

W3F1-2022-0059

10 CFR 50.90

October 13, 2022

ATTN: Document Control Desk  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Subject: Response to Clarification Questions Concerning Supplement to License  
Amendment Request to Adopt TSTF-505

Waterford Steam Electric Station, Unit 3  
NRC Docket No. 50-382  
Renewed Facility Operating License No. NPF-38

By letter dated February 8, 2021 (Reference 1), as supplemented by letters dated April 8, 2021 (Reference 2), May 16, 2022 (Reference 3), and August 19, 2022 (Reference 4), Entergy Operations, Inc. (Entergy) submitted a license amendment request (LAR) to permit the use of risk-informed completion times (RICTs) consistent with the methodologies presented in Technical Specification Task Force (TSTF) Traveler TSTF-505, Revision 2, "Provide Risk-Informed Extended Completion Times – Initiative 4b," and Nuclear Energy Institute (NEI) 06-09, Revision 0-A, "Risk-Informed Technical Specifications Initiative 4b: Risk-Managed Technical Specifications (RMTS) Guidelines."

On August 30, 2022, Entergy received a set of five questions via electronic mail (email) from the Nuclear Regulatory Commission (NRC) Electrical Engineering Branch (EEEB) and a request for a clarification call to discuss the questions. The questions were prepared by the EEEB to clarify concerns regarding the May 16, 2022 supplement to the TSTF-505 LAR. A conference call was subsequently held with the NRC EEEB on September 19 to provide the requested clarification. Following the clarification call, the NRC and Entergy agreed to docket the responses to questions 2, 3, and 5. This submittal provides those responses.

The Enclosure of this letter provides a restatement of the three NRC EEEB questions followed by Entergy's responses. The Attachment to the Enclosure provides the changes to Table E.1-1; the complete table was previously provided in Reference 3. There were no changes to the table other than those indicated in the Attachment.

Entergy has reviewed the information supporting the No Significant Hazards Considerations and the Environmental Evaluations that were previously provided to the NRC in the Enclosure of the Reference 1 LAR. The information in this submittal does not alter the previous conclusions that

the proposed changes present no significant hazards consideration and no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendments.

This letter contains no new regulatory commitments.

In accordance with 10 CFR 50.91(b)(1), "Notice for public comment; State consultation," a copy of this letter is being provided to the designated State Official.

Should you have any questions or require additional information, please contact Leia Milster, Regulatory Assurance Manager, Waterford 3, at 504-739-6250.

I declare under penalty of perjury, that the foregoing is true and correct. Executed on October 13, 2022.

Respectfully,

**Philip**  
**Couture**

Digitally signed  
by Philip Couture  
Date: 2022.10.13  
16:10:00 -05'00'

Phil Couture

PC/cdm

Enclosure: Response to NRC EEEB Questions 2, 3, and 5

Attachment to Enclosure – Proposed Changes to Table E.1-1

- References:
- 1) Entergy letter to NRC, "Application for Technical Specification Change to Adopt Risk-Informed Extended Completion Times – RITSTF Initiative 4B," (ADAMS Accession No. ML21039A648), dated February 8, 2021
  - 2) Entergy letter to NRC, "Supplement to Application for Technical Specifications Change to Adopt Risk-Informed Extended Completion Times – RITSTF Initiative 4b," (ADAMS Accession No. ML21098A262), dated April 8, 2021

- 3) Entergy letter to NRC, "Response to Request for Additional Information to License Amendment Request to Revise Technical Specifications to Adopt TSTF-505, Revision 2, 'Provide Risk Informed Extended Completion Times – RITSTF Initiative 4b,'" (ADAMS Accession No. ML22136A310), dated May 16, 2022
- 4) Entergy letter to NRC, "Response to Request for Additional Information Regarding License Amendment Requests to Adopt 10 CFR 50.69 and TSTF-505," (ADAMS Accession No. ML22231B160), dated August 19, 2022

cc: NRC Region IV Regional Administrator  
NRC Senior Resident Inspector – Waterford Steam Electric Station, Unit 3  
NRC Project Manager Waterford Steam Electric Station, Unit 3  
Louisiana Department of Environmental Quality

**Enclosure**

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**Response to NRC EEEB Questions 2, 3, and 5**

## **RESPONSE TO NRC EEEB QUESTIONS 2, 3, AND 5**

By letter dated February 8, 2021 (Reference 1), as supplemented by letters dated April 8, 2021 (Reference 2), May 16, 2022 (Reference 3), and August 19, 2022 (Reference 4), Entergy Operations, Inc. (Entergy) submitted a license amendment request (LAR) to permit the use of risk-informed completion times (RICTs) consistent with the methodologies presented in Technical Specification Task Force (TSTF) Traveler TSTF-505, Revision 2, "Provide Risk-Informed Extended Completion Times – Initiative 4b," and Nuclear Energy Institute (NEI) 06-09, Revision 0-A, "Risk-Informed Technical Specifications Initiative 4b: Risk-Managed Technical Specifications (RMTS) Guidelines."

On August 30, 2022, Entergy received a set of five questions via electronic mail (email) from the Nuclear Regulatory Commission (NRC) Electrical Engineering Branch (EEEB) and a request for a clarification call to discuss the questions. A conference call was subsequently held with the NRC EEEB on September 19 to provide the requested clarification. Following the clarification call, the NRC and Entergy agreed to docket the responses to questions 2, 3, and 5. These questions and Entergy's responses are provided below.

### **EEEB Question 2**

UFSAR Section 8.1.3 (see UFSAR page 8.3-1) describes the transfer scheme to energize ESF buses 3AB3-S and 3AB31-S. These swing buses have dual feeder breakers from the ESF buses that supply each of them implying that only buses 3AB3-S and 3AB31-S are de-energized initially during this transfer process. The UFSAR Section 8.3.1.1.2.3 (see page 8.3-7) indicates that transfer process is a "dead-bus transfer" and not usually done at power. (a) Please indicate if those swing buses are ever de-energized during Modes 1 and 2? (b) If they are always energized, is that true for their loads also (discriminate between motor and non-motor loads)? (c) Can one swing bus (3AB3-S or 3AB31-S) enter the RICT program independently of the other swing bus?

### **Entergy Response to EEEB Question 2(a)**

The 3AB3-S 4.16 kV and 3AB31-S 480 V AB swing busses are normally energized during Modes 1, 2, 3, and 4 except during bus transfers from the Train A power supply (3A3-S 4.16 kV and 3A31-S 480 V busses) to the Train B power supply (3B3-S 4.16 kV and 3B31-S 480 V busses), or vice versa. The bus transfers are dead bus transfers performed manually and are typically short in duration. The transfer times are the time it takes to perform the bus transfers. In direct response to the question, the AB swing busses (3AB3-S 4.16 kV and 3AB31-S 480 V) are, on occasion, deenergized during Modes 1 and 2 to support planned and emergent maintenance.

### **Entergy Response to EEEB Question 2(b)**

The purpose of the AB swing busses is to provide extra redundant loads (a third high pressure safety injection pump, a third component cooling water pump, a third essential chiller, and associated valves) to ensure the availability of one component in each division/train during extensive maintenance. The third-of-a-kind equipment consisting of the installed spares may be utilized by connecting the 3AB3-S 4.16 kV swing bus to either the 3A3-S 4.16 kV bus or the

3B3-S 4.16 kV bus (i.e., to the bus that has a component requiring extensive maintenance). At the same time, the 3AB31-S 480 V swing bus will be connected to the 480 V bus (3A31-S or 3B31-S) corresponding to the 4.16 kV connection. This will ensure that all related AB bus loads are always connected to the same train (division). The connection of the extra redundant loads on the 3AB3-S swing bus requires a dead bus transfer. It is, therefore, not a frequent practice to transfer the 3AB3-S and 3AB31-S swing busses when the plant is at power because the loads on the 3AB3-S bus are required to maintain Technical Specification (TS) compliance and support continued plant operation. During the infrequently performed bus transfers, the loads on the 3AB3-S and 3AB31-S swing busses are not energized.

### **Energy Response to EEEB Question 2(c)**

Yes. With either the 3AB3-S 4.16 kV swing bus or the 3AB31-S 480 V swing bus deenergized, entry into Waterford 3 TS Limiting Condition for Operation (LCO) 3.8.3.1 Action a would be required due to the bus not being fully energized from the train (A or B) to which it is connected. Accordingly, the RICT program would apply to the 3AB3-S swing bus or the 3AB31-S swing bus independently when the TS LCO 3.8.3.1 Action a entry condition (bus not fully energized) is met.

### **EEEB Question 3**

LCO 3.8.3.1 (see page 3/4 8-13) indicates that ***both*** the ESF 4.16 kV bus and the ESF 480 V bus per train must be energized. However, the design success criteria (DSC) for RA 3.8.3.1.a (see Table E1-1 of May 16<sup>th</sup> supplement) indicates that train A AC bus or train B AC bus is required with swing AB AC bus when that swing bus is powered by train A AC bus or train B AC bus when train AB AC bus loads are operational. Please verify that the DSC meets minimum required operating equipment about the number of buses (both 4kV and 480 Vac buses) required per train if LCO RA 3.8.3.1.a is entered into RICT program taking into account that each available, required remaining train must be fully energized, not partially, to perform its assigned safety functions.

### **Energy Response to EEEB Question 3**

The A.C. Engineered Safety Features (ESF) busses consist of the Train A 3A3-S 4.16 kV and 3A31-S 480 V busses, the Train B 3B3-S 4.16 kV and 3B31-S 480 V busses, and the Train AB 3AB3-S 4.16 kV and 3AB31-S 480 V swing busses. There are no ties between the Train A and Train B busses. The Train A and Train B busses are redundant and each train's busses can supply sufficient power to its safety related loads to enable safe shutdown, or to mitigate the consequences of a design basis accident. The Train AB swing bus loads are third-of-a-kind equipment to support unavailability of the Train A or Train B equipment. The Train AB 3AB3-S 4.16 kV swing bus is connected to either the Train A 3A3-S 4.16 kV bus or the Train B 3B3-S 4.16 kV bus, but never to both. Similarly, the Train AB 3AB31-S 480 V swing bus is tied to the same train as the 3AB3-S 4.16 kV bus at all times. The Train AB swing busses are not considered separate ESF power sources since they are powered from the Train A or the Train B busses.

TS LCO 3.8.3.1 requires the Train A, Train B, and Train AB A.C. ESF busses to be energized in Modes 1, 2, 3, and 4. Entry into TS LCO 3.8.3.1 Action a would be required if one of these

required trains (divisions) is not fully energized due to its associated 4.16 kV and/or 480 V bus(es) being not fully energized. If the Train AB bus(es) (4.16 kV and/or 480 V) and the Train A or Train B bus(es) it is connected to are both not fully energized, then entry into TS LCO 3.8.3.1 Action a would be required. Likewise, if only the Train AB bus(es) (4.16 kV and/or 480 V) is not fully energized, entry into TS LCO 3.8.3.1 Action a would be required. Accordingly, the RICT program would apply to a Train A, Train B, and Train AB A.C. ESF 4.16 kV or 480 V bus if it is not fully energized.

It is proposed to clarify the Table E1-1 DSC for TS LCO 3.8.3.1 Action a to clarify that the Train A, Train B, and Train AB A.C. ESF busses consist of both the 4.16 kV and 480 V busses. An excerpt from Table E1-1 that provides the revised DSC is contained in the Attachment to this Enclosure.

### **EEEB Question 5**

Table E1-1 of Enclosure 1 of the LAR supplement dated May 16, 2022, includes descriptions of the DSC for TS to be included in the RICT program. The DSC provides the minimum remaining equipment that can achieve the TS safety function while in the specified TS Condition. According to TS 3.8.3.1 Action c's DSC, Train DC-AB-S is required at all times. If DC-AB was declared inoperable, there would be a loss of safety function (LOF). However, a LOF condition is not allowed in the RICT program according to TSTF-505 Revision 2, please provide justification for this variation.

### **Energy Response to EEEB Question 5**

The Table E1-1 DSC for TS LCO 3.8.3.1 Action c included with the May 16, 2022 LAR supplement was overly restrictive, in that it unnecessarily included consideration of concurrent failures. Currently, in accordance with TS LCO 3.8.3.1 Action c, with the 3AB-DC-S 125-volt D.C. bus inoperable due to not being energized, which includes a condition involving its associated battery bank (3AB-S) not being connected, the D.C. bus is required to be reconnected from its associated Operable battery bank within 2 hours or be in at least Hot Standby within the next 6 hours and in Cold Shutdown within the following 30 hours. During this period (i.e., while in Action c), the other two 125-volt DC safety busses (3A-DC-S and 3B-DC-S) along with the AC safety busses would remain available. Therefore, entry into TS LCO 3.8.3.1 Action c would have no effect on the capability of the A and B D.C. busses or their associated A.C. power sources to perform their specified TS functions. Accordingly, TS LCO 3.8.3.1 Action c is within the scope of the RICT program in accordance with TSTF-505, Revision 2.

It is proposed to revise the Table E1-1 DSC for TS LCO 3.8.3.1 Action c to clarify the status of the 125-volt D.C. ESF busses and associated battery banks (batteries) needed to ensure power is provided to the 125-volt D.C. busses for operability, consistent with the TS LCO 3.8.3.1 specified function. The changes to the DSC also include the correction of an editorial error in the written designation of the 3AB-S Battery. An excerpt from Table E1-1 that provides the revised DSC is contained in the Attachment to this Enclosure.

**Enclosure, Attachment**

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**Changes to Table E1-1**



**Changes to Table E1-1**

(Note: Changes are in **BOLD** and Underlined)

**Table E1-1**

Proposed TS LCO and Proposed Actions	SSCs Covered by TS LCO Action	SSC in PRA Model	Functions Covered by TS LCO Action	Design Success Criteria	PRA Success Criteria	Disposition
<p>3.8.3.1            Onsite Power Distribution Systems.</p> <p>The following Engineered Safety Features (ESF) and Static Uninterruptible Power Supply (SUPS) busses shall be energized in the specified manner. The tie breakers from the Train AB Busses shall be connected to either Train A or Train B.</p> <p>See TS 3.8.3.1 list of onsite A.C. and D.C. busses required to be energized.</p>						
<p><u>Action 3.8.3.1 a</u>            With one of the required divisions of A.C. ESF busses not fully energized, reenergize the division within 8 hours...</p>	<p>A.C. Busses.</p>	<p>Yes</p>	<p>Engineered Safety Features (ESF) and Static Uninterruptible Power Supply (SUPS) busses shall be energized in the specified manner:</p> <ul style="list-style-type: none"> <li>a. Train A A.C. Busses.</li> <li>b. Train B A.C. Busses.</li> <li>c. Train AB A.C. Busses.</li> </ul>	<p><b><u>Train A A.C. 4.16 kV and 480 V busses energized or Train B A.C. 4.16 kV and 480 V busses energized and supplying safety related equipment.</u></b></p> <p><b><u>AND</u></b></p> <p><b><u>Train AB A.C. 4.16 kV and 480 V busses powered from Train A A.C. 4.16 kV and 480 V busses or Train B A.C. 4.16 kV and 480 V busses when one or</u></b></p>	<p>Same as Design Success Criteria.</p>	<p>SSCs are modeled consistent with the TS scope and so can be evaluated using the CRMP tool. The success criteria in the PRA are consistent with the design basis success criteria.</p>

Table E1-1

Proposed TS LCO and Proposed Actions	SSCs Covered by TS LCO Action	SSC in PRA Model	Functions Covered by TS LCO Action	Design Success Criteria	PRA Success Criteria	Disposition
				<u>more AB swing components are being utilized to replace Train A or B safety related components.</u>		
<p><u>Action 3.8.3.1 c</u>            With one D.C. bus not connected to its associated battery bank, reconnect the D.C. bus from its associated OPERABLE battery bank within 2 hours...</p>	<p>Three 125-volt D.C. Busses and associated Battery Banks:</p> <ol style="list-style-type: none"> <li>1. Bus 3A-DC-S and 3A-S Battery.</li> <li>2. Bus 3B-DC-S and 3B-S Battery.</li> <li>3. Bus 3AB-DC-S and 3AB-S Battery.</li> </ol>	<p>Yes</p>	<p>Power to 125-volt D.C. Busses.</p>	<p><u>3A-DC-S bus energized and connected to 3A-S Battery, and 3AB-DC-S bus energized and connected to 3AB-S Battery.</u></p> <p><u>OR</u></p> <p><u>3B-DC-S bus energized and connected to 3B-S Battery, and 3AB-DC-S bus energized and connected to 3AB-S Battery.</u></p> <p><u>OR</u></p> <p><u>3A-DC-S bus energized and connected to 3A-S Battery, and 3B-DC-S bus energized and connected to 3B-S Battery.</u></p>	<p>Same as Design Success Criteria.</p>	<p>SSCs are modeled consistent with the TS scope and so can be evaluated using the CRMP tool. The success criteria in the PRA are consistent with the design basis success criteria.</p>