



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

July 20, 2022

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 - ISSUANCE OF
AMENDMENT NO. 268 RE: ADOPTION OF TECHNICAL SPECIFICATIONS
TASK FORCE TRAVELER TSTF-569, "REVISE RESPONSE TIME TESTING
DEFINITION," REVISION 2 (EPID L-2021-LLA-0119)

Dear Sir or Madam:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment No. 268 to Renewed Facility Operating License No. NPF-38 for the Waterford Steam Electric Station, Unit 3 (Waterford 3). This amendment consists of changes to the technical specifications (TS) in response to your application dated June 24, 2021.

The amendment adopts TS Task Force (TSTF) Traveler TSTF-569, "Revise Response Time Testing Definition," Revision 2, which is an approved change to the Improved Standard TS, for incorporation into the Waterford TS. The amendment revises the TS definitions of engineered safety features response time and reactor trip system response time.

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

Sincerely,

/RA/

Jason J. Drake, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-382

Enclosures:

1. Amendment No. 268 to NPF-38
2. Safety Evaluation

cc: Listserv



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ENTERGY OPERATIONS, INC.

DOCKET NO. 50-382

WATERFORD STEAM ELECTRIC STATION, UNIT 3

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 268
Renewed 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 June 24, 2021, 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 Renewed 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. 268, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the renewed 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 within 60 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Jennifer L. Dixon-Herrity, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

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

Date of Issuance: July 20, 2022

ATTACHMENT TO LICENSE AMENDMENT NO. 268
TO RENEWED FACILITY OPERATING LICENSE NO. NPF-38
WATERFORD STEAM ELECTRIC STATION, UNIT 3
DOCKET NO. 50-382

Replace the following pages of Renewed Facility Operating License No. NPF-38 and the 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.

Renewed Facility Operating License

REMOVE

INSERT

-4-

-4-

Technical Specifications

REMOVE

INSERT

1-3

1-3

1-3a

1-3a

1-6

1-6

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 renewed 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. 268, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the renewed license. EOI shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. Antitrust Conditions

- (a) Entergy Louisiana, LLC shall comply with the antitrust license conditions in Appendix C to this renewed license.
- (b) Entergy Louisiana, LLC is responsible and accountable for the actions of its agents to the extent said agent's actions contravene the antitrust license conditions in Appendix C to this renewed license.

DEFINITIONS

CORE ALTERATION

1.9 CORE ALTERATION shall be the movement or manipulation of any component within the reactor pressure vessel with the vessel head removed and fuel in the vessel. Suspension of CORE ALTERATION shall not preclude completion of movement of a component to a safe conservative position.

COLR - CORE OPERATING LIMITS REPORT

1.9a The CORE OPERATING LIMITS REPORT is the Waterford 3 specific document that provides core operating limits for the current operating reload cycle. These cycle-specific core operating limits shall be determined for each reload cycle in accordance with Technical Specification 6.9.1.11. Plant operation within these operating limits is addressed in individual specifications.

DOSE EQUIVALENT I-131

1.10 DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) which alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in ICRP-30, Supplement to Part 1, Pages 192-212, Tables titled, "Committed Dose Equivalent in Target Organs or Tissue per Intake of Unit Activity."

\bar{E} - AVERAGE DISINTEGRATION ENERGY

1.11 \bar{E} shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes, other than iodines, with half-lives greater than 15 minutes, making up at least 95% of the total noniodine activity in the coolant.

ENGINEERED SAFETY FEATURES RESPONSE TIME

1.12 The ENGINEERED SAFETY FEATURES RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ESF actuation setpoint at the channel sensor until the ESF equipment is capable of performing its safety function (i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc.). Times shall include diesel generator starting and sequence loading delays where applicable. The response time may be measured by any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC, or the components have been evaluated in accordance with an NRC approved methodology.

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DEFINITIONS

FREQUENCY NOTATION

1.13 The FREQUENCY NOTATION specified for the performance of Surveillance Requirements shall correspond to the intervals defined in Table 1.1.

IDENTIFIED LEAKAGE

1.14 IDENTIFIED LEAKAGE shall be:

- a. Leakage (except CONTROLLED LEAKAGE) into closed systems, such as pump seal or valve packing leaks that are captured, and conducted to a sump or collecting tank, or

DEFINITIONS

RATED THERMAL POWER

1.24 RATED THERMAL POWER shall be a total reactor core heat transfer rate to the reactor coolant of 3716 MWt.

REACTOR TRIP SYSTEM RESPONSE TIME

1.25 The REACTOR TRIP SYSTEM RESPONSE TIME shall be the time interval from when the monitored parameter exceeds its trip setpoint at the channel sensor until electrical power to the CEA drive mechanism is interrupted. The response time may be measured by any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC, or the components have been evaluated in accordance with an NRC approved methodology.

REPORTABLE EVENT

1.26 A REPORTABLE EVENT shall be any of those conditions specified in Section 50.73 to 10 CFR Part 50.

SHIELD BUILDING INTEGRITY

1.27 SHIELD BUILDING INTEGRITY shall exist when:

- a. Each door in each access opening is closed except when the access opening is being used for normal transit entry and exit, then at least one door shall be closed,
- b. The shield building filtration system is in compliance with the requirements of Specification 3.6.6.1, and
- c. The sealing mechanism associated with each penetration (e.g., welds, bellows, or O-rings) is OPERABLE.

SHUTDOWN MARGIN

1.28 SHUTDOWN MARGIN shall be the instantaneous amount of reactivity by which the reactor is subcritical or would be subcritical from its present condition assuming all control element assemblies are fully inserted except for the single assembly of highest reactivity worth which is assumed to be fully withdrawn.



UNITED STATES
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WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 268 TO

RENEWED 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 June 24, 2021 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML21175A362), Entergy Operations, Inc. (Entergy) (the licensee), submitted a license amendment request (LAR) for the Waterford Steam Electric Station, Unit 3 (Waterford 3). The amendment would revise technical specifications (TS) definitions for engineered safety feature (ESF) response time and reactor trip system (RTS) response time that are referenced in surveillance requirements (SRs), hereafter, referred to as response time testing (RTT).

The proposed changes are based on TS Task Force (TSTF) traveler TSTF-569, Revision 2, "Revise Response Time Testing Definition," dated June 25, 2019 (ML19176A034). The U.S. Nuclear Regulatory Commission (NRC or the Commission) issued a final safety evaluation (SE) approving TSTF-569, Revision 2, on August 14, 2019 (ML19176A191), as a change to the Improved Standard TS (ISTS). The description of the generic changes and their justification are contained in these two documents.

2.0 REGULATORY EVALUATION

2.1 Description of Response Time Testing

The RTS for Waterford initiates a unit shutdown, based on the values of selected unit parameters, to protect against violating the core fuel design limits and the reactor coolant system (RCS) pressure boundary during anticipated operational occurrences and to assist the ESF actuation system (ESFAS) in mitigating accidents. The ESFAS initiates necessary safety systems, based on the values of selected unit parameters, to protect against violating core design limits and the RCS pressure boundary and to mitigate accidents.

The RTT verifies that the individual channel or train actuation response times are less than or equal to the maximum values assumed in the accident analyses. The RTT acceptance criteria are under licensee control. Individual component response times are not modeled in the accident analyses. The analyses model the overall or total elapsed time, from the point at which

the parameter exceeds the trip setpoint value at the sensor to the point at which the equipment reaches the required functional state (e.g., control and shutdown rods fully inserted in the reactor core).

2.2 Proposed Changes to the TS

Waterford 3 Limiting Condition for Operation (LCO) 3.3.2 requires the ESFAS instrumentation for each Function in TS table 3.3-3, "Engineered Safety Feature Actuation System Instrumentation," to be OPERABLE. To assure the LCO is met, SR 4.3.2.3 requires the licensee to verify that ESF response times are within limits. Similarly, Waterford 3 LCO 3.3.1 requires the RTS instrumentation for each function in TS table 3.3-1, "Reactor Protective Instrumentation," to be operable, and SR 4.3.1.3 requires the licensee to verify that RTS response times are within limits. The licensee proposed to add a statement to section 1.0 of the TS definitions for "ENGINEERED SAFETY FEATURES RESPONSE TIME" and "REACTOR TRIP SYSTEM RESPONSE TIME." The definitions state acceptable means to measure each response time and provide an alternative that may be used "[i]n lieu of measurement."

In its application, the licensee stated that it requests adoption of NRC-approved TSTF-569. The only revision of TSTF-569 that is NRC approved is Revision 2. As described in section 1, "Summary Description," of Revision 2 of TSTF-569:

The proposed change revises the definitions to eliminate the requirement for prior NRC review and approval of the response time verification of similar components, while retaining the requirement for the verification to be performed using the methodology contained in Attachment 1, titled, "Methodology to Eliminate Pressure Sensor and Protection Channel (for Westinghouse Plants only) Response Time Testing." The proposed change will permit licensees to verify the response time of similar component types using the methodology contained in Attachment 1, without obtaining prior NRC approval for each component.

Accordingly, as shown in the LAR, the request would add an additional "in lieu of measurement" alternative to measuring ESF response time and RTS response time. The additional alternative for ESF response time would be "[i]n lieu of measurement, response time may be verified for selected components provided ... the components have been evaluated in accordance with an NRC approved methodology." Similarly, for RTS response time, "[i]n lieu of measurement, response time may be verified for selected components provided that ... the components have been evaluated in accordance with an NRC approved methodology."

The application stated that the licensee concluded that the justifications presented in TSTF-569 and the SE prepared by the NRC staff are applicable to Waterford 3 and provide the justification for the amendment request. The application identified the requested variations (e.g., identifying the site-specific TS numbers).

2.2.1 Variations

- 1 The Waterford TS use the definition title, "Engineered Safety Features Response Time," (i.e., "Features" is plural) instead of the ISTS definition title, "Engineered Safety Feature (ESF) Response Time" (i.e., "Feature" is singular). The current Waterford TS definition title is being retained, with no changes.

- 2 The Waterford TS use the definition title, "Reactor Trip System Response Time" instead of the Combustion Engineering ISTS definition title, "Reactor Protection System (RPS) Response Time." The current Waterford TS definition title is being retained, with no changes.
- 3 The Waterford TS definition of Reactor Trip System Response Time has differences in word order and control element assembly (CEA) designation, stating: "...until electrical power is interrupted to the CEA drive mechanism," instead of the Combustion Engineering ISTS wording of "...until electrical power to the CEAs drive mechanism is interrupted." Waterford is revising the wording to: "...until electrical power to the CEA drive mechanism is interrupted." The current designation of "CEA" is retained as indicated in the revised wording.

2.3 Applicable Regulatory Requirements and Guidance

Under Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.90, "Application for amendment of license, construction permit, or early site permit," whenever a holder of a license wishes to amend the license, including TS in the license, an application for amendment must be filed, fully describing the changes desired. Under 10 CFR 50.92(a), determinations on whether to grant an applied-for license amendment are to be guided by the considerations that govern the issuance of initial licenses to the extent applicable and appropriate. Both the common standards for licenses in 10 CFR 50.40(a), and those specifically for issuance of operating licenses in 10 CFR 50.57(a)(3), provide that there must be reasonable assurance that the activities at issue will not endanger the health and safety of the public, and that the applicant will comply with the Commission's regulations.

The licensee's request involves adding an option used to satisfy SRs. As described in 10 CFR 50.36(c):

Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met.

3.0 TECHNICAL EVALUATION

The NRC staff reviewed the request by comparing the licensee's proposal against the changes described in TSTF-569, Revision 2. The NRC staff compared Waterford 3's design and existing TS with the design and TS presumed in TSTF-569. As explained below, the NRC staff concluded that the design and licenses (including TS) were sufficient to justify the licensee's reliance on the staff's SE of TSTF-569 as justification for adopting TSTF-569 in the Waterford 3 license.

TSTF-569 is designed to make changes to NUREG-1432, Revision 4.0, "Standard Technical Specifications, Combustion Engineering Plants," April 2012, Volume 1, "Specifications" (ML12102A165), and Volume 2, "Bases" (ML12102A169). The NRC staff compared the TS assumed in TSTF-569 with the current TS for Waterford 3. The NRC staff did not identify any material differences in the relevant TS.

The licensee is relying on the previous analyses of TSTF-569. For the reasons stated in the NRC staff's SE for TSTF-569, the NRC staff found that the methodology contained in

TSTF-569, Revision 2, attachment 1, "Methodology to Eliminate Pressure Sensor and Protection Channel (for Westinghouse Plants only) Response Time Testing," provides a consistent, clear, and concise framework for determining that replacement components will operate at a level equivalent to that of the components being replaced. As such, using that methodology will assure that the necessary quality of the components is maintained and that the LCOs will be met. Accordingly, approving the incorporation of that methodology into the licensing basis, and amending the TS to allow usage of the approved methodology, coupled with approving the aspect of the LAR to use the methodology in TSTF-569, Revision 2, attachment 1, results in TS that meet 10 CFR 50.36(c)(3) by assuring that performing SR 4.3.1.3 and 4.3.2.3 while using the new "[i]n lieu of" option, will assure that associated aspects of LCO 3.3.1 and 3.3.2 will be met.

3.1 Variations

The licensee proposed variations, described in section 2.2.1 of this SE, from the TS changes described in TSTF-569 and the applicable parts of the NRC's SE. The NRC staff reviewed these variations and determined that they are editorial in nature and continue to meet the intent of TSTF-569. The proposed definition titles and wording differences do not affect the applicability of TSTF-569 to the Waterford TS. Therefore, the proposed variations are acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Louisiana State official was notified of the proposed issuance of the amendment on July 12, 2022. The State official had no comments.

5.0 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 SRs. 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 published in the *Federal Register* on September 7, 2021 (86 FR 50190), and there has been no public comment on such finding. 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.

6.0 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) there is reasonable assurance that 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: T. Sweat, NRR

Date: July 20, 2022

SUBJECT: WATERFORD STEAM ELECTRIC STATION, UNIT 3 - ISSUANCE OF
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TASK FORCE TRAVELER TSTF-569, "REVISE RESPONSE TIME TESTING
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