



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

ENERGY OPERATIONS, INC.

DOCKET NO. 50-382

WATERFORD STEAM ELECTRIC STATION, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 92  
License No. NPF-38

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Entergy Operations, Inc. (the licensee) dated May 8, 1991, as supplemented by letters dated March 6, 1992, and January 28, 1993, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

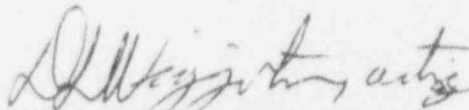
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C(2) of Facility Operating License No. NPF-38 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 92, 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 license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



William D. Beckner, Director  
Project Directorate IV-1  
Division of Reactor Projects - III/IV/V  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: March 16, 1994

ATTACHMENT TO LICENSE AMENDMENT NO. 92  
TO FACILITY OPERATING LICENSE NO. NPF-38  
DOCKET NO. 50-382

Replace the following pages of the Appendix A Technical Specifications with the attached pages. The revised pages are identified by Amendment number and contain vertical lines indicating the areas of change. The corresponding overleaf pages are also provided to maintain document completeness.

REMOVE PAGES

3/4 8-1  
3/4 8-4  
3/4 8-6a  
3/4 8-8  
B 3/4 8-1  
B 3/4 8-2\*  
B 3/4 8-3\*

INSERT PAGES

3/4 8-1  
3/4 8-4  
3/4 8-6a  
3/4 8-8  
B 3/4 8-1  
B 3/4 8-2\*  
B 3/4 8-3\*

\*Technical Specification page issued due to repagination.

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. Diesel oil feed tanks containing a minimum volume of 339 gallons of fuel, and
  2. A separate diesel generator fuel oil storage tank containing:
    - a. A minimum volume of 38,760 gallons of fuel, or
    - b. A fuel oil volume less than 38,760 gallons and greater than 38,000 gallons of fuel for a period not to exceed 5 days (provided replacement fuel oil is onsite within the first 48 hours), and
  3. A separate fuel transfer pump.

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

ACTION:

- a. With one offsite circuit of 3.8.1.1a inoperable, demonstrate the OPERABILITY of the remaining offsite A.C. circuit by performing Surveillance Requirement 4.8.1.1.1a within 1 hour and at least once per 8 hours thereafter. If either diesel generator has not been successfully tested within the past 24 hours, demonstrate its OPERABILITY by performing Surveillance Requirement 4.8.1.1.2a.4 separately for each diesel generator (unless it is already operating) within 24 hours. Restore the offsite A.C. circuit 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. With one diesel generator of 3.8.1.1b inoperable, demonstrate the OPERABILITY of the offsite A.C. circuits by performing Surveillance Requirement 4.8.1.1.1a (separately for each offsite A.C. circuit) within 1 hour and at least once per 8 hours thereafter. If the diesel generator became inoperable due to any cause other than preplanned preventive maintenance or testing, demonstrate the OPERABILITY of the remaining OPERABLE diesel generator (unless it has been successfully tested in the last 24 hours) by performing Surveillance Requirement 4.8.1.1.2a.4 within 24 hours. Restore the 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.
- c. With one offsite A.C. circuit and one diesel generator of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining offsite A.C. circuit by performing Surveillance Requirement 4.8.1.1.1a within 1 hour and at least once per 8 hours thereafter; and, if the diesel generator became inoperable due to any cause other than preplanned preventive maintenance or testing, demonstrate the OPERABILITY of the remaining OPERABLE diesel generator by performing Surveillance Requirement 4.8.1.1.2a.4 within 8 hours (unless it is already operating). Restore at least one of the inoperable sources to OPERABLE status within 12 hours or be in

## ELECTRICAL POWER SYSTEMS

### ACTION (Continued)

at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore the other A.C. power source (offsite A.C. circuit or diesel generator) to OPERABLE status in accordance with the provisions of ACTION statement a or b, as appropriate, with the time requirement of that ACTION statement based on the time of initial loss of the remaining inoperable A.C. power source. A successful test of diesel generator OPERABILITY per Surveillance Requirement 4.8.1.1.2a.4 performed under this ACTION statement satisfies the diesel generator test requirement of ACTION statement a or b.

- 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 emergency feed 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.

- e. With two of the above required offsite A.C. circuits inoperable, demonstrate the OPERABILITY of two diesel generators by performing Surveillance Requirement 4.8.1.1.2a.4 separately for each diesel generator within 8 hours unless the diesel generators are already operating; restore one of the inoperable offsite A.C. circuits 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. circuit, follow ACTION statement a with the time requirement of that ACTION statement based on the time of initial loss of the remaining inoperable offsite A.C. circuit. A successful test of diesel generator OPERABILITY per Surveillance Requirement 4.8.1.1.2a.4 performed under this ACTION statement satisfies the diesel generator test requirement of ACTION statement a.
- f. With two of the above required diesel generators inoperable, demonstrate the OPERABILITY of two offsite A.C. circuits by performing Surveillance Requirement 4.8.1.1.1a within 1 hour and at least once per 8 hours thereafter; restore 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 statement b with the time requirement of that ACTION statement based on the time of initial loss of the remaining inoperable diesel generator.

## ELECTRICAL POWER SYSTEMS

### 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:

- a. Determined OPERABLE at least once per 7 days by verifying correct breaker alignments, indicated power availability, and
- b. Demonstrated OPERABLE at least once per 18 months by transferring manually and automatically unit power supply from the normal circuit to the alternate circuit.

4.8.1.1.2 Each diesel generator shall be demonstrated OPERABLE\*:

- a. In accordance with the frequency specified in Table 4.8-1 on a STAGGERED TEST BASIS by:
  1. Verifying the fuel level in the diesel oil feed tank,
  2. Verifying the fuel level in the diesel generator fuel oil storage tank,
  3. Verifying the fuel transfer pump can be started and transfers fuel from the storage system to the diesel oil feed tank,
  4. Verifying the diesel starts and accelerates to at least 600 rpm ( $60 \pm 1.2$  Hz) in less than or equal to 10 seconds. The generator voltage and frequency shall be  $4160 + 420, -240$  volts and  $60 \pm 1.2$  Hz within 10 seconds after the start signal. The diesel generator shall be started for this test by using one of the following signals:
    - a) Manual.
    - b) Simulated loss-of-offsite power by itself.
    - c) Simulated loss-of-offsite power in conjunction with an ESF actuation test signal.
    - d) An ESF actuation test signal by itself.

---

\*All planned starts for the purpose of surveillance in this section may be preceded by a pre-lube period as recommended by the manufacturer.

## ELECTRICAL POWER SYSTEM

### SURVEILLANCE REQUIREMENTS (Continued)

---

5. Verifying the generator is synchronized (10 seconds), subsequently loaded to an indicated 4200-4400 Kw\* in less than or equal to 176 seconds,\*\* and operates for at least an additional 60 minutes, and
  6. Verifying the diesel generator is aligned to provide standby power to the associated emergency busses.
- b. At least once per 31 days and after each operation of the diesel where the period of operation was greater than or equal to 1 hour by checking for and removing accumulated water from the diesel oil feed tanks.
- c. At least once per 92 days and from new fuel oil prior to addition to the storage tanks, by obtaining a sample of fuel oil in accordance with ASTM-D270-1975, and by verifying that the sample meets the following minimum requirements and is tested within the specified time limits:
1. As soon as sample is taken (or prior to adding new fuel to the storage tank) verify in accordance with the test specified in ASTM-D975-77 that the sample has:
    - a) A water and sediment content of less or equal to 0.05 volume percent.
    - b) A kinematic viscosity @ 40°C of greater than or equal to 1.9 centistokes, but less than or equal to 4.1 centistokes.
    - c) A specific gravity as specified by the manufacturer @ 60/60°F of greater than or equal to 0.85 but less than or equal to 0.99 or an API gravity @ 60°F of greater than or equal to 11 degrees but less than or equal to 35 degrees.
  2. Verify an impurity level of less than 2 mg of insolubles per 100 ml when tested in accordance with ASTM-D274-70; analysis shall be completed within 7 days after obtaining the sample but may be performed after the addition of new fuel oil; and

\*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 of the manufacturer or momentary variation due to changing bus loads shall not invalidate the test.

\*\*The diesel generator fast loading requirement (176 sec) shall be performed at least once per 184 days in these surveillance tests. For all other surveillance tests, load the diesel generator at a rate consistent with the manufacturer's recommendations.

## ELECTRICAL POWER SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

8. 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.
9. 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 energizes the emergency loads with offsite power.
10. Verifying that each fuel transfer pump transfers fuel to its associated diesel oil feed tank by taking suction from the opposite train fuel oil storage tank via the installed cross connect.
11. Verifying that the automatic load sequence timer is OPERABLE with the time of each load block within  $\pm 10\%$  of the sequenced load block time.
12. Verifying that the following diesel generator lockout features prevent diesel generator starting only when required:
  - a) turning gear engaged
  - b) emergency stop
  - c) loss of D.C. control power
  - d) governor fuel oil linkage tripped
- e. At the first refueling outage, and thereafter, at intervals not to exceed 24 months, subject the diesels to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for this class of standby service.
- f. At least once per 10 years or after any modifications which could affect diesel generator interdependence by starting the diesel generators simultaneously, during shutdown, and verifying that the diesel generators accelerate to at least 600 rpm ( $60 * 1.2$  Hz) in less than or equal to 10 seconds.
- g. At least once per 10 years by:
  1. Draining each diesel generator fuel oil storage tank, removing the accumulated sediment, and cleaning the tank using a sodium hypochlorite solution or equivalent, and



## ELECTRICAL POWER SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

---

2. Performing a pressure test of those portions of the diesel fuel oil system designed to Section III, subsection ND of the ASME Code at a test pressure equal to 110% of the system design pressure.
  - h. By performing a visual inspection of the interior of the diesel generator fuel oil storage tanks each time the tank is drained and, if necessary, clean the tank with a sodium hypochlorite solution, or equivalent.
- 4.8.1.1.3 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 20 or 100 starts (on a per diesel generator basis) exceeds the criteria in Table 4.8-1, take the appropriate action specified in Table 4.8-1a and attachments thereto.

## 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 diesel oil feed tank containing a minimum volume of 339 gallons of fuel,
  2. The diesel fuel oil storage tanks containing:
    - a. A minimum volume of 38,760 gallons of fuel, or
    - b. A fuel oil volume less than 38,760 gallons and greater than 38,000 gallons of fuel for a period not to exceed 5 days (provided replacement fuel oil is onsite within the first 48 hours), 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 fuel storage 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 Surveillance Requirements of 4.8.1.1.1, 4.8.1.1.2, (except for Surveillance Requirement 4.8.1.1.2a.5.) and 4.8.1.1.3.

### 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 SYSTEMS

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 Limiting Condition for Operation (LCO) ensures that each diesel generator storage tank contains fuel oil of a sufficient volume to operate each diesel generator for a period of 7 days. The minimum required volume is based on the time-dependent loads of the diesel generator following a loss of offsite power and a design bases accident and includes the capacity to power the engineered safety features in conformance with Regulatory Guide 1.137 October 1979. The minimum onsite stored fuel oil is sufficient to operate the diesel generator for a period longer than the time to replenish the onsite supply from the outside sources discussed in FSAR 9.5.4.2.

An additional provision is included in the LCO which allow the diesel generators to remain operable when their 7 day fuel oil supply is not available. This provision is acceptable on the basis that replacement fuel oil is onsite within the first 48 hours after falling below the 7 day supply.

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 is available for monitoring and maintaining the unit status.

## ELECTRICAL POWER SYSTEMS

### BASES

#### A.C. SOURCES, D.C. SOURCES, AND ONSITE POWER DISTRIBUTION SYSTEMS (Continued)

The Surveillance Requirements for demonstrating the OPERABILITY of the diesel generators are in accordance with the recommendations of Regulatory Guides 1.9 "Selection of Diesel Generator Set Capacity for Standby Power Supplies," March 10, 1971, and 1.108 "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants," Revision 1, August 1977, and 1.137, "Fuel Oil Systems for Standby Diesel Generators," Revision 1, October 1979. The provision allowing diesel generator starts utilizing manufacturers' recommended prelube and/or warmup procedures, including longer starting and loading periods, is to minimize stress and wear on the diesel engine and is in accordance with Generic Letter 84-15 concerning Diesel Generator Reliability and Station Blackout. Fast starts from ambient conditions (includes lubricating and warmup systems operating while in standby lineup) at least once every 184 days is in accordance with RRAB PRA analysis of this surveillance.

The diesel generator Surveillance testing performed once per 18 months during shutdown is in accordance with Regulatory Guide 1.108, Regulatory Position C.2. The maximum voltage limit in Surveillance test 4.8.1.1.2.d.2 was increased to 5023 volts in response to NRC Information Notice 91-13; Inadequate Testing of Emergency Diesel Generators. A maximum voltage limit is provided to ensure that components electrically connected to the diesel generator are not damaged as a result of the momentary voltage excursion experienced during this test.

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

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

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

## ELECTRICAL POWER SYSTEMS

### BASES

#### A.C. SOURCES, D.C. SOURCES, AND ONSITE POWER DISTRIBUTION SYSTEMS (Continued)

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 values 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.

#### 3/4.8.4 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

Containment electrical penetrations and penetration conductors are protected by either deenergizing circuits not required during reactor operation or by demonstrating the OPERABILITY of primary and backup overcurrent protection circuit breakers during periodic surveillance.

The Surveillance Requirements applicable to lower voltage circuit breakers and fuses provides assurance of breaker and fuse reliability by testing at least one representative sample of each manufacturer's brand of circuit breaker and/or fuse. Each manufacturer's molded case and metal case circuit breakers and/or fuses are grouped into representative samples which are then tested on a rotating basis to ensure that all breakers and/or fuses are tested. If a wide variety exists within any manufacturer's brand of circuit breakers and/or fuses it is necessary to divide that manufacturer's breakers and/or fuses into groups and treat each group as a separate type of breaker or fuses for surveillance purposes.

The OPERABILITY of the motor-operated valves thermal overload protection and/or bypass devices ensures that these devices will not prevent safety related valves from performing their function. The Surveillance Requirements for demonstrating the OPERABILITY of these devices are in accordance with Regulatory Guide 1.106, "Thermal Overload Protection for Electric Motors on Motor Operated Valves," Revision 1, March 1977.

"Containment Penetration Conductor Overcurrent Protection Devices" and "Motor-Operated Valves Thermal Overload Protection and/or Bypass Devices", previously Tables 3.8-1 and 3.8-2, have been incorporated into Plant Procedure UNT-005-026.