



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

June 4, 2009

Vice President, Operations
Entergy Operations, Inc.
Waterford Steam Electric Station, Unit 3
17265 River Road
Killona, LA 70057-3093

SUBJECT: WATERFORD STEAM ELECTRIC STATION, UNIT 3 - ISSUANCE OF
AMENDMENT RE: MODIFICATION OF TECHNICAL SPECIFICATION 3/4.9.6,
"REFUELING MACHINE" (TAC NO. MD9670)

Dear Mr. Walsh:

The Commission has issued the enclosed Amendment No. 220 to Facility Operating License No. NPF-38 for the Waterford Steam Electric Station, Unit 3. This amendment consists of changes to the Technical Specifications (TSs) in response to your application dated September 18, 2008, as supplemented by letter dated February 26, 2009.

The amendment revises Action Statements 'a' and 'b' of TS 3/4.9.6, "Refueling Machine," to clarify the acceptability of placing a suspended fuel assembly or control element assembly within the reactor vessel in a safe condition while restoring the refueling machine operability.

A copy of our related 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 black ink, appearing to read "N. Kalyanam", written over a horizontal line.

N. Kalyanam, Senior Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-382

Enclosures:

1. Amendment No. 220 to NPF-38
2. Safety Evaluation

cc w/encl.: Distribution via ListServ



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. 220
License No. NPF-38

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Entergy Operations, Inc. (EOI) dated September 18, 2008, as supplemented by letter dated February 26, 2009, 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.

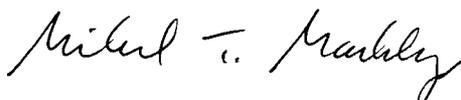
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 2.C.2 of Facility Operating License No. NPF-38 is hereby amended to read as follows:

2. Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 220, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. EOI 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 and shall be implemented prior to the start of the fall 2009 refueling outage (RF16) fuel movement.

FOR THE NUCLEAR REGULATORY COMMISSION



Michael T. Markley, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Facility Operating
License No. NPF-38 and
Technical Specifications

Date of Issuance: June 4, 2009

ATTACHMENT TO LICENSE AMENDMENT NO. 220

TO FACILITY OPERATING LICENSE NO. NPF-38

DOCKET NO. 50-382

Replace the following pages of the Facility Operating License and Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Facility Operating License

REMOVE

INSERT

-4-

-4-

Technical Specifications

REMOVE

INSERT

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3/4 9-6

or indirectly any control over (i) the facility, (ii) power or energy produced by the facility, or (iii) the licensees of the facility. Further, any rights acquired under this authorization may be exercised only in compliance with and subject to the requirements and restrictions of this operating license, the Atomic Energy Act of 1954, as amended, and the NRC's regulations. For purposes of this condition, the limitations of 10 CFR 50.81, as now in effect and as they may be subsequently amended, are fully applicable to the equity investors and any successors in interest to the equity investors, as long as the license for the facility remains in effect.

- (b) Entergy Louisiana, LLC (or its designee) to notify the NRC in writing prior to any change in (i) the terms or conditions of any lease agreements executed as part of the above authorized financial transactions, (ii) any facility operating agreement involving a licensee that is in effect now or will be in effect in the future, or (iii) the existing property insurance coverages for the facility, that would materially alter the representations and conditions, set forth in the staff's Safety Evaluation enclosed to the NRC letter dated September 18, 1989. In addition, Entergy Louisiana, LLC or its designee is required to notify the NRC of any action by equity investors or successors in interest to Entergy Louisiana, LLC that may have an effect on the operation of the facility.

- C. This license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

- 1. Maximum Power Level

EOI is authorized to operate the facility at reactor core power levels not in excess of 3716 megawatts thermal (100% power) in accordance with the conditions specified herein.

- 2. Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 220, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. EOI shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

220REFUELING OPERATIONS

3/4.9.6 REFUELING MACHINE

LIMITING CONDITION FOR OPERATION

3.9.6 The refueling machine shall be used for movement of CEAs or fuel assemblies and shall be OPERABLE with:

- a. A minimum capacity of 3200 pounds, and an overload cut off limit of less than or equal to 3350 pounds for the fuel mast.
- b. A minimum capacity of 1600 pounds and an overload cut off limit of less than or equal to 1700 pounds for the CEA mast.

APPLICABILITY: During movement of CEAs or fuel assemblies within the reactor pressure vessel.

ACTION:

- a. With the above requirements for the fuel mast not satisfied, suspend use of the fuel mast from operations involving pre-planned movement of fuel assemblies, and place the refueling machine load (fuel assembly) in a safe condition.
- b. With the above requirements for the CEA mast not satisfied, suspend use of the CEA mast from operations involving pre-planned movement of CEAs, and place the refueling machine load (CEA) in a safe condition.

SURVEILLANCE REQUIREMENTS

4.9.6.1 The fuel mast used for movement of fuel assemblies shall be demonstrated OPERABLE within 72 hours prior to the start of such operations by performing a load test of at least 3200 pounds and demonstrating an automatic load cut off when the fuel mast load exceeds 3350 pounds.

4.9.6.2 The CEA mast used for movement of CEAs shall be demonstrated OPERABLE within 72 hours prior to the start of such operations by performing a load test of at least 1600 pounds and demonstrating an automatic load cut off when the CEA mast exceeds 1700 pounds.



UNITED STATES
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WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 220 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 September 18, 2008 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML082660039), as supplemented by letter dated February 26, 2009 (ADAMS Accession No. ML090610135), Entergy Operations, Inc. (the licensee), requested changes to the Technical Specifications (TSs) for Waterford Steam Electric Station, Unit 3 (Waterford 3). The supplemental letter dated February 26, 2009, which provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the U.S. Nuclear Regulatory Commission (NRC) staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on December 30, 2008 (73 FR 79931).

The amendment revises Action Statements 'a' and 'b' of TS 3/4.9.6, "Refueling Machine" to clarify acceptability of placing a suspended fuel assembly or control element assembly (CEA) within the reactor vessel in a safe condition while restoring the refueling machine operability. Conforming changes are also made to the TS Bases.

2.0 REGULATORY EVALUATION

In Section 50.36, "Technical specifications," of Title 10 of the *Code of Federal Regulations* (10 CFR), the Commission established its regulatory requirements related to the content of TS. Pursuant to 10 CFR 50.36, TS are required to include items in the following five specific categories related to station operation: (1) safety limits, limiting safety system settings, and limiting control settings; (2) limiting conditions for operation (LCOs); (3) surveillance requirements; (4) design features; and (5) administrative controls. The rule does not specify the particular requirements to be included in a plant's TS.

The refueling machine is a component of the Fuel Handling System as described in Section 9.1.4 of the Waterford 3 Final Safety Analysis Report (FSAR). The refueling machine is a travelling bridge and trolley used to transport fuel assemblies and CEAs between the reactor core and transfer carriage. The refueling machine has two masts, with fuel and CEA handling using separate masts. A variety of interlocks and cutoff limits are provided to ensure safe

handling of fuel assemblies and CEAs during fuel movement operations. However, no credit is taken for any components of the fuel handling system to prevent or mitigate the consequences of a postulated accident.

The Waterford 3 TS 3/4.9.6, "Refueling Machine," requires that the refueling machine have fuel and CEA masts with adequate capacity and an operable overload cutoff during movement of fuel and CEAs within the reactor pressure vessel. With these requirements not met for either the fuel assemblies or CEA mast, the current TS action statements instruct the operators to suspend all operations of the affected mast involving movement of the fuel assemblies or CEAs. The existing Bases for TS 3/4.9.6 states:

The OPERABILITY requirements for the refueling machine ensure that: (1) the refueling machine will be used for movement of CEAs and fuel assemblies, (2) each hoist has sufficient load capacity to lift a CEA or fuel assembly, and (3) the core internals and pressure vessel are protected from excessive lifting force in the event they are inadvertently engaged during lifting operations.

The overload hoist interlocks are controlled by the refueling machine computer and do not operate if the refueling machine computer fails. Therefore, the refueling machine computer must be functional in order for the refueling machine to be OPERABLE per TS LCO 3.9.6.

General Design Criterion (GDC) 61, "Fuel Storage and Handling and Radioactivity Control," of Appendix A to 10 CFR Part 50 requires fuel storage and handling systems be designed to assure adequate safety during normal and postulated accident conditions. Guidance for meeting this requirement is found in NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," (SRP) Section 9.1.4, "Light Load Handling System (Related to Refueling)." Section 9.1.4 of the SRP specifies, in part, that the instrumentation and control system adequately limit loads or limit load movement, assuming a single failure, to prevent fuel damage to the extent that a release of radioactivity, a criticality accident, or significant radiation exposure could occur.

3.0 TECHNICAL EVALUATION

The proposed amendment revises Waterford 3 TS LCO 3.9.6 Actions 'a' and 'b' for an inoperable refueling machine. Currently, Actions 'a' and 'b' read as follows:

ACTION:

- a. With the above requirements for the fuel mast not satisfied, suspend use of the fuel mast from operations involving the movement of fuel assemblies.
- b. With the above requirements for the CEA mast not satisfied, suspend use of the CEA mast from operations involving the movement of CEAs.

Proposed new Actions 'a' and 'b' are rewritten to allow movement of a suspended load to a safe position in the event that the refueling machine becomes inoperable mid-hoist:

ACTION:

- a. With the above requirements for the fuel mast not satisfied, suspend use of the fuel mast from operations involving pre-planned movement of fuel assemblies, and place the refueling machine load (fuel assembly) in a safe condition.
- b. With the above requirements for the CEA mast not satisfied, suspend use of the CEA mast from operations involving pre-planned movement of CEAs, and place the refueling machine load (CEA) in a safe condition.

This amendment provides relief in the situation where the TS adversely impacts the ability of the refueling team to recover from a refueling machine computer failure. In its letter dated September 18, 2008, the licensee described how failure of the refueling machine computer would render the refueling machine inoperable and require the refueling team to suspend all movement of the fuel mast. Should the refueling machine computer fail during mid-hoist within the reactor pressure vessel, the suspension of all fuel movement operations may prevent the refueling team from placing fuel in a safe location while restoring the refueling machine to operability.

The licensee indicated that the preferred "safe condition" would be to return the load (fuel assembly or CEA) to its designated position in the core if possible. The NRC staff agrees that lowering the load back into position before commencing hoist and computer rebooting operations would be preferable to raising the load. The staff also recognizes that the choice of a "safe condition" would depend on the specific circumstances involved.

In its request for additional information (RAI) dated January 2, 2009 (ADAMS Accession No. ML083430630), the NRC staff requested clarification regarding steps necessary to recover the refueling machine computer. In its response dated February 26, 2009, the licensee indicated that the computer could be rebooted without movement of the refueling mast and stated that instructions would be added to a revised operating procedure for accomplishing this. The staff finds this approach to returning the refueling machine to operable to be acceptable.

In its letter dated September 18, 2008, the licensee stated in the original submittal that if a refueling machine operator were required to move a fuel assembly or CEA, the operator would be capable of manually performing the function of the interlocks. As part of the RAI, the NRC staff asked the licensee to clarify how the operator would be able to prevent damage to fuel caused by exceeding the overload cutoff or by translation of the refueling machine before the assembly was out of the reactor vessel. In its response dated February 26, 2009, the licensee indicated that while there would be no interlock preventing translation of the bridge or trolley, the layout of the controls was such that operating both the mast and the bridge and trolley would take more than one person. The licensee also provided clarifying information on the visual load indication, specifically that its accuracy was ± 50 pounds and its response time was nearly instantaneous. Section 9.1.4.2.1 of the Waterford 3 FSAR states that, for the refueling machine,

the fuel hoist will stall at a load less than the allowable fuel assembly tensile load. The CEA hoist will stall at a load less than the combined weights of a fuel assembly, CEA, and intervening hoist components, such as the CEA hoist box and grapple assemblies. Therefore, the absence of the hoist overload cutoff on either mast is not likely to increase the potential for fuel damage to the extent that a release of radioactivity could occur. The NRC staff agrees that if manual fuel movement were required, a refueling machine operator, by following the prescribed procedure and only operating manually for the time required to reboot the refueling machine computer, is unlikely to cause inadvertent damage to an assembly that would have been prevented by an interlock. Therefore, the NRC staff finds the proposed change acceptable,

4.0 SUMMARY

The proposed amendment to TS 3/4.9.6 clarifies previous wording that hindered the refueling machine operator's ability to recover from an undesirable situation. The change in wording allows the refueling machine operator to manually perform the function of the interlocks, normally controlled by the refueling machine computer, in the event that the computer fails mid-hoist. In this case, the operator action would meet the guidance of SRP 9.1.4 and GDC 61, which limit the load being hoisted and limit load movement in order to prevent fuel damage or radioactivity release. Therefore, the NRC staff finds the proposed change acceptable.

5.0 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.

6.0 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. 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 published in the *Federal Register* on December 30, 2008 (73 FR 79931). 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.

7.0 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.

Principal Contributor: E. Davidson

Date: June 4, 2009

June 4, 2009

Vice President, Operations
Entergy Operations, Inc.
Waterford Steam Electric Station, Unit 3
17265 River Road
Killona, LA 70057-3093

SUBJECT: WATERFORD STEAM ELECTRIC STATION, UNIT 3 - ISSUANCE OF
AMENDMENT RE: MODIFICATION OF TECHNICAL SPECIFICATION 3/4.9.6,
"REFUELING MACHINE" (TAC NO. MD9670)

Dear Mr. Walsh:

The Commission has issued the enclosed Amendment No. 220 to Facility Operating License No. NPF-38 for the Waterford Steam Electric Station, Unit 3. This amendment consists of changes to the Technical Specifications (TSs) in response to your application dated September 18, 2008, as supplemented by letter dated February 26, 2009.

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Sincerely,

/RA/

N. Kalyanam, Senior Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-382

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1. Amendment No. 220 to NPF-38
2. Safety Evaluation

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Editorial changes only from Staff provided SE

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