



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

May 4, 2018

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

SUBJECT: WATERFORD STEAM ELECTRIC STATION, UNIT 3 – SUPPLEMENTAL
INFORMATION NEEDED FOR ACCEPTANCE OF REQUEST FOR LICENSING
ACTION RE: REVISION OF TECHNICAL SPECIFICATION 3/4.7.4, "ULTIMATE
HEAT SINK" (EPID L-2018-LLA-0080)

Dear Sir or Madam:

By letter dated March 26, 2018 (Agencywide Documents Access and Management System Accession No. ML18085B196), Entergy Operations, Inc. (Entergy) submitted a license amendment request for Waterford Steam Electric Station, Unit 1 (Waterford 3). The proposed amendment would revise Waterford 3 Technical Specification (TS) Section 3/4.7.4, "Ultimate Heat Sink."

The purpose of this letter is to provide the results of the U.S. Nuclear Regulatory Commission (NRC) staff's acceptance review of this amendment request. The acceptance review was performed to determine if there is sufficient technical information in scope and depth to allow the NRC staff to complete its detailed technical review. The acceptance review is also intended to identify whether the application has any readily apparent information insufficiencies in its characterization of the regulatory requirements or the licensing basis of the plant.

Consistent with Section 50.90 of Title 10 of the *Code of Federal Regulations* (10 CFR), an amendment to the license (including the TSs) must fully describe the changes requested, and following as far as applicable, the form prescribed for original applications. Section 50.34 of 10 CFR addresses the content of technical information required. This section stipulates that the submittal address the design and operating characteristics, unusual or novel design features, and principal safety considerations.

The NRC staff has reviewed your application and concluded that the information delineated in the enclosure to this letter is necessary to enable the staff to make an independent assessment regarding the acceptability of the proposed amendment in terms of regulatory requirements and the protection of public health and safety and the environment.

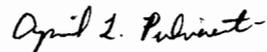
In order to make the application complete, the NRC staff requests that Entergy supplement the application to address the information requested in the enclosure by May 22, 2018. This will enable the staff to begin its detailed technical review. If the information responsive to the staff's request is not received by the above date, the application will not be accepted for review pursuant to 10 CFR 2.101, and the NRC will cease its review activities associated with the

application. If the application is subsequently accepted for review, you will be advised of any further information needed to support the staff's detailed technical review by separate correspondence.

The information requested and associated timeframe in the letter were discussed with Ms. Maria Zamber of your staff on May 3, 2018.

If you have any questions, please contact me at 301-415-1390 or via e-mail at April.Pulvirenti@nrc.gov.

Sincerely,



April L. Pulvirenti, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-382

Enclosure:
Supplemental Information Needed

cc: Listserv

SUPPLEMENTAL INFORMATION NEEDED
LICENSE AMENDMENT REQUEST REGARDING
REVISION OF TECHNICAL SPECIFICATION SECTION 3/4.7.4, "ULTIMATE HEAT SINK"
ENTERGY OPERATIONS, INC.
WATERFORD STEAM ELECTRIC STATION, UNIT 3
DOCKET NO. 50-382

By application dated March 26, 2018 (Agencywide Documents Access and Management System Accession No. ML18085B196), Entergy Operations, Inc. (Entergy, the licensee) submitted a license amendment request (LAR) for Waterford Steam Electric Station, Unit 3. The proposed LAR would revise Technical Specification Section 3/4.7.4, "Ultimate Heat Sink."

In the course of the acceptance review, the Reactor Systems Branch and the Containment and Plant Systems Branch, both in the Division of Safety Systems, has determined that there is insufficient information to begin the review and recommend non-acceptance of this application with opportunity to supplement. The following describes the information deficiencies:

Sufficiency Item 1:

Dry Cooling Tower fan backflow preventers are new to this LAR. Provide a physical description of the backflow preventers. Discuss installation, operation and qualification of these new devices.

Sufficiency Item 2:

Provide the basis for why the 3-day and 7-day temperature limits are specified, including their relation to meeting the requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.36, "Technical specifications," and the guidelines of Regulatory Guide 1.27, Revision 3, "Ultimate Heat Sink for Nuclear Power Plants."

Sufficiency Item 3:

Regulatory Requirements

The NRC staff identified the following 10 CFR Part 50, Appendix A, General Design Criteria (GDC) as being applicable to the review of the impact of the change of the component cooling water temperature on containment pressure, temperature, and sump temperature response analysis:

- GDC-38, "Containment heat removal," insofar as it requires that a containment heat removal system be provided, and that its function shall be to rapidly reduce the containment pressure and temperature following a loss-of-coolant accident and maintain them at acceptably low levels;

- GDC-50, "Containment design basis," insofar as it requires that the containment and its associated heat removal systems be designed so that the containment structure can accommodate, without exceeding the design leakage rate and with sufficient margin, the calculated temperature and pressure conditions resulting from any loss-of-coolant accident;

Supplementary Information Requested

Section 4.5.5, second paragraph of the Enclosure to the licensee's letter dated March 26, 2018 states, in part:

The design basis calculations were updated to demonstrate that component cooling water supplied at up to 120 °F [degrees Fahrenheit] in the accident lineup adequately cools all safety related equipment, including the emergency diesel generators, containment fan coolers, shutdown cooling heat exchanger, high pressure safety injection pumps, low pressure safety injection pumps, containment spray pumps, system piping, and fuel pool cooling heat exchanger and maintains their design basis temperatures.

Section 4.5.5, second paragraph of the Enclosure to the licensee letter dated March 26, 2018 also states, in part:

The design basis calculations demonstrate that the ultimate heat sink is capable of supplying required component cooling water flow to all components at temperatures less than or equal to 120 °F during peak accident heat load under bounding ambient conditions. Therefore, the supply temperature to safety related components after a design basis accident with a safety injection actuation signal will be controlled less than or equal to 120 °F.

The above statements indicate that the component cooling water temperature supply temperature to containment fan coolers, shutdown cooling heat exchangers, and several pumps and heat exchanger is proposed to be increased from 115 °F to 120 °F. It would be expected that the containment pressure, temperature, and sump temperature response would be impacted due to this change.

In the requested supplement, provide the following information:

- (a) The inputs and assumptions in the containment pressure, temperature, and sump temperature analysis with justification in case the conservatism in any of the inputs and assumptions has been reduced from the analysis of record.
- (b) The inputs and assumptions for the net positive suction head analysis for the pumps that draw water from the sump in the recirculation mode, with justification, in case the conservatism in any of the inputs and assumptions has been reduced from the analysis of record.
- (c) The graphical results of the analysis in (a) and (b) and the peak values.

Sufficiency Item 4:

The LAR is based on an entirely new Ultimate Heat Sink Design Basis Reconstitution. The LAR did not provide adequate information to check the design inputs, assumptions, and methodology of the reconstitution effort. The NRC staff needs this information to perform a Safety Evaluation. Therefore, provide the body of Reference 7.20: ECM95-008 Revision 3 (EC52043), "Ultimate Heat Sink Design Basis." Provide only the front body of this document, without the attachments.

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ADAMS Accession No. ML18122A097

*by email dated

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