-81 except that the analysis for sulfur may be performed in accordance with ASTM-D1552-79 or ASTM-D2622-82.
- e. At least once every 31 days by obtaining a sample of fuel oil in accordance with ASTM-D2276-78, and verifying that total particulate contamination is less than 10 mg/liter when checked in accordance with ASTM-D2276-78, Method A;
- f.# At least once per 18 months, during shutdown, by:
- 1) Subjecting the diesel to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for this class of standby service;
 - 2) Verifying the diesel generator capability to reject the ESW pump motor load (the largest single emergency load) while maintaining voltage at 4000 ± 320 volts and frequency at 60 ± 5.4 Hz;
 - 3) Verifying the diesel generator capability to reject a load of 6201 kW without tripping. The generator voltage shall not exceed 4784 volts during and following the load rejection;
 - 4) Simulating a loss-of-offsite power by itself, and:
 - a) Verifying deenergization of the emergency busses and load shedding from the emergency busses, and

#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.

3/4.8 ELECTRICAL POWER SYSTEMS

BASES

3/4.8.1, 3/4.8.2, and 3/4.8.3 A.C. SOURCES, D.C. SOURCES, and ONSITE POWER DISTRIBUTION

The OPERABILITY of the A.C. and D.C power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety-related equipment required for: (1) the safe shutdown of the facility, and (2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of General Design Criterion 17 of Appendix A to 10 CFR Part 50.

The ACTION requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The OPERABILITY of the power sources are consistent with the initial condition assumptions of the safety analyses and are based upon maintaining at least one redundant set of onsite A.C. and D.C. power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss-of-offsite power and single failure of the other onsite A.C. source. The A.C. and D.C. source allowable out-of-service times are based on Regulatory Guide 1.93, "Availability of Electrical Power Sources," December 1974. When one diesel generator is inoperable, there is an additional ACTION requirement to verify that all required systems, subsystems, trains, components and devices, that depend on the remaining OPERABLE diesel generator as a source of emergency power, are also OPERABLE, and that the steam-driven auxiliary feedwater pump is OPERABLE. This requirement is intended to provide assurance that a loss-of-offsite power event will not result in a complete loss of safety function of critical systems during the period one of the diesel generators is inoperable. The term verify as used in this context means to administratively check by examining logs or other information to determine if certain components are out-of-service for maintenance or other reasons. It does not mean to perform the Surveillance Requirements needed to demonstrate the OPERABILITY of the component.

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that: (1) the facility can be maintained in the shutdown or refueling condition for extended time periods, and (2) sufficient instrumentation and control capability are available for monitoring and maintaining the unit status.

The Surveillance Requirements for demonstrating the OPERABILITY of the diesel generators are in accordance with the recommendations of Regulatory Guides 1.9, "Selection of Diesel Generator Set Capacity for Standby Power Supplies," Revision 1, November 1978; 1.108, "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants," Revision 1, August 1977 as modified by Amendment No. 21, issued May 1, 1987; and 1.137, "Fuel-Oil Systems for Standby Diesel Generators," Revision 1, October 1979. Each diesel generator (DG) is provided with an

ELECTRIC POWER SYSTEMS

BASES

A.C. SOURCES, D.C. SOURCES, and ONSITE POWER DISTRIBUTION (Continued)

engine overspeed trip to prevent damage to the engine. Recovery from the transient caused by the loss of a large load could cause diesel engine overspeed, which, if excessive, might result in a trip of the engine. Surveillance Requirement 4.8.1.1.2.f(2) demonstrates the DG load response characteristics and capability to reject the largest single load without exceeding predetermined voltage and frequency and while maintaining a specified margin to the overspeed trip as required by Regulatory Guide 1.9, Position C.4.

The Surveillance Requirements for demonstrating the OPERABILITY of the station batteries are based on the recommendations of Regulatory Guide 1.129, "Maintenance Testing and Replacement of Large Lead Storage Batteries for Nuclear Power Plants," February 1978; and IEEE Std 450-1980, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations."

Verifying average electrolyte temperature above the minimum for which the battery was sized, total battery terminal voltage on float charge, connection resistance values and the performance of battery service and discharge tests ensures the effectiveness of the charging system, the ability to handle high discharge rates and compares the battery capacity at that time with the rated capacity.

Table 4.8-2 specifies the normal limits for each designated pilot cell and each connected cell for electrolyte level, float voltage and specific gravity. The limits for the designated pilot cells float voltage and specific gravity, greater than 2.13 volts and 0.015 below the manufacturer's full charge specific gravity or a battery charger current that had stabilized at a low value, is characteristic of a charged cell with adequate capacity. The normal limits for each connected cell for float voltage and specific gravity, greater than 2.13 volts and not more than 0.020 below the manufacturer's full charge specific gravity with an average specific gravity of all the connected cells not more than 0.010 below the manufacturer's full charge specific gravity, ensures the OPERABILITY and capability of the battery.

Operation with a battery cell's parameter outside the normal limit but within the Allowable Value specified in Table 4.8-2 is permitted for up to 7 days. During this 7-day period: (1) the Allowable Value for electrolyte level ensures no physical damage to the plates with an adequate electron transfer capability; (2) the Allowable Value for the average specific gravity of all the cells, not more than 0.020 below the manufacturer's recommended full charge specific gravity, ensures that the decrease in rating will be less than the safety margin provided in sizing; (3) the Allowable Value for an individual cell's specific gravity, ensures that an individual cell's specific gravity will not be more than 0.040 below the manufacturer's full charge specific gravity and that the overall capability of the battery will be maintained within an acceptable limit; and (4) the Allowable Value for an individual cell's float voltage, greater than 2.07 volts, ensures the battery's capability to perform its design function.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 65 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 November 15, 1991, the Union Electric Company (the licensee) submitted a request for an emergency amendment to Facility Operating License No. NPF-30, to revise the Callaway Plant Technical Specifications (TSs). The request followed the granting of a Temporary Waiver of Compliance (TWOC) from the requirements of TS 3.0.3 by the Office of Nuclear Reactor Regulation on November 14, 1991, which was documented in a letter dated November 18, 1991. The TWOC and subject amendment request involved TS Surveillance Requirement 4.8.1.1.2.f.(2), which specifies that each emergency diesel generator (EDG) be demonstrated operable, "...At least once per 18 months, during shutdown, by: ... Verifying the capability to reject a load of greater than or equal to 1352 kW (ESW pump) while maintaining voltage at 4000 + 320 volts and frequency at 60 + 5.4 Hz." The licensee was notified by a similar plant of a concern in performing the surveillance, regarding the verification of the 1352 kW limit. The licensee determined that although the periodic surveillances had demonstrated the ability of the EDGs to continue to run following the rejection of the largest single load, measurements of the actual load rejected had not been made. As a result, the licensee concluded that the plant had never been in literal compliance with the surveillance requirement. In accordance with TS 4.0.3, which states that "Failure to perform a surveillance requirement within the specified time interval shall constitute a failure to meet the OPERABILITY requirements for a Limiting Condition of Operation," the licensee declared the EDGs inoperable, and entered TS 3.0.3. A waiver was granted by the staff in order to avoid an unnecessary plant shutdown, based on the determination that the existing surveillance test adequately demonstrated that the EDGs were operable. The waiver is in effect until the staff issues its final action on the requested TS change.

2.0 EVALUATION

Position C.2.a (4) of Regulatory Guide 1.108, Revision 1, states that testing of diesel generator units at least once every 18 months should:

"Demonstrate proper operation during diesel generator load shedding, including a test of the loss of the largest single load ... and verify that the voltage requirements are met and that the overspeed limits are not exceeded."

The surveillance tests historically conducted at Callaway to meet the

requirement of TS 4.8.1.1.2.f.(2) have been performed by disconnecting an essential service water (ESW) pump motor (the single largest emergency load on the EDG), with the ESW and AC power systems aligned in their emergency mode of operation. The voltage and frequency are then verified to remain within the specified limits, thereby demonstrating that the diesel generator is capable of performing its intended function for the specific condition of a loss of the largest single load.

The licensee has indicated that there is no installed plant equipment which would allow the measurement of the rejected load and therefore, there is no direct way to assure that this load is greater than or equal to 1352 kW. Furthermore, the licensee calculates that the actual load of the ESW pump motor is less than 1352 kW. The licensee believes that 1352 kW was a conservative value used for the ESW pump motor loads in performing diesel generator sizing calculations, and that the number was incorrectly included as a limit in the surveillance requirement. The proposed changes to the TSs would revise Surveillance Requirement 4.8.1.1.2.f.(2) to read:

"... Verifying the diesel generator capability to reject the ESW pump motor load (the largest single emergency load) while maintaining voltage at 4000 ± 320 volts and frequency at 60 ± 5.4 Hz;..."

This would eliminate the requirement to measure the actual load rejected. The licensee also proposes changes to the Bases section to discuss the purpose of this specific surveillance test and to update the reference to Regulatory Guide 1.9, Revision 1.

The staff has reviewed the information provided, and concludes that the current surveillance method meets the licensing basis for the Callaway Plant. That surveillance test meets the positions of Regulatory Guides 1.9 and 1.108 in demonstrating at least once per 18 months that each diesel generator can withstand the rejection of the largest single load under emergency conditions. The measurement of a specific value for the load rejected is not necessary to demonstrate operability in this instance. The proposed changes to the Bases simply add clarifying language and do not change the intent. Therefore, the staff finds that the proposed TS changes are acceptable.

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

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, (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: J. Hall

Date: January 15, 1992

Mr. D. F. Schnell
Union Electric Company

Callaway Plant
Unit No. 1

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