

June 17, 1996

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

SUBJECT: AMENDMENT NO. 112 TO FACILITY OPERATING LICENSE NO. NPF-30 -
CALLAWAY PLANT, UNIT 1 (TAC NO. M93004)

Dear Mr. Schnell:

The Commission has issued the enclosed Amendment No. 112 to Facility Operating License No. NPF-30 for the Callaway Plant, Unit 1. The amendment consists of changes to the Technical Specifications (TS) in response to your application dated September 9, 1994, as superseded by letter dated July 25, 1995, and subsequently supplemented by letters dated February 28, 1996, and April 9, 1996.

The amendment revises TS 3/4.8.1 and its associated Bases to improve overall emergency diesel generator reliability and availability.

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. 112 to NPF-30
2. Safety Evaluation

cc w/encls: See next page

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DOCUMENT NAME: CAL93004.AMD

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NAME	EPeyton	JStrosnider	JCalvo	JAC	KThomas:ye
DATE	5/20/96	5/21/96	5/23/96	5/30/96	6/11/96

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UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

June 17, 1996

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

SUBJECT: AMENDMENT NO. 112 TO FACILITY OPERATING LICENSE NO. NPF-30 -
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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,

A handwritten signature in cursive script that reads "Kristine M. Thomas".

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. 112 to NPF-30
2. Safety Evaluation

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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. 112
License No. NPF-30

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Union Electric Company (UE, the licensee) dated September 9, 1994, as superseded by letter dated July 25, 1995 and subsequently supplemented by letters dated February 28, 1996, and April 9, 1996, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. NPF-30 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 112 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This amendment is effective as of its date of issuance to be implemented within 30 days from the date of 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: June 17, 1996

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 112 TO FACILITY OPERATING LICENSE NO. NPF-30

DOCKET NO. 50-483

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised pages are identified by amendment number and contain vertical lines indicating the areas of change.

<u>REMOVE</u>	<u>INSERT</u>
XI	XI
3/4 8-1	3/4 8-1
3/4 8-2	3/4 8-2
3/4 8-2a	3/4 8-2a
3/4 8-3	3/4 8-3
3/4 8-4	3/4 8-4
3/4 8-5	3/4 8-5
3/4 8-6	3/4 8-6
3/4 8-6a	3/4 8-7
3/4 8-7	---
3/4 8-8	3/4 8-8
B 3/4 8-1	B 3/4 8-1
B 3/4 8-2	B 3/4 8-2
B 3/4 8-3	B 3/4 8-3
---	B 3/4 8-4
---	B 3/4 8-5
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3/4.8 ELECTRICAL POWER SYSTEMS

3/4.8.1 A.C. SOURCES

OPERATING

LIMITING CONDITION FOR OPERATION

3.8.1.1 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

- a. Two physically independent circuits between the offsite transmission network and the Onsite Class 1E Distribution System, and
- b. Two separate and independent diesel generators, each with:
 - 1) A separate day tank containing a minimum volume of 510 gallons of fuel,
 - 2) A separate Fuel Oil Storage System containing a minimum volume of 80,400 gallons of fuel, and
 - 3) A separate fuel transfer pump.

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

ACTION:

- a. One Offsite Circuit Inoperable:

With an offsite circuit of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining offsite A.C. source by performing Specification 4.8.1.1.1 within 1 hour and at least once per 8 hours thereafter. Restore at least two offsite circuits to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. One Diesel Generator Inoperable:

With one diesel generator of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the offsite A.C. sources by performing Specification 4.8.1.1.1 within 1 hour and at least once per 8 hours thereafter. Demonstrate the OPERABILITY of the remaining OPERABLE diesel generator by performing Specification 4.8.1.1.2a.4) within 24 hours* and restore the inoperable diesel generator to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. In addition, perform ACTION d.

*Unless the following conditions are met:

- 1) It can be demonstrated that there is no potential common mode failure for the remaining diesel generator, and
- 2) The diesel generator was declared inoperable due to:
 - a) an inoperable support system, or
 - b) an independently testable component, or
 - c) preplanned preventive maintenance, testing or maintenance to correct a condition which, if left uncorrected, would not affect the OPERABILITY of the diesel generator.

ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION

ACTION (Continued)

c. One Offsite Circuit and One Diesel Generator Inoperable:

With one offsite circuit and one diesel generator of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining offsite A.C. source by performing Specification 4.8.1.1.1 within 1 hour and at least once per 8 hours thereafter, and Specification 4.8.1.1.2a.4) ## within 8 hours* for the remaining diesel generator. Restore at least one of the inoperable sources to OPERABLE status within 12 hours or be in at least HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours. Restore the remaining inoperable A.C. electrical power source (offsite circuit or diesel generator) to OPERABLE status in accordance with the Specification 3.8.1.1 ACTION a. or ACTION b., as applicable, with the time requirement for the ACTION based on the time of the initial loss of the remaining inoperable A.C. electrical power source. A successful test of diesel generator OPERABILITY performed in accordance with Specification 4.8.1.1.2a.4) ## under this ACTION for an OPERABLE diesel generator satisfies the subsequent testing requirement of Specification 3.8.1.1 ACTION b. for an OPERABLE diesel generator. In addition, perform ACTION d.

d. With one diesel generator inoperable in addition to ACTION b. or c. above, verify that:

1. 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
2. When in MODE 1, 2, or 3, the steam-driven auxiliary feedwater pump is OPERABLE.

If these conditions are not satisfied within 2 hours be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

##The automatic start and sequence loading of a diesel generator satisfies the testing requirements of Specification 4.8.1.1.2a.4) for this Action Statement.

* Unless the following conditions are met:

- 1) It can be demonstrated that there is no potential common mode failure for the remaining diesel generator, and
- 2) The diesel generator was declared inoperable due to:
 - a) an inoperable support system, or
 - b) an independently testable component, or
 - c) preplanned preventive maintenance, testing or maintenance to correct a condition which, if left uncorrected, would not affect the OPERABILITY of the diesel generator.

ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION

ACTION (Continued)

e. Two Offsite Circuits Inoperable:

With two of the above required offsite A.C. circuits inoperable, restore at least one of the inoperable offsite sources to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours. Following restoration of one offsite A.C. electrical power source, follow ACTION a. above with the time requirement of ACTION a. based on the time of the initial loss of the remaining inoperable offsite A.C. electrical power source.

f. Two Diesel Generators Inoperable:

With two of the above required diesel generators inoperable, demonstrate the OPERABILITY of two offsite A.C. circuits by performing Specification 4.8.1.1.1 within 1 hour and at least once per 8 hours thereafter; restore at least one of the inoperable diesel generators to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Following restoration of one diesel generator, follow ACTION b. with the time requirement of the ACTION based on the time of initial loss of the remaining inoperable diesel generator. A successful test of diesel generator OPERABILITY performed in accordance with Specification 4.8.1.1.2a.4) under this ACTION for the OPERABLE diesel generators, satisfies the subsequent testing requirement of Specification 3.8.1.1 ACTION b.

g. With one or more diesel generators with new fuel oil properties outside the required Diesel Fuel Oil Testing Program limits, following the addition of new fuel* to the Diesel Fuel Oil Storage Tanks, restore the stored fuel oil properties to within the required limits within 30 days.

h. With one or more diesel generators with stored fuel oil total particulates outside the required Diesel Fuel Oil Testing Program limits, restore the fuel oil total particulates to within the required limits within 7 days.

SURVEILLANCE REQUIREMENTS

4.8.1.1.1 Each of the above required independent circuits between the offsite transmission network and the Onsite Class 1E Distribution System shall be determined OPERABLE at least once per 7 days by verifying correct breaker alignments, indicating power availability.

*The properties of API Gravity, specific gravity or an absolute specific gravity; kinematic viscosity; water and sediment content; and flash point shall be confirmed to be within the Diesel Fuel Oil Testing Program limits, prior to the addition of new fuel to the Diesel Fuel Storage Tanks.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

4.8.1.1.2 Each diesel generator shall be demonstrated OPERABLE:

- a. At least once per 31 days 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 obtains a voltage of 4000 ± 320 volts, and a frequency of 60 ± 1.2 Hz. The diesel generator can be slow started and allowed to reach rated speed at a rate that is selected to minimize stress and wear,
 - 5) Verifying the generator is synchronized, gradually loaded to an indicated 5580 to 6201 kW*** for at least 60 minutes, and until temperature equilibrium is attained. The rate of loading and unloading of the generator during this test should be gradual, based upon minimizing stress and wear on the diesel generator, and
 - 6) Verifying the diesel generator is aligned to provide standby power to the associated emergency busses.
- b. At least once per 31 days 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 verifying fuel oil properties of new fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.

**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)

- e. By verifying fuel oil properties of stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.
- f. At least once per 184 days verify each diesel generator starts from standby conditions** and achieves in less than or equal to 12 seconds, a voltage of 4000 ± 320 volts, and a frequency of 60 ± 1.2 Hz using one of the following signals:
 - 1) Manual, or
 - 2) Simulated loss-of-offsite power by itself, or
 - 3) Safety Injection test signal.
- g. At least once per 18 months, during shutdown, by:
 - 1) Verifying each diesel generator operating at a power factor between 0.8 and 0.9 does not trip on overspeed and voltage does not exceed 4784 volts and frequency does not exceed 65.4 Hz following a load rejection of 5580 to 6201 kW,*
 - 2) Verifying on an actual or simulated loss-of-offsite power signal*:
 - a) De-energization of emergency buses;
 - b) Load shedding of emergency buses;
 - c) The diesel generator auto-starts from standby conditions** and:
 - 1) energizes permanently connected loads within 12 seconds,
 - 2) energizes the auto-connected shutdown loads through the shutdown sequencer,
 - 3) maintains steady state voltage at 4000 ± 320 ,
 - 4) maintains steady state frequency at 60 ± 1.2 Hz, and
 - 5) operates for greater than or equal to 5 minutes while generator is loaded with the shutdown loads.

* This surveillance shall not be performed in Modes 1 or 2 and credit may be taken for unplanned events that satisfy this requirement.

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

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- 3) Verifying on an actual or simulated Safety Injection Signal (SIS)* without loss-of-offsite power that each diesel generator auto-starts from the standby condition** and:
 - a) achieves a voltage of 4000 ± 320 volts in less than or equal to 12 seconds after the auto-start signal;
 - b) achieves a frequency of 60 ± 1.2 Hz in less than or equal to 12 seconds after the auto-start signal;
 - c) operates on standby for greater than or equal to 5 minutes;
 - d) the offsite power source energizes the auto-connected (accident) loads through the LOCA sequencer.

- 4) Verifying on a simulated loss-of-offsite power in conjunction with a simulated SIS* that each diesel generator auto-starts from standby condition** and:
 - a) achieves a voltage of 4000 ± 320 in less than or equal to 12 seconds after the auto-start signal;
 - b) achieves a frequency of 60 ± 1.2 Hz in less than or equal to 12 seconds after the auto-start signal;
 - c) de-energization of the emergency busses and load shedding from the emergency busses;
 - d) energizes the emergency busses with permanently connected loads within 12 seconds, energizes the auto-connected emergency (accident) loads through the LOCA sequencer;
 - e) operates for greater than or equal to 5 minutes while its generator is loaded with emergency loads.

* This surveillance shall not be performed in Modes 1 or 2 and credit may be taken for unplanned events that satisfy this requirement.

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

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- 5) Verifying each diesel generator's automatic trips are bypassed upon the simulated SIS and loss-of-offsite power combined test** except:
 - a) High jacket coolant temperature;
 - b) Engine Overspeed;
 - c) Low lube oil pressure;
 - d) High crankcase pressure;
 - e) Start failure relay;
 - f) Generator differential current.

- 6) Verifying full-load carrying capability of the diesel generator at a power factor between 0.8 and 0.9 for an interval of not less than 24 hours at 5580 to 6201 kW (indicated). Verify the diesel generator operates for ≥ 2 hours loaded to an indicated 6600 to 6821 kW if auto connected loads increase above 6201 kW. The generator voltage and frequency shall be maintained within 4000 ± 320 volts and 60 ± 1.2 Hz during this test;****

- 7) Verifying the diesel generator's capability to:***
 - a) Synchronize with the offsite power source while the generator is loaded with its emergency loads upon a simulated restoration of offsite power,
 - b) Transfer its loads to the offsite power source, and
 - c) Be restored to its standby status.

- 8) Verifying that with the diesel generator operating in a test mode, connected to its bus, a simulated Safety Injection signal overrides the test mode by: (1) returning the diesel generator to standby operation, and (2) automatically energizing the emergency loads with offsite power;

- 9) Verifying that the fuel transfer pump transfers fuel from each fuel storage tank to the day tank of each diesel via the installed cross-connection lines;

- 10) Verifying that the automatic LOCA and shutdown sequence timer is OPERABLE with the interval between each load block within $\pm 10\%$ of its design interval; and

** This surveillance shall not be performed in Modes 1 or 2 and credit may be taken for unplanned events that satisfy this requirement.

*** This surveillance shall not be performed in Modes 1, 2, 3, or 4 and credit may be taken for unplanned events that satisfy this requirement.

****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)

- 11) Verifying the diesel generator's hot restart capability by operating the diesel generator for greater than or equal to 2 hours at an indicated load of 5580 to 6201 kW, shutting down the diesel and restarting it within 5 minutes. On the restart, the diesel generator voltage and frequency shall be 4000 ± 320 volts and 60 ± 1.2 Hz within 12 seconds after the start signal (load test not required after restart).
- h. At least once per 10 years, or after any modifications which could affect diesel generator interdependence, verify that when started simultaneously from standby conditions,** each diesel generator achieves in less than or equal to 12 seconds, a voltage of 4000 ± 320 volts and a frequency of 60 ± 1.2 Hz.
- i. At least once per 10 years by:
 - 1) Draining each fuel oil storage tank,
 - 2) Removing the accumulated sediment,
 - 3) Cleaning the tank to remove microbiological growth.

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

ELECTRICAL POWER SYSTEMS

A.C. SOURCES

SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.1.2 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

- a. One circuit between the offsite transmission network and the Onsite Class 1E Distribution System, and
- b. One diesel generator with:
 - 1) A day tank containing a minimum volume of 510 gallons of fuel,
 - 2) A fuel storage system containing a minimum volume of 80,400 gallons of fuel, and
 - 3) A fuel transfer pump.

APPLICABILITY: MODES 5 and 6.

ACTION:

With less than the above minimum required A.C. electrical power sources OPERABLE, immediately suspend all operations involving CORE ALTERATIONS, positive reactivity changes, movement of irradiated fuel, or crane operation with loads over the spent fuel pool. In addition, when in MODE 5 with the reactor coolant loops not filled, or in MODE 6 with the water level less than 23 feet above the reactor vessel flange, immediately initiate corrective action to restore the required sources to OPERABLE status as soon as possible.

SURVEILLANCE REQUIREMENTS

4.8.1.2 The above required A.C. electrical power sources shall be demonstrated OPERABLE by the performance of each of the requirements of Specifications 4.8.1.1.1, 4.8.1.1.2 (except for Specification 4.8.1.1.2a.5), and 4.8.1.1.2g.3), 4), 8) and 10) for the LOCA sequencer portion of LSELS only).

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. A D.C. electrical source consists of the battery banks, associated full capacity chargers and the D.C. busses. The associated full capacity chargers may be the charger designated for that bus or the installed swing charger.

The surveillance requirements of Technical Specification 3/4.8.1 are based upon, in part, the guidance of Generic Letter 94-01, "Removal of Accelerated Testing and Special Reporting Requirements for Emergency Diesel Generators from Plant Technical Specifications," Generic Letter 93-05, "Line-Item Technical Specifications Improvements to Reduce Surveillance Requirements for Testing During Power Operation," Regulatory Guide 1.9, "Selection, Design, Qualification, and Testing of Emergency Diesel Generator Units Used as Class 1E Onsite Electrical Power Systems at Nuclear Power Plants," Revision 3, and NUREG-1431, "Standard Technical Specifications - Westinghouse Plants." Also,

3/4.8 ELECTRICAL POWER SYSTEMS

BASES

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

the guidance of NUMARC 87-00, "Guidelines and Technical Bases for NUMARC Initiatives Addressing Station Blackout at Light Water Reactors," Revision 1, and Regulatory Guide 1.160 has been adopted to formulate a comprehensive Emergency Diesel Generator Reliability Program.

Technical Specification 3.8.1.1, ACTION b and c, require, in part, the demonstration of the OPERABILITY of the remaining OPERABLE emergency diesel generator by performing Technical Specification 4.8.1.1.2a.4. This test is required to be completed regardless of when the inoperable emergency diesel generator is restored to OPERABLE status unless the emergency diesel generator was declared inoperable to do preplanned preventative maintenance, testing, or maintenance to correct a condition which, if left uncorrected, would not affect the OPERABILITY of the emergency diesel generator. The requirement to test the remaining OPERABLE emergency diesel generator when one emergency diesel generator is inoperable is limited to those situations where the cause for inoperability cannot be conclusively demonstrated in order to preclude the potential for common mode failures. The test is not required to be accomplished if the emergency diesel generator was declared inoperable due to an inoperable support system or an independently testable component. When such a test is required, it is required to be performed within 24 hours for ACTION b and within 8 hours for ACTION c of having determined that the emergency diesel generator is inoperable.

Technical Specification 4.8.1.1.2a.4 is considered to be a "Start Test" as described in Regulatory Guide 1.9, Revision 3. A "Start Test" is performed to demonstrate proper startup from standby conditions and to verify that the required design voltage and frequency is attained. For these tests, Regulatory Guide 1.9, Revision 3, recommends that the emergency diesel generators be slow started and allowed to reach rated speed on a prescribed schedule that is selected to minimize stress and wear.

Regulatory Guide 1.9, Revision 3, considers Technical Specification 4.8.1.1.2a.5 to be a "Load-Run Test." A "Load-Run Test" demonstrates 90 to 100 percent (5580 to 6201 kilowatts) of the continuous rating (6201 kilowatts) of the emergency diesel generator for an interval of not less than 1 hour and until temperature equilibrium has been attained. This test may be accomplished by synchronizing the generator with offsite power and the loading and unloading of a diesel generator during this test should be gradual and based on a prescribed schedule that is selected to minimize stress and wear on the diesel generator.

Regulatory Guide 1.9, Revision 3, considers Technical Specification 4.8.1.1.2b to be a "Fast-Start Test." A "Fast-Start Test" demonstrates that each emergency diesel generator starts from standby conditions. If a plant normally has in operation keep warm systems designed to maintain lube oil and jacket water cooling at certain temperatures or prelubrication systems or both, this would constitute normal standby conditions for that plant. Verification that the emergency diesel generator reaches required voltage and frequency within acceptable limits and time is also required.

3/4.8 ELECTRICAL POWER SYSTEMS

BASES

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

The requirements of the "Single-Load Rejection Test" and the "Full-Load Rejection Test" as described in Regulatory Guide 1.9, Revision 3 have been combined. The "Full-Load Rejection Test" is a demonstration of the emergency diesel generator's capability to reject a load equal to 90 to 100 percent of its continuous rating (5580 to 6201 kilowatts) while operating at a power factor between 0.8 and 0.9 and that the voltage does not exceed 4784 volts and that the frequency does not exceed 65.4 Hertz following a load rejection of 5580 to 6201 kilowatts. The frequency criteria is from the "Single-Load Rejection Test" and is based on nominal engine speed plus 75 percent of the difference between nominal speed and the over-speed trip setpoint.

In addition, through a plant procedure, the ESW pump starting transient during the LOCA sequencing test, Technical Specification 4.8.1.1.2.g.4.d, will be demonstrated to be within a minimum voltage of 3120 Vac and to recover to 3680 Vac within 3 seconds and to be within a maximum voltage of 4784 Vac and recover to 4320 Vac within 2 seconds. This acceptance criteria is based on Regulatory Guide 1.9 revision 3 section 1.4 and past trending of ESW pump starting transient performance.

The note that will not allow a surveillance requirement to be performed in MODES 1 or 2 is based on the improved Standard Technical Specifications (NUREG-1431) which recognizes that the performance of certain surveillance requirements during operation with the reactor critical could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, unit safety systems.

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

3/4.8 ELECTRICAL POWER SYSTEMS

BASES

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

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.

DIESEL FUEL OIL TESTING PROGRAM

In accordance with Technical Specification 6.8.4, a Diesel Fuel Oil Testing Program to implement required testing of both new fuel oil and stored fuel oil shall be established. For the intent of this specification, new fuel oil shall represent diesel fuel oil that has not been added to the Diesel Fuel Oil Storage Tanks. Once the fuel oil is added to the Diesel Fuel Oil Storage Tanks, the diesel fuel oil is considered stored fuel oil, and shall meet the Technical Specification requirements for stored fuel oil.

Tests listed below are a means of determining whether new fuel oil is of the appropriate grade and has not been contaminated with substances that would have an immediate detrimental impact on diesel engine combustion. If results from these tests are within acceptable limits, the new fuel oil may be added to the storage tanks without concern for contaminating the entire volume of fuel oil in the storage tanks. These tests are to be conducted prior to adding the new fuel to the storage tanks, but in no case is the time between receipt of the new fuel oil and conducting the test to exceed 30 days. The tests, limits, and applicable ASTM standards being used to evaluate the condition of new fuel oil are:

1. By sampling new fuel in accordance with ASTM D4057 prior to addition to storage tanks and:
2. By verifying in accordance with the tests specified in ASTM D975-81 prior to addition to the storage tanks that the sample has:
 - 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 or greater than or equal to 0.83 but less than or equal to 0.89 or an API

3/4.8 ELECTRICAL POWER SYSTEMS

BASES

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

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 water and sediment content of less than or equal to 0.05% when tested in accordance with ASTM D1796-83.

Failure to meet any of the above limits is cause for rejecting the new fuel oil, but does not represent a failure to meet the Limiting Condition for Operation of Technical Specification 3.8.1.1, since the new fuel oil has not been added to the diesel fuel oil storage tanks.

Within 30 days following the initial new fuel oil sample, the fuel oil is analyzed to establish 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, ASTM D2622-82 or ASTM D4294-90. An exception to ASTM D129, which is specified in ASTM D975-81, has been taken. ASTM D129 uses a Barium precipitation method for the determination of sulfate after oxidation has occurred. The use of any wet lab sulfate analysis is acceptable since the determination is made in the aqueous rinse water for the oxidation process. In the event the correct fuel oil properties are not met, ACTION g provides an additional 30 days from the time that it is determined that the correct fuel oil properties are not met to meet the Diesel Fuel Oil Testing Program limits. The additional 30 day period is acceptable because the fuel oil properties of interest, even if they are not within limits, would not have an immediate effect on emergency diesel generator operation. The diesel fuel oil surveillance in accordance with the Diesel Fuel Oil Testing Program will ensure the availability of high quality diesel fuel oil for the emergency diesel generators.

At least once every 31 days, a sample of fuel oil is obtained from the storage tanks in accordance with ASTM D2276-78. The particulate contamination is verified to be less than 10 mg/liter when checked based on ASTM D2276-78, Method A. The filter size for the determination of particulate contamination will be 3.0 micron nominal instead of 0.8 micron nominal as specified by ASTM D2276-78, Method A. The filtered amount of diesel fuel will be approximately one liter when possible. Also it is acceptable to obtain a field sample for subsequent laboratory testing in lieu of field testing.

Fuel oil degradation during long term storage shows up as an increase in particulate, due mostly to oxidation. The presence of particulate does not mean the fuel oil will not burn properly in a diesel engine. The particulate can cause fouling of filters and fuel oil injection equipment which can cause engine failure.

3/4.8 ELECTRICAL POWER SYSTEMS

BASES

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

The frequency for performing surveillance on stored fuel oil is based on stored fuel oil degradation trends which indicate that particulate concentration is unlikely to change significantly between surveillances.

ADMINISTRATIVE CONTROLS

PROCEDURES AND PROGRAMS (Continued)

f. Radiological Environmental Monitoring Program (Continued)

- 3) Participation in a Interlaboratory Comparison Program to ensure that independent checks on the precision and accuracy of the measurements of radioactive materials in environmental sample matrices are performed as part of the quality assurance program for environmental monitoring.

g. Containment Leakage Rate Testing Program

A program shall be established to implement the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September 1995.

The peak calculated containment internal pressure for the design basis loss of coolant accident, P_a , is 48.1 psig.

The maximum allowable containment leakage rate, L_a , at P_a , shall be 0.20% of the containment air weight per day.

Leakage rate acceptance criteria are:

- a. Containment leakage rate acceptance criterion is $\leq 1.0 L_a$. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are $\leq 0.60 L_a$ for the Type B and C tests and $\leq 0.75 L_a$ for Type A tests;
- b. Air lock testing acceptance criteria are:
 - 1) Overall air lock leakage rate is $\leq 0.05 L_a$ when tested at $\geq P_a$;
 - 2) For each door, leakage rate is $\leq 0.005 L_a$ when pressurized to ≥ 10 psig.

The provisions of Technical Specification 4.0.2 do not apply to the test frequencies in the Containment Leakage Rate Testing Program.

The provisions of Technical Specification 4.0.3 are applicable to the Containment Leakage Rate Testing Program.

h. Diesel Fuel Oil Testing Program

A diesel fuel oil testing program to implement required testing of both new fuel oil and stored fuel oil. The program shall include sampling and testing requirements, and acceptance criteria, in accordance with the applicable ASTM Standards. The purpose of the program is to establish the following:

ADMINISTRATIVE CONTROLS

PROCEDURES AND PROGRAMS (Continued)

h. Diesel Fuel Oil Testing Program (Continued)

1. Acceptability of new fuel oil for use prior to addition to storage tanks by determining that the fuel oil has:
 - a. an API gravity or an absolute specific gravity within limits,
 - b. a flash point within limits for ASTM 2D fuel oil,
 - c. a kinematic viscosity within limits for ASTM 2D fuel oil,
 - d. a water and sediment content within the limits for ASTM 2D fuel oil;
2. Other properties for ASTM 2D fuel oil are within limits within 30 days following sampling and addition of new fuel oil to storage tanks;
3. Total particulate concentration of the stored fuel oil is <10 mg/liter when tested every 31 days based on applicable ASTM D2276 Standards; and

i. Emergency Diesel Generator Reliability Program

An emergency diesel generator reliability program that establishes the requirements and guidelines for emergency diesel generator reliability, availability, and monitoring. The program shall include the following:

1. Emergency diesel generator reliability performance goals (target reliability) based upon the station blackout coping assessment. Target reliability goal monitoring is accomplished through monitoring methods that are based upon those described in Appendix D of NUMARC 87-00,
2. Measures to ensure detailed root cause analysis of emergency diesel generator failures is performed and effective corrective actions are taken in response to failures,
3. Implementation of an emergency diesel generator preventive maintenance program that is consistent with the Maintenance Rule, and
4. Monitoring of emergency diesel generator availability and performance parameters to ensure the target reliability is met or exceeded.

6.8.5 The following programs, relocated from the Technical Specifications to FSAR Chapter 16, shall be implemented and maintained:

a. Explosive Gas and Storage Tank Radioactivity Monitoring Program

This program provides controls for potentially explosive gas mixtures contained in the WASTE GAS HOLDUP SYSTEM, the quantity of radioactivity contained in gas storage tanks, and the quantity of radioactivity contained in unprotected outdoor liquid storage tanks.

ADMINISTRATIVE CONTROLS

PROCEDURES AND PROGRAMS (Continued)

a. Explosive Gas and Storage Tank Radioactivity Monitoring Program (Continued)

The program shall include:

1. The limits for concentrations of hydrogen and oxygen in the WASTE GAS HOLDUP SYSTEM and a surveillance program to ensure the limits are maintained.
2. A surveillance program to ensure that the quantity of radioactivity contained in each gas storage tank is less than the amount that would result in a whole body exposure of ≥ 0.5 rem to a MEMBER OF THE PUBLIC at the nearest SITE BOUNDARY in the event of an uncontrolled release of the tanks' contents, consistent with Branch Technical Position ETSB 11-5, "Postulated Radioactive Releases due to Waste Gas System Leak or Failure," in NUREG-0800, July 1981.
3. A surveillance program to ensure that the quantity of radioactivity contained in the following outdoor liquid radwaste tanks, that are not surrounded by liners, dikes, or walls capable of holding the tanks' contents and that do not have tank overflows and surrounding area drains connected to the liquid radwaste system, is less than the amount that would result in concentrations less than the limits of 10 CFR Part 20.1 -20.602, Appendix B (redesignated at 56FR23391, May 21, 1991) at the nearest potable water supply and the nearest surface water supply in an UNRESTRICTED AREA, in the event of an uncontrolled release of the tanks' contents:
 - a. Reactor Makeup Water Storage Tank,
 - b. Refueling Water Storage Tank,
 - c. Condensate Storage Tank, and
 - d. Outside temporary tanks, excluding demineralizer vessels and the liner being used to solidify radioactive waste.

The provisions of Specifications 4.0.2 and 4.0.3 are applicable to the Explosive Gas and Storage Tank Radioactivity Monitoring Program surveillance frequencies.

b. Reactor Coolant Pump Flywheel Inspection Program

Each reactor coolant pump flywheel shall be inspected per the recommendations of Regulatory Position C.4.b of Regulatory Guide 1.14, Revision 1, dated August 1975.

c. Containment Tendon Surveillance Program

This program provides controls for monitoring tendon performance, including the effectiveness of the tendon corrosion protection medium, to ensure containment structural integrity. The program shall include baseline measurements prior to initial plant

ADMINISTRATIVE CONTROLS

PROCEDURES AND PROGRAMS (Continued)

c. Containment Tendon Surveillance Program (Continued)

operation as well as periodic testing thereafter. The Containment Tendon Surveillance Program, and its inspection frequencies and acceptance criteria, shall be in accordance with the Callaway position on proposed Revision 3 of Regulatory Guide 1.35 dated April 1979.

The provisions of Specifications 4.0.2 and 4.0.3 are applicable to the Containment Tendon Surveillance Program inspection frequencies.

6.9 REPORTING REQUIREMENTS

ROUTINE REPORTS

6.9.1 In addition to the applicable reporting requirements of Title 10, Code of Federal Regulations, the following reports shall be submitted to the Regional Administrator of the NRC Regional Office unless otherwise noted.

STARTUP REPORT

6.9.1.1 A summary report of plant startup and power escalation testing shall be submitted following: (1) receipt of an Operating License, (2) amendment to the License involving a planned increase in power level, (3) installation of fuel that has a different design or has been manufactured by a different fuel supplier, and (4) modifications that may have significantly altered the nuclear, thermal, or hydraulic performance of the plant.

6.9.1.2 The Startup Report shall address each of the tests identified in the FSAR and shall include a description of the measured values of the operating conditions or characteristics obtained during the test program and a comparison of these values with design predictions and specifications. Any corrective actions that were required to obtain satisfactory operation shall also be described. Any additional specific details required in license conditions based on other commitments shall be included in this report.

6.9.1.3 Startup Reports shall be submitted within: (1) 90 days following completion of the Startup Test Program, (2) 90 days following resumption or commencement of commercial power operation, or (3) 9 months following initial criticality, whichever is earliest. If the Startup Report does not cover all three events (i.e., initial criticality, completion of Startup Test Program, and resumption or commencement of commercial operation) supplementary reports shall be submitted at least every 3 months until all three events have been completed.

ANNUAL REPORTS

6.9.1.4 Annual Reports covering the activities of the unit as described below for the previous calendar year shall be submitted prior to March 1 of each year. The initial report shall be submitted prior to March 1 of the year following initial criticality.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 112 TO FACILITY OPERATING LICENSE NO. NPF-30

UNION ELECTRIC COMPANY

CALLAWAY PLANT, UNIT 1

DOCKET NO. 50-483

1.0 INTRODUCTION

By letter dated September 9, 1994, as superseded by letter dated July 25, 1995, and subsequently supplemented by letters dated February 28, 1996, and April 9, 1996, Union Electric Company (UE), requested changes to the Technical Specifications (Appendix A to Facility Operating License No. NPF-30) for the Callaway Plant, Unit 1. The proposed amendment would revise TS 3/4.8.1 and its associated Bases to improve overall emergency diesel generator reliability and availability. Specifically, the proposed changes would incorporate recommendations and suggestions from Generic Letter (GL) 93-05, "Line-Item Technical Specifications Improvements to Reduce Surveillance Requirements for Testing During Power Operation;" NUREG-1431, "Standard Technical Specifications - Westinghouse Plants;" Regulatory Guide (RG) 1.9, Revision 3, "Selection, Design, Qualification, and Testing of Emergency Diesel Generator Units Used as Class 1E Onsite Electric Power Systems at Nuclear Power Plants;" and GL 94-01, "Removal of Accelerated Testing and Special Reporting Requirements for Emergency Diesel Generators from Plant Technical Specifications."

The February 28, 1996, and April 9, 1996, supplemental letters provided additional clarifying information and did not change the original no significant hazards consideration determination published in the Federal Register on August 30, 1995 (60 FR 45188).

2.0 EVALUATION

2.1 TS Section 3.8.1.1

Action Statement a: The licensee proposes to delete the following sentence from the action statement: "If either diesel generator of the above required A.C. electrical power sources has not been successfully tested within the past 24 hours, demonstrate OPERABILITY by performing Specification 4.8.1.1.2.a.4) ## for that diesel generator within 24 hours." The licensee also proposes to delete the following footnote: "## The automatic start and sequence loading of a diesel generator satisfies the testing requirements of Specification 4.8.1.1.2.a.4) for this Action Statement." In addition, the licensee proposes to delete "and two diesel generators" from this action statement. These proposed changes are in accordance with the recommendations provided in Generic Letter (GL) 93-05 and Action A of TS 3.8.1 from NUREG-1431. The

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recommendations contained in these documents allow the deletion of requirements for alternate testing of emergency diesel generators (EDGs) when one offsite power source is inoperable. Therefore, these changes are acceptable.

Action Statement b: The proposed Action Statement b deletes the following footnote: "*This test is required to be completed regardless of when the inoperable diesel generator is restored to OPERABLE status unless the diesel was declared inoperable to do preplanned preventative maintenance, testing, or maintenance to correct a condition which, if left uncorrected, would not affect the operability of the diesel generator." The proposed action statement also adds the following footnote: "*Unless the following conditions are met: 1) It can be demonstrated that there is no potential common mode failure for the remaining diesel generator, and 2) The diesel generator was declared inoperable due to: a) an inoperable support system, or b) an independently testable component, or c) preplanned preventative maintenance, testing or maintenance to correct a condition which, if left uncorrected, would not affect the OPERABILITY of the diesel generator."

The proposed changes are consistent with the recommendations contained in GL 93-05 and Action B of TS 3.8.1 of NUREG-1431. The GL suggests that when an EDG is inoperable (unless it is inoperable because of a support system or an independently testable component), the other EDG should be tested only once, unless the absence of potential common-mode failure mechanisms can be demonstrated. NUREG-1431 indicates that 24 hours is a reasonable time to confirm that the operable EDG is not affected by the same problem as the inoperable EDG. Therefore, the proposed changes are acceptable.

Action Statement c: Proposed Action Statement c deletes the same "*" footnote deleted above for Action Statement b. The proposed action statement also adds the following footnote: "*Unless the following conditions are met: 1) It can be demonstrated that there is no potential common mode failure for the remaining diesel generator, and 2) The diesel generator was declared inoperable due to: a) an inoperable support system, or b) an independently testable component, or c) preplanned preventative maintenance, testing or maintenance to correct a condition which, if left uncorrected, would not affect the OPERABILITY of the diesel generator." In addition, the licensee proposes to delete reference to Action Statement a.

The proposed changes are in accordance with the recommendation in GL 93-05 that if an EDG is inoperable for reasons other than inoperability of a support system or an independently testable component, the other EDG should be tested only once and within 8 hours unless the absence of potential common-mode failure mechanism can be demonstrated. The deletion of the reference to Action Statement a is appropriate since the proposed Action Statement a no longer requires testing of an EDG. Therefore, these changes are acceptable.

Action Statement e: The licensee proposes to delete the phrase "demonstrate the OPERABILITY of two diesel generators by sequentially performing Specification 4.8.1.1.2.a.4 within 8 hours unless the diesel generators are already operating;" from the current action statement. The licensee also

proposes to delete the following sentence: "A successful test of diesel generator OPERABILITY performed in accordance with Specification 4.8.1.1.2a.4)## under this ACTION for the diesel generators satisfies the subsequent testing requirement of Specification 3.8.1.1 ACTION a." In addition, the proposed action statement deletes the same "##" footnote that is provided above for Action Statement a.

Deletion of the phrase and sentence is consistent with the recommendations in GL 93-05. These recommendations allow the deletion of requirements for alternate testing of EDGs when offsite power sources are inoperable. These two deletions are also consistent with Action C of TS 3.8.1 from NUREG-1431. Deletion of the "##" footnote is appropriate since an EDG is no longer to be tested as part of this action statement. Therefore, these proposed changes are acceptable.

Action Statement g: The licensee proposes to add to the TS an action statement that will require restoring within 30 days to the prescribed limits the properties of stored diesel fuel oil which, due to addition of new fuel oil, could get outside of these limits. This new requirement would ensure high quality fuel oil for emergency diesel generators. The 30-day time limit for restoring stored fuel oil properties is acceptable because the fuel oil properties at issue do not have an immediate impact on diesel generator operation. This time limit is specified in Standard Technical Specification (STS) 3.8.3.D of NUREG-1431. The proposed amendment conforms to this specification and is, therefore, acceptable.

Action Statement h: The licensee proposes to add to the TS an action statement that will require restoring within 7 days to the prescribed limit (10 mg/liter) particulate concentration in the stored diesel fuel oil, whenever this concentration exceeds this limit. This requirement would prevent fouling of filters and fuel injection equipment, which could cause engine failure. The 7-day time limit is acceptable because 10 mg/liter is a conservative value and is unlikely to cause diesel generator failure. The risk associated with this time limit is less than that associated with a shutdown transient. This request is consistent with TS 3.8.3.C of NUREG-1431 and is, therefore, acceptable.

2.2 TS Section 4.8.1.1.2

TS 4.8.1.1.2.a: The licensee proposes to delete the words "In accordance with the frequency specified in Table 4.8.1" and add the words "At least once per 31 days."

Table 4.8.1 specifies the frequency of testing based on the number of failures during the last 20 or 100 valid tests of each EDG. The proposed changes for TS 4.8.1.1.2.a. are consistent with suggestions in GL 94-01.

The NRC issued GL 94-01 which states that licensees may request the removal of the TS provisions for accelerated testing and special reporting requirements for EDGs. However, in revising the TS accordingly, licensees must commit to implement within 90 days a maintenance program for monitoring and maintaining

EDG performance consistent with the provisions of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," and the guidance of RG 1.160, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." The licensee has documented that the Callaway Plant has currently implemented this maintenance program under the Emergency Diesel Generator Reliability Program (EDGRP). In addition, the licensee has documented that the EDGRP governs all activities associated with EDG reliability. Further, the EDGRP captures the provisions of the maintenance rule as it applies to EDGs and is consistent with the provisions of 10 CFR 50.65 and the guidance of RG 1.160.

On the basis of the above, the proposed changes for TS 4.8.1.1.2.a are acceptable.

TS 4.8.1.1.2.a.4: The licensee proposes to delete the current TS 4.8.1.1.2.a.4) in its entirety: "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." This would be replaced by "Verifying the diesel starts** and obtains a voltage of 4000 ± 320 volts, and a frequency of 60 ± 1.2 Hz. The diesel generator can be slow started and allowed to reach rated speed at a rate that is selected to minimize stress and wear."

The proposed changes make this surveillance requirement consistent with the "Start Test" as described in RG 1.9, Revision 3. The start test is performed to demonstrate proper startup from standby conditions and to verify that the required design voltage and frequency are attained. For these tests, RG 1.9, Revision 3, recommends that the EDGs be slow started and allowed to reach rated speed on a prescribed schedule that is selected to minimize stress and wear. Thus, the removal of the 12-second time requirement is appropriate in order to reduce undue stress and wear on the EDGs. The proposal to delete the requirement to obtain 514 RPM is consistent with the recommendations of RG 1.9, Revision 3, and TS 3.8.1.2 from NUREG-1431. The 514 RPM verification is redundant to the frequency verification since the frequency of the generator can be converted directly into engine RPM. Therefore, the proposed changes are acceptable.

TS 4.8.1.1.2.a.5: The licensee proposes to replace the current "6000" with "5580." The licensee also proposes to add "until temperature equilibrium is attained. The rate of loading and unloading of the generator during this test should be gradual, based upon minimizing stress and wear on the diesel generator, and."

The proposed changes make this surveillance requirement consistent with the "Load-Run Test" as described in RG 1.9, Revision 3. This test is to demonstrate 90 to 100 percent of the continuous rating of the EDG for an

interval of not less than 1 hour and until temperature equilibrium has been attained. As indicated in RG 1.9, Revision 3, the test may be accomplished by synchronizing the generator with offsite power, and the loading and unloading of an EDG should be gradual and based on a prescribed schedule that is selected to minimize stress and wear on the EDG. The proposed changes are also in accordance with TS 3.8.1.3 from NUREG-1431. Based on this information, these changes are acceptable.

TS 4.8.1.1.2.b: The current specification requires checking and removing accumulated water in the day tanks at least once every 31 days and after every operation of the diesel engine for longer than one hour duration. The licensee proposes to eliminate the portion of the requirement dealing with the need for checking for accumulated water after diesel operation for longer than one hour. Control of accumulated water in the day tanks is needed to prevent microbiological growth which could produce filter fouling. The presence of water in the fuel oil could also affect performance of the diesel engine. However, present experience has indicated that removal of the accumulated water once every 31 days provides sufficient protection for the diesel engine. This is reflected in TS 3.8.1.5 of NUREG-1431 which requires testing for accumulated water once every 31 days, but does not require testing after diesel operation. The proposed amendment conforms to this TS specification and is acceptable.

TS 4.8.1.1.2.d: The current specification describes the tests to be performed on new diesel fuel oil prior to its addition to the storage tanks. The licensee proposes to relocate this requirement to the Administrative Controls Section of the TS and to include in TS 4.8.1.1.2.d only a statement that the properties of new oil should be verified and maintained in accordance with the Diesel Fuel Oil Testing Program. The surveillance requirements, ASTM testing standards and acceptance criteria for this program will be included in the Bases Section of the TS as well as in the plant procedures. Since the relocation of the diesel fuel oil surveillance requirements to the Administrative Controls Section of TS is consistent with the format of the improved TS of NUREG-1431, the modification proposed by the licensee is acceptable.

TS 4.8.1.1.2.e: The current specification describes the requirements for testing of the stored diesel fuel oil. As in TS 4.8.1.1.2.d, the licensee proposes to relocate the testing requirements to the Administrative Controls Section of the TS and have the Diesel Fuel Oil Testing Program included in the Bases Section of the TS and in plant procedures. This proposed modification is acceptable because it meets the intent of the improved TS of NUREG-1431.

TS 4.8.1.1.2.f.1: The licensee proposes to delete from the current TS the following surveillance requirement: "Subjecting the diesel to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for this class of standby service." The licensee also proposes to relocate this surveillance requirement to the EDGRP. In addition, the licensee proposes to delete the "#" footnote that is applicable to all parts of the current TS 4.8.1.1.2.f. This footnote is as follows: "#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."

The 18 month manufacturer recommended inspection will continue to be performed by the licensee. This requirement is not being eliminated but rather is being relocated to the EDGRP which is subject to the 10 CFR 50.59 review process. Deletion of the "#" footnote is appropriate since it is no longer applicable. Based on this information, the proposed changes are acceptable.

TS 4.8.1.1.2.f.2: The licensee proposes to delete "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."

The staff expressed concern regarding this deletion since eliminating the EDG single load rejection test is not in accordance with recommendations of RG 1.9, Revision 3, and NUREG-1431. In response to this concern, the licensee provided documentation indicating that analysis of previous surveillance tests conducted at the Callaway Plant has shown that the frequency and voltage transient from the single-load rejection test is far less severe a test of the EDGs than the transient from the full-load rejection test. Previous single load rejection surveillance test results have shown that the maximum transient values are well within the 4000 ± 320 volts and 60 ± 5.4 hertz acceptance criterion and are within the steady-state criterion of 4000 ± 320 volts and 60 ± 1.2 hertz provided for the LOCA/SIS test.

The proposed addition of a tighter frequency criterion of <65.4 hertz for the full-load rejection test (4.8.1.1.2.g.1) and the requirement that the EDG performance tests provide steady-state operation within 4000 ± 320 volts and 60 ± 1.2 hertz is to assure that the EDGs continue to perform as required when the single-load rejection test is no longer performed. For overfrequency conditions, the 65.4 hertz limit being applied to the full-load rejection test is to provide adequate performance for limiting motor overspeed and is equivalent to the previous limit for the single-load rejection test. Operation within the steady-state criterion provides assurance of adequate voltages and frequencies for the continuous operation of the connected loads and specifically of the induction motors.

In addition, the licensee provided documentation indicating that the magnitude of the load changes seen by an EDG during load sequencing are twice as great as during the single-load rejection test. Further, the sequencing of the largest load occurs late in the load sequencing and is approximately equivalent to the single-load rejection test. The load rejection of the essential service water pump motor on an isochronous operating diesel generator results in an acceleration of the shaft and a corresponding increase in frequency. However, the system inertia acts to resist the increase in frequency. Due to the large system inertia which is mostly the emergency diesel and generator, the speed change is small and is less than during the load sequencing. The starting of the essential service water pump motor has a greater effect on the EDG because the torque being added to the system is a

load and accelerating torque. The licensee also provided EDG single-load rejection test history results as shown in attached Table 1. Table 1 indicates that for EDG single largest load rejection testing, the voltage and frequency changes were well within the acceptance criteria and that there were no significant differences in EDG voltage and frequency changes for any of the 14 tests performed.

To supplement the above information, the licensee provided three strip chart recordings that were obtained during past testing. These recordings indicate EDG voltage and frequency transient responses during a full-load rejection test, during a single-load rejection test, and during loading of an essential service water pump motor. The recordings clearly indicate that the voltage and frequency swings (transient responses) that occur during loading of the essential service water pump motor (single largest load) are much greater than the swings during the rejection tests and indicate that the connected loads can handle the transient resulting from the single-load rejection test. In addition, the recordings clearly indicate that these voltage and frequency swings for a single-load rejection test are within the steady-state acceptance criteria values at all times during the transient.

The licensee has also revised the Bases section of the TS to include the following information. Through a plant procedure, the essential service water pump motor starting transient during the LOCA sequencing test (TS 4.8.1.1.2.g.4.d) will be demonstrated to be within a minimum voltage of 3120 Vac and to recover to 3680 Vac within 3 seconds and to be within a maximum voltage of 4784 Vac and recover to 4320 Vac within 2 seconds. This acceptance criteria is based on RG 1.9, Revision 3, Section 1.4 and past trending of essential service water pump motor starting transient performance. Since, in part, the single-load rejection test is to verify satisfactory response of the EDG voltage regulator and governor when removing EDG electrical loading, this added commitment provides further assurance that this response is maintained.

Based on the above, the staff concludes that the proposed TS change is acceptable.

TS 4.8.1.1.2.f.3 (Renumbered TS 4.8.1.1.2.g.1): The licensee proposes to delete the current TS: "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." This would be replaced with the following: "Verifying each diesel generator operating at a power factor between 0.8 and 0.9 does not trip on overspeed and voltage does not exceed 4784 volts and frequency does not exceed 65.4 Hz following a load rejection of 5580 to 6201 kW,**." The following footnote would also be added: "*** This surveillance shall not be performed in Modes 1 or 2 and credit may be taken for unplanned events that satisfy this requirement."

The proposed changes make this TS consistent with recommendations in RG 1.9, Revision 3, for the "Full-Load Rejection Test." As described in this RG, this test demonstrates an EDG's capability to reject a load equal to 90 to 100

percent of its continuous rating (5580-6201 kilowatts) while operating at a power factor between 0.8 and 0.9 and verifies that the voltage requirements are met and that the EDG will not trip on overspeed. The proposed addition of the footnote forbidding the surveillance requirement to be performed in Modes 1 or 2 is based on NUREG-1431, which recognizes that the performance of this surveillance requirement during operation with the reactor critical could cause perturbations in the electrical distribution systems that could challenge continued steady-state operation, possibly comprising safety systems. On the bases of this information, the proposed changes are acceptable.

TS 4.8.1.1.2.f.4 (Renumbered TS 4.8.1.1.2.g.2): The following would be deleted: "Simulating a loss-of-offsite power by itself, and: a) Verifying deenergization of the emergency busses and load shedding from the emergency busses, and b) Verifying the diesel starts** on the auto-start signal, energizes the emergency busses with permanently connected loads within 12 seconds, energizes the auto-connected shutdown loads through the shutdown sequencer and operates for greater than or equal to 5 minutes while its generator is loaded with the shutdown loads. After energization, the steady-state voltage and frequency of the emergency busses shall be maintained at 4000 ± 320 volts and 60 ± 1.2 Hz during this test." The following would be added: "Verifying on an actual or simulated loss-of-offsite power signal*: a) De-energization of emergency busses; b) Load shedding of emergency busses; c) The diesel generator auto-starts from standby conditions** and: 1) energizes permanently connected loads within 12 seconds, 2) energizes the auto-connected shutdown loads through the shutdown sequencer, 3) maintains steady state voltage at 4000 ± 320 volts, 4) maintains steady state frequency at 60 ± 1.2 Hz, and 5) operates for greater than or equal to 5 minutes while generator is loaded with the shutdown loads." The licensee would also add the same "*" footnote as for Renumbered TS 4.8.1.1.2.g.1) (see above).

The proposed changes maintain the current surveillance requirement in its entirety. However, the wording would be revised to be consistent with that for Surveillance Requirement 3.8.1.11 from NUREG-1431. These changes are also in accordance with recommendations for the "Loss-of-Offsite-Power Test" as described in RG 1.9, Revision 3. Thus, they are acceptable.

TS 4.8.1.1.2.f.5 (Renumbered TS 4.8.1.1.2.g.3): The licensee proposes to delete the current TS: "Verify that on a Safety Injection test signal without loss-of-offsite power, the diesel generator starts** on the auto-start signal and operates on standby for greater than or equal to 5 minutes; and the offsite power source energizes the auto-connected emergency (accident) load through the LOCA sequencer. The generator voltage and frequency shall be 4000 ± 320 volts and 60 ± 1.2 Hz within 12 seconds after the auto-start signal; the generator steady-state generator voltage and frequency shall be maintained within these limits during this test." This would be replaced with the following: "Verifying on an actual or simulated Safety Injection Signal (SIS)* without loss-of-offsite power that each diesel generator auto-starts from the standby condition** and: a) achieves a voltage of 4000 ± 320 volts in less than or equal to 12 seconds after the auto-start signal; b) achieves a frequency of 60 ± 1.2 Hz in less than or equal to 12 seconds after the auto-

start signal; c) operates on standby for greater than or equal to 5 minutes; d) the offsite power source energizes the auto-connected (accident) loads through the LOCA sequencer." The same "*" footnote provided for renumbered TS 4.8.1.1.2.g.1) would be added to the replacement TS.

The proposed changes retain the current surveillance requirement in its entirety. The wording for the added surveillance requirement is consistent with that in NUREG-1431. The changes also result in a surveillance requirement that is in accordance with the recommendations provided in RG 1.9, Revision 3, for the "SIAS Test." The justification for adding the "*" footnote is the same as given above for renumbered TS 4.8.1.1.2.g.1). On this basis, the proposed changes are acceptable.

TS 4.8.1.1.2.f.6 (Renumbered TS 4.8.1.1.2.g.4): The licensee proposes to delete the current TS: "Simulating a loss-of-offsite power in conjunction with a Safety Injection test signal, and a) Verifying deenergization of the emergency busses and load shedding from the emergency busses; b) Verifying the diesel starts** on the auto-start signal, energizes the emergency busses with permanently connected loads within 12 seconds, energizes the auto-connected emergency (accident) loads through the LOCA sequencer and operates for greater than or equal to 5 minutes while its generator is loaded with emergency loads. After energization, the steady-state voltage and frequency of the emergency busses shall be maintained at 4000 ± 320 volts and 60 ± 1.2 Hz during this test; and c) Verifying that all automatic diesel generator trips, except high jacket coolant temperature, engine overspeed, low lube oil pressure, high crankcase pressure, start failure relay, and generator differential, are automatically bypassed upon loss of voltage on the emergency bus concurrent with a Safety Injection Actuation signal." This would be replaced by the following: "Verifying on a simulated loss of offsite power in conjunction with a simulated SIS* that each diesel generator auto-starts from the standby condition** and: a) achieves a voltage of 4000 ± 320 in less than or equal to 12 seconds after the auto-start signal; b) achieves a frequency of 60 ± 1.2 Hz in less than or equal to 12 seconds after the auto-start signal; c) de-energization of the emergency busses and load shedding from the emergency busses; d) energizes the emergency busses with permanently connected loads within 12 seconds, energizes the auto-connected emergency (accident) loads through the LOCA sequencer; e) operates for greater than or equal to 5 minutes while its generator is loaded with emergency loads." The licensee also proposes to add in the replacement TS the same "*" footnote as provided above for renumbered TS 4.8.1.1.2.g.1).

The proposed changes make this surveillance requirement consistent with recommendations for the "Combined SIAS and LOOP Tests" as described in RG 1.9, Revision 3. The resulting surveillance requirement retains the current TS in its entirety, excluding verifying that all automatic diesel generator trips (except the identified ones) are automatically bypassed upon loss of voltage on the emergency bus concurrent with a SIAS. The exclusion is relocated to renumbered TS 4.8.1.1.2.g.5) and is addressed below. The justification for the addition of the "*" footnote is the same as provided above for Renumbered TS 4.8.1.1.2.g.1). On this basis, the proposed changes are acceptable.

Renumbered TS 4.8.1.1.2.g.5: The licensee proposes to add the following as the renumbered TS. "Verifying each diesel generator's automatic trips are bypassed upon the simulated SIS and loss-of-offsite power combined test* except: a) High jacket coolant temperature; b) Engine overspeed; c) Low lube oil pressure; d) High crankcase pressure; e) Start failure relay; f) Generator differential current." The licensee also proposes to add the same "*" footnote as provided above for Renumbered TS 4.8.1.1.2.g.1).

As proposed, this surveillance requirement is in accordance with the recommendations for the "Protective Trip Bypass Test" as described in RG 1.9, Revision 3. The wording for the proposed surveillance requirement is consistent with that for SR 3.8.1.13 from NUREG-1431. The justification for adding the "*" is as above. Thus, the proposed TS is acceptable.

TS 4.8.1.1.2.f.7 (Renumbered TS 4.8.1.1.2.g.6): The licensee proposes to delete the current TS: "Verifying the diesel generator operates for at least 24 hours. During the first 2 hours of this test, the diesel generator shall be loaded to an indicated 6600 to 6821 kW*** and during the remaining 22 hours of this test, the diesel generator shall be loaded to an indicated 6000 to 6201 kW.*** The generator voltage and frequency shall be 4000 ± 320 volts and 60 ± 1.2 Hz, -3 within 12 seconds after the start signal; the steady state generator voltage and frequency shall be maintained within 4000 ± 320 volts and 60 ± 1.2 Hz during this test." This would be replaced by the following: "Verifying full-load carrying capability of the diesel generator** at a power factor between 0.8 and 0.9 for an interval of not less than 24 hours at 5580 to 6201 kW (indicated). The generator voltage and frequency shall be maintained within 4000 ± 320 and 60 ± 1.2 Hz during this test." The added TS would have the following footnote: "***This surveillance shall not be performed in Modes 1 or 2 and credit may be taken for unplanned events that satisfy this requirement."

The proposed changes result in a surveillance requirement that is in part consistent with the suggestions for the "Endurance and Margin Test" as described in RG 1.9, Revision 3. However, the requirement to operate each EDG for 2 hours at 105 to 110 percent of the continuous rated load as suggested in RG 1.9, Revision 3, and currently required, is not being proposed. The staff expressed concern regarding this exception. In response to this concern, the licensee stated that the EDGs at the Callaway Plant utilize Colt-Pielstick PC 2.5V 14 cylinder engines. The generator ratings are 6201 kilowatts continuous, 6635 kilowatts for 2000 hours, 6821 kilowatts for 168 hours, and 7441 kilowatts for 30 minutes. All of these ratings are at a power factor of 0.8. In addition, the licensee stated that the worst-case accident bus loading occurs during a station blackout, in cold shutdown conditions, with engineered and non-engineered safety features loads connected. The bus loading under these conditions is 6039 kilowatts; without non-engineered safety features loads connected, the bus loading is 4556 kilowatts. Under LOCA conditions, during the recirculation phase, the maximum load is 5440 kilowatts; with only engineered safety features loads connected, the total bus load is 5258 kilowatts. Further, the licensee documents that at the continuous rated load of an EDG, the normal fuel rack position is 47 to 49 millimeters. At the 110 percent power level, the fuel rack position is 51 to

52 millimeters. A total of 75 millimeters of fuel rack movement is available; however, a mechanical stop prevents movement in excess of 55 millimeters. The ability of the governor actuator and fuel rack mechanism to move rapidly to the maximum fuel position is demonstrated each time a successful fast start of the EDG is performed. This indicates that the engine is capable of producing the higher horsepower necessary for the 110 percent power level. In addition, the relationship between high loads and wear is established for typical piston engine applications, and engine manufacturers have indicated that aging and wear significantly increase after 95 percent of the continuous load rating is achieved. The staff asked the licensee to address the affects of loading changes. In response, the licensee proposed to add the following to the proposed TS: "Verify the diesel generator operates for ≥ 2 hours loaded to an indicated 6600 to 6821 kW if auto connected loads increase above 6201 kW." Further, the following footnote was also added to the proposed TS: "****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." The staff finds this exception to RG 1.9, Revision 3, to be acceptable on the bases of the Callaway Plant emergency bus loading (worst case) is below the continuous rating of the EDGs, the potential for increased EDG aging and wearing, and the added TS requirement of verifying the diesel generator operates for ≥ 2 hours loaded to an indicated 105 to 110 percent of continuous rated load if auto connected loads increase above 6201 kW.

Justification for adding the "*" footnote is the same as provided above for Renumbered TS 4.8.1.1.2.g.1). The "****" footnote is added to provide guidance to avoid routine overloading of the engine.

On the bases of this information, the proposed changes are acceptable.

Renumbered TS 4.8.1.1.2.f.8: The licensee proposes to delete "Verifying that the auto-connected loads to each diesel generator do not exceed 6201 kW."

The licensee documents that this surveillance will be relocated to Chapter 16 of the Updated Safety Analysis Report and controlled by the 10 CFR 50.59 process. In addition, the bus loading calculations for the Callaway Plant indicate that the worst-scenario emergency bus loading would be 6039 kilowatts, which is approximately 97 percent of the rated continuous load for each EDG. Furthermore, the auto-connected bus loadings are to be monitored and trended by the EDGRP with the electrical bus load growth being controlled by an Electrical Load Growth Program.

Based on the above, the proposed change is acceptable.

TS 4.8.1.1.2.f.9 (Renumbered TS 4.8.1.1.2.g.7): The licensee proposes to add the following "***" footnote to this TS: "***This surveillance shall not be performed in Modes 1, 2, 3, or 4 and credit may be taken for unplanned events that satisfy this requirement."

The addition of this note makes this surveillance requirement consistent with Surveillance Requirement 3.6.1.16 from NUREG-1431. This Surveillance

Requirement is not performed in Modes 1, 2, 3, or 4 because it would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. Thus, this proposed addition is acceptable.

TS 4.8.1.1.2.g (Renumbered TS 4.8.1.1.2.h): The licensee proposes to delete the current TS: "At least once per 10 years or after any modifications which could affect diesel generator interdependence by starting** both diesel generators simultaneously, during shutdown, and verifying that both diesel generators accelerate to at least 514 rpm in less than or equal to 12 seconds; and..." This would be replaced with the following: "At least once per 10 years verify that when started simultaneously from standby conditions,** each diesel generator achieves in less than or equal to 12 seconds, a voltage of 4000 ± 320 volts and a frequency of 60 ± 1.2 Hz."

The changes proposed make this surveillance requirement consistent with Surveillance Requirement 3.8.1.20 from NUREG-1431. The replacement of the requirement to accelerate the EDG to at least 514 RPM in less than or equal to 12 seconds with voltage and frequency requirements is justified since the RPM requirement is redundant to the frequency requirement. On this basis, the proposed changes for this TS are acceptable.

TS 4.8.1.1.2.h (Renumbered TS 4.8.1.1.2.i): The surveillance requirement in the current TS specifies that at least once every 10 years the diesel fuel oil storage tank should be drained to remove accumulated sediments and cleaned using a sodium hypochlorite solution or equivalent. The licensee proposes to revise this surveillance requirement by eliminating the requirement to clean the tank using a sodium hypochlorite or equivalent. The reason for this change is that there currently exists better cleaning methods and the surveillance specification should allow their use. In addition, sodium hypochlorite is no longer a viable cleaning agent since it has been classified as a hazardous waste. The proposed change is consistent with the surveillance requirement in TS 3.8.3.6 of NUREG-1431, which does not specifically require the use of sodium hypochlorite solution. It is discussed in the Bases as a possible option. The proposed change is, therefore, acceptable. However, the licensee should refrain from using soap or surfactants as cleaning agents.

TS 4.8.1.1.2.i (Renumbered TS 4.8.1.1.2.f): The licensee proposes to delete the current TS 4.8.1.1.2.i: "At least once per 184 days the diesel generators shall be started** from ambient conditions (using the keep warm system) using one of the signals specified in 4.8.1.1.2.a.4) and accelerated 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. Subsequently verify the generator is loaded to an indicated 6000 to 6201 kW*** in less than or equal to 60 seconds and operates at an indicated load of 6000 to 6201 kW*** for at least 60 minutes." The "***" footnote would also be deleted: "*** 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." The licensee proposes to add the following new TS 4.8.1.1.2.f: "At least once per 184 days verify each diesel generator

starts from standby conditions** and achieves in less than or equal to 12 seconds, a voltage of 4000 ± 320 volts, and a frequency of 60 ± 1.2 Hz using one of the following signals: 1) Manual, or 2) Simulated loss-of-offsite power by itself, or 3) Safety Injection test signal." The following "***" footnote would also be added: "*** This test shall be preceded by an engine prelube period and/or other warmup procedures recommended by the manufacture so that the mechanical stress and wear on the diesel engine is minimized."

The added TS 4.8.1.1.2.f surveillance requirement is consistent with RG 1.9, Revision 3. The requirement to operate the EDG for at least 60 minutes at 6000 to 6201 kilowatts can be deleted since this portion of the current surveillance requirement would be satisfied by performing TS 4.8.1.1.2.a.5 once per 31 days on a staggered test basis. The requirement to accelerate the EDG to at least 514 rpm in less than or equal to 12 seconds can be deleted since it is redundant to the requirement to attain the specified frequency in less than or equal to 12 seconds (discussed above for TS 4.8.1.1.2.a.4). In addition, the requirement to load the EDG to an indicated 6000 to 6201 kilowatts in less than or equal to 60 seconds is deleted since RG 1.9, Revision 3, no longer suggests that the EDG be fast loaded (fast loading adversely affects EDG reliability). Deleting the current TS and adding TS 4.8.1.1.2.f makes this surveillance requirement consistent with Surveillance Requirement 3.8.1.7 from NUREG-1431.

Based on the above, the proposed change is acceptable.

TS 4.8.1.1.3: The licensee proposes to delete the following: "Reports - All diesel generator failures, valid or nonvalid, shall be reported in a Special Report to the Commission pursuant to Specification 6.9.2 within 30 days. Reports of diesel generator failures shall include the information recommended in Regulatory Position C.3.b of Regulatory Guide 1.108, Revision 1, August 1977. If the number of failures in the last 100 valid tests (on a per nuclear unit basis) is greater than or equal to 7, the report shall be supplemented to include the additional information recommended in Regulatory Position C.3.b of Regulatory Guide 1.108, Revision 1, August 1977."

The elimination of this TS requirement is in accordance with the recommendations in GL 94-01 discussed above for TS 4.8.1.1.2.a). In addition, 10 CFR 50.72 and 50.73 provide criteria for notifying the Commission of significant EDG failures. Therefore, the deletion of this TS requirement is acceptable.

TS Table 4.8.1: Table 4.8.1 would be deleted. This deletion is consistent with proposed changes discussed above for TS 4.8.1.1.2.a and as such is acceptable.

TS 4.8.1.2: For this TS, the licensee proposes to replace 4.8.1.1.2.f.5), 6), 10), and 12) with 4.8.1.1.2.g.3), 4), 8), and 10), respectively. The phrase "and 4.8.1.1.3" would also be deleted.

The proposed deletion of the reference to TS 4.8.1.1.3 (Reports) follows from the proposal to delete TS 4.8.1.1.3. The replacements are editorial changes making the TS references consistent with other proposed changes. Therefore, these proposed changes are acceptable.

TS 3/4.8 - Bases: The licensee proposes to introduce in the current Bases a section describing in greater detail certain surveillance requirements which were previously included in Surveillance Requirements sections 4.8.1.1.2.d and 4.8.1.1.2.e and now are relocated to the Administrative Controls Section and to the plant procedures. The Bases will also include a description of the Diesel Fuel Testing Program. The requirements of the program included in the Bases deviates in the following instances from the specifications in Callaway's current TS and in the improved TS of NUREG-1431:

- Instead of using "Clear and Bright Pass/Fail Procedures" (ASTM D4176-82) for determining free water and particulate contamination in diesel fuel oil, a centrifuge method is specified (ASTM D1796-83) with the requirement that water and sediment contents should be less than 0.05 percent. The reason for this change is that currently diesel fuel oil may contain a dye which makes the Clear and Bright Test impractical.
- In addition to the tests required by the current TS and described in ASTM D1552-79 and D2622-82, analysis for sulfur in diesel fuel oil can be performed by a test based on non-dispersive X-ray fluorescence spectrometry (ASTM D4294-83). This is a more up-to-date method and would be helpful in monitoring sulfur content in diesel fuel oil. The method could yield results of a comparable accuracy to the other two methods.
- In Method A of the ASTM 2276-78 standard for determining total particulate concentration in the stored diesel fuel oil, the licensee proposes to use a filter size of 3.0 microns nominal for collecting particles instead of 0.8 microns, specified in the standard. The 0.8 micron size was intended for fuel oils used for other applications than diesel. For diesel fuel meeting the criterion of particle concentration of 10 mg/liter or less, use of a 3.0 micron filter is adequate.

All of the surveillance requirements and the Diesel Fuel Testing Program described in the Bases, including the specific deviations discussed above, are acceptable because they either meet the intent of the improved TS of NUREG-1431, or provide an adequate level of safety.

TS 6.8.4.g: The licensee proposes to include in the Administrative Controls Section of the TS a brief description of the Diesel Fuel Test Program, which in the current TS is specified in TS 4.8.1.1.2.d and TS 4.8.1.1.2.e. The program described in the Administrative Controls Section will require both new and stored fuel oil to meet the acceptance criteria when sampled and tested in accordance with the applicable ASTM Standards. The particulate concentration of the stored fuel oil will be required to be below 10 mg/liter when tested

every 31 days based on ASTM Standard 2276. The details of the program will be described in Bases Section 3/4.8 of the amended TS and in plant procedures. This would allow for the licensee in the future to amend the program under 10 CFR 50.59, provided no unreviewed safety questions are involved. This change is acceptable because it is consistent with the requirement of Section 5.5.13 relative to materials and chemical engineering of the improved TS of NUREG-1431, and meets the requirements of General Design Criterion 18 as it applies to inspection and testing of electric power systems including operability and functional performance of the components of the systems.

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 NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (60 FR 45188). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

5.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Attachment: Table

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Date: June 17, 1996

TABLE 1
EDG SINGLE LARGEST LOAD REJECT HISTORY

Equipment Number	Work Document	Date Performed	Steady State	Volt Max. After Trip	Volt Min. After Trip	Steady State Hertz Prior to trip	Hertz Max. After Trip
KKJ01A	S012978	3/8/86	4130	4183	4130	60	60.4
KKJ01A	S408592	9/14/87	4148	4200	4148	60.4	60.8
KKJ01A	S426314	4/2/89	4130	4183	4130	60.1	60.9
KKJ01A	S453922	9/23/90	4148	4209	4148	60.1	60.5
KKJ01A	S485359	3/24/92	4113	4176	4113	60.3	60.6
KKJ01A	S516249	10/5/93	4155	4234	4155	60.2	60.6
KKJ01A	S540910	3/27/95	4078	4137	4078	60.2	60.4
KKJ01B	ST07203	3/10/86	4130	4200	4130	59.7	60
KKJ01B	S408595	9/16/87	4113	4183	4113	59.7	60
KKJ01B	S426315	4/4/89	4130	4200	4130	59.6	60.2
KKJ01B	S453920	9/25/90	4095	4148	4095	59.7	60
KKJ01B	S485361	3/25/92	4130	4193	4130	59.8	60.2
KKJ01B	S513510	10/3/93	3990	4060	3990	59.8	60.1
KKJ01B	S541051	3/27/95	4095	4158	4095	59.7	59.9