

Mr. Ross P. Barkhurst
Vice President Operations
Entergy Operations, Inc.
Post Office Box B
Killona, Louisiana 70066

Dear Mr. Barkhurst:

SUBJECT: ISSUANCE OF AMENDMENT NO. 92 TO FACILITY OPERATING LICENSE
NPF-38 - WATERFORD STEAM ELECTRIC STATION, UNIT 3 (TAC NO. M80416)

The Commission has issued the enclosed Amendment No. 92 to Facility Operating License No. NPF-38 for the Waterford Steam Electric Station, Unit 3. The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated May 8, 1991, as supplemented by letters dated March 6, 1992, and January 28, 1993.

The amendment changes the Appendix A Technical Specifications for specifying the amount of fuel oil for emergency diesel generator operation, adjusts the specific gravity of the fuel oil, and clarifies the required testing of the fuel oil interconnecting piping. The revised frequency of testing of the diesel generator was withdrawn by the March 6, 1992, letter.

A copy of our related Safety Evaluation is also enclosed. A Notice of Issuance will be included in the Commission's next biweekly Federal Register notice.

Sincerely,

ORIGINAL SIGNED BY:

David L. Wigginton, Senior Project Manager
Project Directorate IV-1
Division of Reactor Projects - III/IV/V
Office of Nuclear Reactor Regulation

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Enclosures:

- 1. Amendment No. 92 to NPF-38
- 2. Safety Evaluation

cc w/enclosures:
See next page

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OFC	LA/PD4-1	PM/PD4-1	SPLB*	EMCB	OTSB ^{#94-036}	EELB
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OFC	OGC	D/PD4-1
NAME	WBeckner	
DATE	3/14/94	3/16/94
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

March 16, 1994

Docket No. 50-382

Mr. Ross P. Barkhurst
Vice President Operations
Entergy Operations, Inc.
Post Office Box B
Killona, Louisiana 70066

Dear Mr. Barkhurst:

SUBJECT: ISSUANCE OF AMENDMENT NO. 92 TO FACILITY OPERATING LICENSE
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A copy of our related Safety Evaluation is also enclosed. A Notice of Issuance will be included in the Commission's next biweekly Federal Register notice.

Sincerely,

A handwritten signature in dark ink, appearing to read "D. Wigginton".

David L. Wigginton, Senior Project Manager
Project Directorate IV-1
Division of Reactor Projects - III/IV/V
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 92 to NPF-38
2. Safety Evaluation

cc w/enclosures:
See next page

Mr. Ross P. Barkhurst
Entergy Operations, Inc.

Waterford 3

cc:

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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.

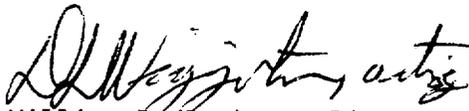
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C(2) of Facility Operating License No. NPF-38 is hereby amended to read as follows:

(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 ± 1.2 Hz) in less than or equal to 10 seconds. The generator voltage and frequency shall be $4160 + 420, -240$ volts and 60 ± 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 prelube 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-D2274-70; 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.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 92 TO

FACILITY OPERATING LICENSE NO. NPF-38

ENTERGY OPERATIONS, INC.

WATERFORD STEAM ELECTRIC STATION, UNIT 3

DOCKET NO. 50-382

1.0 INTRODUCTION

By application dated May 8, 1991, as supplemented by letters dated March 6, 1992, and January 28, 1993, Entergy Operations, Inc. (the licensee), submitted a request for changes to the Waterford Steam Electric Station, Unit 3, Technical Specifications (TS). The requested changes would revise the amount of fuel oil in the feed tanks and storage tanks for the emergency diesel generator, revise the specific gravity of the fuel oil, clarify the testing of the interconnecting piping, and revise the frequency of testing of the diesels. This action was noticed in the Federal Register on June 26, 1991 (56 FR 29274). By letter dated March 6, 1992, the licensee withdrew the request to revise the frequency of testing of the diesels. By letter dated January 28, 1993, the licensee revised the outstanding request to modify that portion dealing with the amount of fuel oil in the feed tanks and storage tanks. This revision was noticed in the Federal Register on April 14, 1993 (58 FR 19478). The revision of specific gravity and clarification of testing the interconnected piping remained unchanged from these later submittals.

2.0 EVALUATION

2.1 Minimum Fuel Oil Volume

In the May 8, 1991, letter, the licensee proposed to change the fuel oil volume in the feed tanks from 337 to 339 gallons and storage tanks from 38,760 gallons to 34,000 gallons. These proposed changes presents two issues. The first issue involves the change in the feed tank volume resulted from new calculations using the more conservative minimum value of fuel oil specific gravity allowed by the technical specifications. This minimum value of specific gravity defines a slightly smaller energy content for the fuel. To assure the diesels can carry the same load for the same period of time, a slightly larger volume of fuel oil is needed for the feed tanks.

The second issue as originally proposed by the licensee would change the storage tank volume to 34,000 gallons to accommodate a full load of fuel oil from a vendor. Testing gradually lowers the volume of oil in the storage tanks from the design capacity of 41,000 gallons to the required minimum of

38,760 gallons and less. When the tank reaches this technical specification required volume, a tank truck is brought on site to restore the oil used in testing; this amounts to about 2240 gallons or about a third of a tank truck capacity. By lowering the amount of oil required by the technical specifications, the tank truck would be required to fill the storage tanks less often, saving trips to the facility.

The staff agreed with the licensee on the first issue because greater capacity is more conservative and, therefore, the change for the feed tank is acceptable. On the second issue, the staff concluded that the licensee did not provide adequate justification to lower the minimum required volume of fuel oil from a seven day supply to a five day supply. However, the staff did agree that the TS could be revised to provide some degree of flexibility. The present TS would require declaring the diesel generator inoperable if the available volume was as little as one gallon below the required 7-day supply. After some discussion and reanalysis by the licensee, a new proposal was submitted by the licensee in a letter dated March 6, 1992. That revision would raise the minimum required volume from 34,000 gallons to 38,000 gallons, which represents a 5-day supply at rated capacity load. The staff continued to discuss the issue with the licensee to preserve the 7-day load limit on fuel oil while still trying to attain a degree of flexibility within the TS. After additional analysis and discussion, a final proposal was submitted by the licensee in their January 28, 1993 letter. This new proposal affected the proposed volumes for the storage tanks only; i.e., the feed tank volume change as proposed in the original submittal and as found acceptable by the staff remains valid.

The licensee's proposal in the January 28, 1993, submittal would retain the requirement that the storage tank contain a minimum volume of 38,760 gallons of fuel or "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." This proposal preserves the 7-day time-dependent supply in accordance with the recommendations of Regulatory Guide (R.G.) 1.137 (October 1979) and provides some degree of flexibility to replenish the supply before declaring a diesel generator inoperable. The latter is consistent with the intent of the improved Westinghouse Standard Technical Specifications (STS), NUREG-1431, which provides 48-hours to return the volume to the 7-day supply limit before declaring the diesel generator inoperable provided the volume does not fall below what is required to maintain a 6-day supply. The minimum volume lower limit proposed by the licensee is well above the volume required to maintain a 6-day time dependent load supply of fuel oil. In order to be more consistent with the NUREG-1431, the staff has added a provision to the licensee's proposed change, such that fuel oil would be required to be onsite within 48 hours after falling below the upper volume limit of 38,760 gallons. The specification as revised by the staff now requires "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." The licensee has agreed to this change.

The staff has reviewed the licensee's latest proposal and concludes that the proposed change to TS 3/4.8.1b.2.b, as revised by the staff and agreed to by the licensee, is acceptable. This conclusion is based on the retention of the minimum 7-day requirement in accordance with R.G. 1.137 and the 48 hour "grace period" which provides a degree of flexibility before declaring a diesel generator inoperable which is also consistent with NUREG-1431. The proposed corresponding changes to the bases for TS 3/4.8.1.1 (as revised by the staff to address the 48 hour provision) is also acceptable. The staff is presently reevaluating this TS requirement in the improved STS on a generic basis to possibly provide more flexibility than having to declare a diesel generator inoperable after 48 hours when the fuel oil is only a few gallons below the 7-day supply volume limit.

2.2 Surveillance Testing of Interconnecting Piping

The licensee in their May 8, 1991, letter proposed to clarify Surveillance Requirement 4.8.1.1.2d.10 on testing the interconnecting piping between the two storage tanks. The licensee had interpreted the requirement as being satisfied when all the pipes and valves had been tested including the interconnecting line downstream of the fuel transfer pumps. During our review we questioned the licensee's testing of the discharge interconnecting piping since the NRC does not give credit for that line to the safe operation of the Waterford plant. At our direction, the licensee reviewed their emergency procedures and other requirements and was unable to find a situation where the discharge line contributed to safety or where the NRC had given credit for the transfer of fuel oil through this line. On this basis, the staff developed alternative technical specification requirements for the licensee to periodically test the ability to transfer fuel oil from the storage tanks in one train through the opposite train fuel transfer pump to its feed tank via the suction side interconnecting line.

The licensee has reviewed the proposed technical specification and has agreed. Testing will occur at every 18 months frequency using the suction side interconnecting line. Each of the two transfer pumps will be tested in the appropriate lineup. It is noted that this is conservative in that flow through the interconnecting line in either direction would verify the line's capability; the pumps are individually tested by other surveillance requirements in their ability to transfer fuel oil from storage tank to feed tank. On the basis of the above, the staff finds the revised technical specification, as agreed to by the licensee, to be acceptable.

2.3 Revised Frequency of Diesel Generator Testing

By letter dated March 6, 1992, the licensee withdrew the proposed change to diesel generator frequency of testing. The licensee will pursue this change after the staff has approved new guidance on the subject.

2.4 Specific Gravity

The current Technical Specification (TS) 4.8.1.1.2c.1.c limits the acceptable range of diesel oil specific gravity to 0.80 - 0.99. The licensee's original calculations of the diesel fuel's heating value were based on usage of a fuel whose specific gravity fell into the middle of the acceptable range. As a consequence of the calculations, the licensee determined that combustion of a minimum specific gravity diesel fuel could result in operation of the diesels outside of the design basis of the plant. The licensee has therefore proposed increasing the minimum required specific gravity of the fuel oil from a value of 0.80 to a value of 0.85 (equivalent to decreasing the minimum acceptable American Petroleum Institute relative gravity value from 45 to 35).

Increasing the minimum specific gravity of the fuel oil imposes a more restrictive requirement on the licensee, since it will narrow the range of viscosities of diesel fuel oil arriving on site. Acceptable fuel oils will still have viscosities which are bounded by the viscosity range specified in TS 4.8.1.1.2c.1.b, and in ASTM Specification D-975, for Grade No. 2-D diesel fuel oil. A comparison with fuel oil data from the Petroleum Industry (Exxon Corp.) supports the licensee's position that the proposed change to the minimum specific gravity will result in diesel operation with a fuel of a higher heating value. This, however, will bring operation of the diesel generators back in accordance with design basis of the plant.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Louisiana 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 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 (56 FR 29274 and 58 FR 19478). 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.

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