



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

January 28, 2019

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 –REQUEST FOR
ADDITIONAL INFORMATION REGARDING LICENSE AMENDMENT
REQUEST FOR 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 (ADAMS) Accession No. ML18085B196), as supplemented by letter dated May 17, 2018 (ADAMS Accession No. ML18137A494), Entergy Operations, Inc. (Entergy, the licensee), submitted a license amendment request for Waterford Steam Electric Station, Unit 3 (Waterford 3). The proposed amendment would revise Waterford 3 Technical Specification (TS) Section 3/4.7.4, “Ultimate Heat Sink.”

Specifically, the proposed amendment would correct the wet cooling tower basin level discrepancy, revise requirements for cooling fan operation described in TS 3.7.4 Action Statements a, c, and d, and revise Table 3.7-3, “Ultimate Heat Sink Minimum Fan Requirements per Train.”

After reviewing your request, the U.S. Nuclear Regulatory Commission staff has determined that additional information is required to complete the review. The additional information needed to complete the review is delineated in the enclosure to this letter.

During a clarification call held on January 17, 2019, with Maria Zamber of your staff, it was agreed that a response would be provided within 30 days from the date of this letter. Please note that if you do not respond to this letter by the agreed-upon date or provide an acceptable alternate date in writing, we may deny your application for amendment under the provisions of Title 10 of the *Code of Federal Regulations*, Section 2.108, “Denial of application for failure to supply information.”

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

Sincerely,

A handwritten signature in black ink, appearing to read "April L. Pulvirenti".

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

Docket No. 50-382

Enclosure:
Request for Additional Information

cc: Listserv

REQUEST FOR ADDITIONAL INFORMATION
LICENSE AMENDMENT REQUEST REGARDING THE
REVISION OF TECHNICAL SPECIFICATION SECTION 3/4.7.4
ENTERGY OPERATIONS, INC.
WATERFORD STEAM ELECTRIC STATION, UNIT 3

By application dated March 26, 2018 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18085B196), as supplemented by letter dated May 17, 2018 (ADAMS Accession No. ML18137A494), Entergy Operations, Inc. (Entergy, the licensee), submitted a license amendment request (LAR) for Waterford Steam Electric Station, Unit 3 (Waterford 3). The proposed amendment would revise Waterford 3 Technical Specification (TS) Section 3/4.7.4, "Ultimate Heat Sink [UHS]."

Specifically, the proposed amendment would correct the wet cooling tower basin level discrepancy, revise requirements for dry cooling tower (DCT) cooling fan operation described in TS 3.7.4 Action Statements a, c, and d, and revise Table 3.7-3, "Ultimate Heat Sink Minimum Fan Requirements per Train."

After reviewing your request, the U.S. Nuclear Regulatory Commission (NRC) staff has determined that additional information is required to complete its review. The following is a **partial list** of DRAFT Request for Additional Information (RAI) questions developed during the review of the meteorological portion of the review.

1. Section 2.2, "Technical Specification 3.7.4 Action c," of the LAR dated March 26, 2018, states that the technical specification will be revised to read (all text in **BOLD** is revised text, as indicated in the LAR):

This action applies only when UHS tornado required equipment is inoperable. With a Tornado Watch or Warning in effect with the forecast 7 day average ambient dry bulb temperature greater than 74 °F [degrees Fahrenheit], all 6 DCT tube bundles and all 9 DCT fans associated with the missile protected portion of both trains of the DCT shall be OPERABLE. With a Tornado Watch or Warning in effect with the forecast 7 day average ambient dry bulb temperature less than or equal to 74 °F, all 6 DCT tube bundles and at least 8 DCT fans associated with the missile protected portion of both trains of the DCT shall be OPERABLE.

The proposed text to be included in the above technical specification does not include a discussion on the mechanisms in place (or to be added) for monitoring or receiving tornado watches and warnings. Discuss how tornado watches and warnings are received and monitored to ensure that the correct number of DCT tube bundles and DCT fans associated with missile protection are operable.

Enclosure

2. Section 2.3, "Technical Specification 3.7.4 Action d," of the LAR dated March 26, 2018, states that the technical specification will be revised to read (all text in **BOLD** is revised text, as indicated in the LAR):

When Table 3.7-3 dry bulb temperature restrictions apply with UHS fan(s) inoperable, determine the forecast ambient temperatures and verify that the minimum fan requirements of Table 3.7-3 are satisfied (required only if the associated UHS is OPERABLE). The more restrictive fan requirement shall apply when 1 hour and 3 day average temperatures allow different configurations.

The discussion in the LAR does not include sufficient information regarding the calculation of the average 1-hour and 3-day temperatures. Provide additional details on the methods proposed to calculate the 1-hour and 3-day average temperatures, so that the NRC staff may determine the adequacy of the calculations.

3. Section 4.5.4, "Meteorological Parameters," of the LAR dated March 26, 2018, states, in part, that:

Historical studies were used to establish bounding conditions included in UFSAR [Updated Final Safety Analysis Report] section 2.3. A constant recirculation effect was applied to both dry bulb and wet bulb temperature.

Engineering Report WF3-ME-15-00011 (Reference 7.23) determines the bounding relationship between wind speed, wind direction, and ambient temperature. This information is used in Engineering Report WF3-ME-15-00014 for the determination of the cooling tower maximum recirculation effects.

Provide additional details on the data and methods used to determine the bounding combinations of the wind speed, wind direction, and ambient temperature, so that the NRC staff may determine the adequacy of the calculations. This information should include data sources, data summaries, details on the use of historical studies, and descriptions of the methods used to compile the summary tables in the LAR.

4. Section 4.5.4.2, "Meteorological Parameters for Critical Time Periods," of the LAR dated March 26, 2018, states, in part, that:

Engineering report WF3-ME-16-00001 (Reference 7.24) used historical studies for the development of bounding meteorological parameter relationships for the design of the ultimate heat sink which is consistent with the methods described in the UFSAR and also meet the requirements of Regulatory Guide 1.27 in that it determines the most severe combinations of controlling parameters for the duration of the critical time periods, based on examination of regional climatological (>30 years) measurements that are demonstrated to be representative of the site.

Section 4.5.4.2 also states that:

Engineering report WF3-ME-16-00001 provided the data for the next table, which gives the maximum average dry bulb temperature as a function of the time of year by month. This information will be added to the UFSAR (Enclosure Attachment 3 - Commitment). This new UFSAR table will be used to evaluate the average temperature restrictions as the forecast data when online forecast data is not available. It may also be conservatively used when the time of year is such that online forecast data is not needed to demonstrate the temperature requirements will be met.

Provide additional details on the data and methods used to determine: (1) the bounding meteorological parameter relationships for the design of the ultimate heat sink, and (2) the maximum average dry bulb temperature as a function of month, as presented in Section 4.5.4.2 of the LAR, so that the NRC staff may determine the adequacy of the calculations. This information should include data sources, data summaries, details on the use of historical studies, and descriptions of the methods used to compile the summary tables in the LAR.

5. Section 2.4, "New Technical Specification 3.7.4 Action e and New Surveillance 4.7.4.c," of the LAR dated March 26, 2018, describes the new Surveillance Requirement (SR) 4.7.4.c which will state: "Verify that each wet tower basin cross-connect valve is OPERABLE in accordance with the INSERVICE TESTING PROGRAM." The language of the new SR is justified by the statement "The existing in-service testing requirements for testing the open safety function of the wet cooling tower basin cross-connect isolation valves satisfy the new Technical Specification surveillance requirement."

The amendment request did not provide information regarding the frequency of the existing in-service testing requirements for the wet cooling tower basin cross-connect isolation valves. Please provide information regarding the frequency at which the INSERVICE TESTING PROGRAM requires the wet cooling tower cross-connect valves to be tested.

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ADAMS Accession No. ML19018A010

***by e-mail dated **by memo dated**

OFFICE	NRR/DORL/LPL4/PM	NRR/DORL/LPL4/LA	NRR/DSS/STSB/BC*
NAME	APulvirenti	PBlechman	VCusamano
DATE	1/24/2019	1/24/2019	1/25/2019
OFFICE	NRO/DLSE/RHM/BC**	NRR/DORL/LPL4/BC	NRR/DORL/LPL4/PM
NAME	CCook (MMcCoppin for)	RPascarelli	APulvirenti
DATE	1/16/2019	1/28/2019	1/28/2019

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