



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

March 8, 2024

Mr. Bob Coffey  
Executive Vice President, Nuclear Division  
and Chief Nuclear Officer  
Florida Power & Light Company  
Mail Stop: EX/JB  
700 Universe Blvd.  
Juno Beach, FL 33408

SUBJECT: SEABROOK STATION, UNIT NO. 1, ISSUANCE OF AMENDMENT NO. 173  
RE: REVISE TECHNICAL SPECIFICATION 3/4.8.1 TO ALLOW  
REPLACEMENT OF RESERVE AUXILIARY TRANSFORMER (EMERGENCY  
CIRCUMSTANCES) (EPID L-2024-LLA-0024)

Dear Bob Coffey:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 173 to Renewed Facility Operating License No. NPF-86 for the Seabrook Station, Unit No. 1 (Seabrook). The amendment revised the technical specifications (TSs) in response to NextEra Energy Seabrook, LLC (NextEra) application dated March 8, 2024, which superseded the letter dated March 4, 2024, as supplemented by letters dated March 5, 2024, and March 6, 2024.

NextEra submitted the amendment request on an emergency basis pursuant Title 10 of the *Code of Federal Regulations* 50.91(a)(5), during the period of enforcement discretion discussed in Notice of Enforcement Discretion (NOED) issued on March 5, 2024, regarding the TS 3/4.8.1.1 completion time. The amendment allows for a one-time modification of the Allowed Outage Time for Seabrook TS 3/4.8.1 "A.C. Sources - Operating," actions a.3 from 72 hours to 30 days for one inoperable offsite circuit. The one-time extension allows the replacement of the 3B Reserve Auxiliary Transformer at power.

B. Coffey

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

Sincerely,

***/RA/***

Dr. V. Sreenivas, Project Manager  
Plant Licensing Branch I  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-443

Enclosures:

1. Amendment No. 173 to NPF-86
2. Safety Evaluation

cc: Listserv



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

NEXTERA ENERGY SEABROOK, LLC

DOCKET NO. 50-443

SEABROOK STATION, UNIT NO. 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 173  
Renewed License No. NPF-86

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by NextEra Energy Seabrook, LLC (NextEra, the licensee) dated March 8, 2024, which supersedes the letter dated March 4, 2024, as supplemented by letters dated March 5, 2024, and March 6, 2024, 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 C.2 of the Renewed Facility Operating License No. NPF-86 is hereby amended to read as follows:

B. Technical Specifications

The technical specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 173, are incorporated into the Renewed Facility Operating License No. NPF-86. NextEra Energy Seabrook, LLC 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 immediately.

FOR THE NUCLEAR REGULATORY COMMISSION

Hipólito González, Chief  
Plant Licensing Branch I  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to License No. NPF-86  
and the Technical Specifications

Date of Issuance: March 8, 2024

ATTACHMENT TO  
SEABROOK STATION, UNIT NO. 1  
LICENSE AMENDMENT NO. 173  
RENEWED FACILITY OPERATING LICENSE NO. NPF-86  
DOCKET NO. 50-443

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

Remove Pages

License  
License No. NPF-86, page 3

TSs  
TS 3/4 8-1

Insert Pages

License  
License No. NPF-86, page 3

TSs  
TS 3/4 8-1  
TS 3/4 8-1a

- (3) NextEra Energy Seabrook, LLC, pursuant to the Act and 10 CFR Part 70, to receive, possess, and use at any time special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, as described in the Final Safety Analysis Report, as supplemented and amended;
  - (4) NextEra Energy Seabrook, LLC, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use at any time any byproduct, source, and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;
  - (5) NextEra Energy Seabrook, LLC, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use in amounts as required any byproduct, source, or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and
  - (6) NextEra Energy Seabrook, LLC, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility authorized herein.
  - (7) DELETED
- 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

NextEra Energy Seabrook, LLC, is authorized to operate the facility at reactor core power levels not in excess of 3648 megawatts thermal (100% of rated power).
  - (2) Technical Specifications

The Technical Specifications contained in Appendix A, and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 173, are incorporated into the Renewed Facility Operating License No. NPF-86. NextEra Energy Seabrook, LLC shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3/4.8 ELECTRICAL POWER SYSTEMS

3/4.8.1 A.C. SOURCES

OPERATING

LIMITING CONDITION FOR OPERATION

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3.8.1.1 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

- a. Two physically independent circuits between the offsite transmission network and the onsite Class 1E Distribution System,  
and
- b. Two separate and independent diesel generators, each with:
  - 1) A separate day fuel tank containing a minimum fuel volume fraction of 3/8 (600 gallons),
  - 2) A separate Fuel Storage System containing a minimum volume of 62,000 gallons of fuel,
  - 3) A separate fuel transfer pump,
  - 4) Lubricating oil storage containing a minimum total volume of 275 gallons of lubricating oil, and
  - 5) Capability to transfer lubricating oil from storage to the diesel generator unit.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

-----NOTE-----

LCO 3.0.4.b is not applicable to the diesel generators.

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- a. With an offsite circuit of the above required A.C. electrical power sources inoperable:
  - 1. Perform Surveillance Requirement 4.8.1.1.a for the OPERABLE offsite circuit within 1 hour and at least once per 8 hours thereafter;
  - 2. Within 24 hours from discovery of no offsite power to one train concurrent with inoperability of redundant required feature(s), declare required feature(s) with no offsite power available inoperable when its redundant required feature(s) is inoperable; and

## ELECTRICAL POWER SYSTEMS

### A.C. SOURCES

#### OPERATING

#### LIMITING CONDITION FOR OPERATION

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##### 3.8.1.1 (Continued)

##### ACTION:

3. Restore at least two offsite circuits to OPERABLE status within 72\* hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

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\* A one-time Allowable Outage Time (AOT) extension for an inoperable offsite circuit allows 30 days to restore the inoperable 3B Reserve Auxiliary Transformer to OPERABLE status. Compensatory measures within NextEra Energy Seabrook, LLC letter L-2024-038 dated March 8, 2024, shall be implemented and shall remain in effect during the extended AOT period. The one-time AOT extension shall expire upon completion of the maintenance to restore the 3B Reserve Auxiliary Transformer to OPERABLE status or by 0542 on March 31, 2024, whichever occurs earliest.





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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO

AMENDMENT NO. 173 TO RENEWED FACILITY OPERATING LICENSE NO. NPF-86

NEXTERA ENERGY SEABROOK, LLC

SEABROOK STATION, UNIT NO. 1

DOCKET NO. 50-443

1.0 INTRODUCTION

By letter dated March 8, 2024 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML24068A091), which superseded the letter dated March 4, 2024 (ML24064A247), as supplemented by letters dated March 5, 2024 (ML24065A499), and March 6, 2024 (ML24066A205), NextEra Energy Seabrook, LLC (NextEra, the licensee) submitted an emergency license amendment request (LAR) for changes to the technical specifications (TSs) for the Seabrook Station, Unit No. 1 (Seabrook). The requested changes would revise TS 3/4.8.1, "A.C. Sources," to provide a one-time modification of the allowed outage time (AOT) for Seabrook TS 3.8.1.1 action a.3 from 72 hours to 30 days when one offsite circuit is inoperable. The proposed change would allow the licensee to replace the 3B Reserve Auxiliary Transformer (RAT) at power within 30 days from the start of the outage.

2.0 REGULATORY EVALUATION

2.1 System Description

In section 2.1 of its LAR, the licensee states:

The facility is interconnected to offsite power via three 345 kilovolt [kV] lines of the transmission system for the New England states. The normal preferred source of power for the unit is its own main turbine generator. The redundant safety feature buses of the unit are powered by two-unit auxiliary transformers. A highly reliable generator breaker is provided to isolate the generator from the unit auxiliary transformers in the event of a generator trip, thereby obviating the need for a bus transfer upon loss of turbine generator power. In the event that the unit auxiliary transformers are not available, the redundant safety feature buses of the unit are powered by two reserve auxiliary transformers [RATs]...

Two reserve auxiliary transformers (RATS) provide a second immediate access circuit from the preferred power supply (offsite source) to the onsite distribution system, providing power for all loads including all the engineered safety features loads. The transformers are three phase, three winding, outdoor type, oil filled,

Class OA/FA/(FOA Future) transformers with wye connected 345 kV primary rated 27/36/(45 Future) MVA at 55°C and 30.24/40.32/(50.4 Future) MVA at 65°C; wye connected 13.8 kV secondary winding rated 18/24/(30 Future) MVA at 55°C and 20.16/26.88/(33.6 Future) MVA at 65°C, and delta connected 4300 volt tertiary rated 12/16/(20 Future) MVA at 55°C and 13.44/17.92/(22.4 Future) MVA at 65°C. Each transformer has the capacity to supply the power requirements of the connected load under all plant conditions... The secondary winding of each RAT is connected to a 13.8-kV switchgear bus, and the tertiary winding is connected to one train of 4160-volt emergency switchgear and to one 4160-volt nonessential switchgear lineup. By this arrangement, a separate RAT feeds each emergency bus. Connections to both the 13.8 kV and the 4160-volt switchgear are made with three phase nonsegregated phase bus ducts. There is a contingency alignment where emergency diesel generator EDG-1A may be aligned to provide power to the RAT-3A tertiary winding.

The RATs are located on the north side of the Turbine Building heater bay. The pair of transformers is connected to the 345-kV switching station by SF6 gas insulated bus. High voltage bushings are used to connect the transformer terminals to the SF6 gas insulated bus.

Section 2.1 of the LAR also states:

Upon loss of offsite power (LOOP), the unit is supplied with adequate power by either of two redundant fast-starting, emergency diesel-engine generators (EDGs). Either EDG and its associated safety feature bus is capable of providing adequate power for a safe shutdown under accident conditions with a concurrent loss of offsite power. A non-safety related supplemental emergency power system (SEPS) is available as a backup power source to either safety feature bus when one or both EDGs fail to start and load. SEPS can provide adequate power for a safe shutdown under LOOP power condition. A constant supply of power to vital instruments and controls of each unit is assured through the redundant 125-volt direct current buses and their associated battery banks, battery chargers and inverters.

## 2.2 Reason for the Proposed Change

In its LAR, the licensee states:

On March 1st, 2024, at approximately 0542, the Seabrook control room received alarms associated with 345 kV breakers 695 and 52 opening and de-energizing the 3B Reserve Auxiliary Transformer and declared the 3B Reserve Auxiliary Transformer inoperable. Initial troubleshooting identified that 3B Reserve Auxiliary Transformer had two local alarms present: sudden pressure relay actuated along with low oil level. A low SF6 gas alarm was identified at 0652. The Outage Control Center was immediately staffed with around-the-clock coverage. Following inspection of the 3B Reserve Auxiliary Transformer, it was concluded that the maintenance activity would entail the replacement of the transformer.

Seabrook entered TS LCO 3.8.1.1 Action a at approximately 0542 on March 1, 2024. The AOT of Action a.3 requires that Seabrook shutdown at 0542 on

March 4, 2024, unless at least two offsite circuits are restored to Operable status. Restoration of the offsite circuit requires replacement of the 3B Reserve Auxiliary Transformer.

This change is needed sooner than can be issued under exigent circumstances because the Notice of Enforcement Discretion expires at 0542 on March 9, 2024, and this license amendment request is considered timely considering the unplanned nature of the event.

### 2.3 Proposed TS 3.8.1.1 Changes

The licensee proposed to add a footnote to modify the AOTs of TS 3.8.1.1 action a.3. This action requires restoration of both offsite circuits within 72 hours. For the action, an asterisk (\*) would be added to indicate that the footnote applies. The footnote would state:

\* A one-time Allowable Outage Time (AOT) extension for an inoperable offsite circuit allows 30 days to restore the inoperable 3B Reserve Auxiliary Transformer to OPERABLE status. Compensatory measures within NextEra Energy Seabrook, LLC letter L-2024-038 dated March 8, 2024, shall be implemented and shall remain in effect during the extended AOT period. The one-time AOT extension shall expire upon completion of the maintenance to restore the 3B Reserve Auxiliary Transformer to OPERABLE status or by 0542 on March 31, 2024, whichever occurs earliest.

### 2.4 Applicable Regulatory Requirements and Guidance

The U.S. Nuclear Regulatory Commission (NRC) staff applied the following regulatory requirements and guidance documents for review of the LAR.

- Title 10 of the *Code of Federal Regulations* (10 CFR) section 50.36, "Technical specifications," paragraph (c)(2) requires, in part, that the applicants for a license authorizing operation of a production or utilization facility include in their application proposed TSs that specify LCOs. The regulation at 10 CFR 50.36(c)(2)(i) states, in part, that LCOs are the lowest functional capability or performance levels of equipment required for safe operation of the facility. When a limiting condition for operation of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the technical specifications until the condition can be met.
- Section 10 CFR 50.63, "Loss of all alternating current power," requires, in part, that a nuclear power plant shall be able to withstand for a specified duration and recover from a complete loss of offsite and onsite alternating current (AC) sources (i.e., a station blackout (SBO)).
- Section 10 CFR 50.91(a)(5) states, "Where the Commission finds that an emergency situation exists, in that failure to act in a timely way would result in derating or shutdown of a nuclear power plant, or in prevention of either resumption of operation or of increase in power output up to the plant's licensed power level, it may issue a license amendment involving no significant hazards consideration without prior notice and opportunity for a hearing or for public comment."

- Section 10 CFR 50.92(a) states, in part, that determination on whether to grant an application for a license amendment is to be guided by the considerations that govern the issuance of initial licenses or construction permits to the extent applicable and appropriate. Both the common standards for licenses and construction permits 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.
- Section 10 CFR Part 50, Appendix A, General Design Criterion (GDC) 17, “Electric Power Systems,” states, in part:

An onsite electric power system and an offsite electric power system shall be provided to permit functioning of structures, systems, and components important to safety. The safety function for each system (assuming the other system is not functioning) shall be to provide sufficient capacity and capability to assure that (1) specified acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded as a result of anticipated operational occurrences and (2) the core is cooled and containment integrity and other vital functions are maintained in the event of postulated accidents. The onsite electric power supplies, including the batteries, and the onsite electric distribution system, shall have sufficient independence, redundancy, and testability to perform their safety functions assuming a single failure.

The NRC staff used the following guidance documents while reviewing the LAR:

- NUREG-0800 (Standard Review Plan) Branch Technical Position (BTP) 8-8, “Onsite (Emergency Diesel Generators) and Offsite Power Sources Allowed Outage Time Extension.” The BTP 8-8 provides guidance for reviewing requests for the allowed outage time extensions for the onsite and offsite electrical power sources to perform online maintenance of the power sources.
- RG 1.177, “Plant Specific, Risk Informed Decision Making: Technical Specifications,” January 2021, Rev. 2, (ML20164A034), describes an acceptable risk-informed approach for assessing proposed changes to TS AOTs, also known as CTs.

The NRC staff notes that the TSs are custom for the plant and were derived at the time of initial licensing. The terms completion time (CT) and allowed outage time (AOT) are used interchangeably in the TSs to describe the amount of time for which a limiting condition for operation may not be met as long as the prescribed remedial actions in the TSs are followed until the condition can be met, in accordance with 10 CFR 50.36(c)(2)(i).

### 3.0 TECHNICAL EVALUATION

In the LAR, the licensee proposed a one-time extension that modifies the AOT for an offsite circuit in TS 3.8.1.1 from 72 hours to 30 days to support replacement of the 3B RAT, which is one of the required offsite circuits that satisfy LCO 3.8.1.1.a. The proposed changes add a note to TS 3.8.1.1 action a.3 that would modify the requirement to restore at least two offsite circuits to operable status within 72 hours from the time that one offsite circuit was declared inoperable.

The NRC staff evaluated the proposed TS changes considering both deterministic and risk-insights to determine if the licensee justified continued operation until the completion of the maintenance, or the remainder of the 30 days from the start of the AOT, whichever occurs earliest.

### 3.1 Deterministic Evaluation

#### 3.1.1 Defense-in-Depth

The proposed extended AOT for restoring one inoperable offsite circuit will allow for the replacement of the 3B RAT at power. The LAR and Seabrook final safety analysis report (UFSAR) section 8, "Electric Power," describe the redundancy of the offsite and onsite power sources in support of the proposed change, as follows:

- During normal operating conditions, the main generator supplies the plant through the Unit Auxiliary Transformers (UATs), which normally provide power to the emergency buses. The 3A and 3B RATs provide back-up power to the Train A Bus E5 and Train B Bus E6 emergency buses, respectively. The 3A and 3B RATs are part of the same offsite circuit and they are both considered unavailable when the offsite circuit is inoperable. During the replacement of the 3B RAT, the LAR, Attachment 2, "PRA Evaluation for 3B RAT Emergency LAR," section 4.0 "Assumptions," states that the 3A RAT is considered available for service even though there will be intermittent out of service coincident conditions to support danger tagouts of work control boundaries. The availability of the 3A RAT during the replacement of the 3B RAT is for defense-in-depth purposes.
- In the event of LOOP, two redundant EDG A and EDG B supply two groups of redundant emergency buses and loads. If one or both EDGs fail to start, the non-safety-related SEPS provides a backup power supply to either emergency bus E5 or E6. In the event of a LOOP concurrent with a loss of coolant accident (LOCA) and a failure of one EDG, the redundant EDG will be available to power one train of loads required to safely down the plant.
- In the event of an SBO, the safety-related station batteries have sufficient capacity for the four-hour SBO coping duration.

The LAR contains the licensee's evaluation of the proposed extended AOT based on the guidance in BTP 8-8.

BTP 8-8 recommends that the offsite power AOT be limited to 14 days to perform maintenance activities, and that the licensee provide justification for the duration of the requested AOT (actual hours plus margin based on plant-specific past operating experience).

In the LAR, the licensee proposed a one-time extension to 30-days for one offsite circuit AOT that would modify TS 3.8.1.1 action a. In the LAR, the licensee provided the replacement schedule for the 3B RAT that shows completion of the replacement on March 21, 2024 (i.e., 20 days). The licensee stated that additional time, not to exceed March 31, 2024 (i.e., 30 days), is requested "to support unanticipated challenges including weather, material availability, and unforeseen challenges during the repair."

The staff finds the proposed one-time 30-day AOT acceptable. The replacement activities described in the licensee's proposed maintenance schedule provide a reasonable set of actions and timeline for completion of transformer replacement while also reasonably accounting for unanticipated challenges during the replacement.

BTP 8-8 recommends that a supplemental AC power source be provided to back up an inoperable EDG or offsite power source during an extended AOT to maintain the defense-in-depth of the electrical power sources. The supplemental source must have the capacity to bring a unit to safe shutdown (cold shutdown) in case of a LOOP concurrent with a single failure during plant operation (MODE 1).

Seabrook SEPS provides backup power to the emergency bus when one or both EDGs fail to start in the event of LOOP. The LAR states, in part, that 1) there is an operational readiness status check for the SEPS and 2) the SEPS has the capacity (including the required fuel oil) to bring the unit to cold shutdown in the event of a LOOP concurrent with a failure of EDG A, while EDG B is unavailable.

The NRC staff did not review the conformance of the SEPS with all the recommendations of the BTP 8-8 regarding the supplemental source because 1) the SEPS is already part of the Seabrook licensing basis and Seabrook TS 3/4.8.1 as a supplemental source for an inoperable EDG and 2) this LAR does not propose a change to the EDG AOT. However, the staff finds that based on the LAR supplement, UFSAR descriptions and TS, the SEPS provides an adequate backup to an inoperable EDG and has the capacity to bring the plant to cold shutdown in case of a LOOP concurrent with an inoperable EDG, as consistent with the relevant recommended portions BTP 8-8.

BTP 8-8 recommends certain actions (commitments) intended to maintain the availability of the equipment important to safety and to avoid a plant unit trip during the extended AOT. The LAR provides, and the proposed TSs change incorporates as requirements, the following actions based on BTP 8-8 recommendations:

- The planned one-time extended 30-day AOT will be used once to support replacement of the 3B RAT.
- Replacement of the 3B RAT cannot be preplanned due to the emergent nature of the event. In the event of severe weather, all work associated with the equipment impacted by the changes proposed in the emergency LAR will be suspended and the station procedures for severe weather will be used to control work processes.
- NextEra Operations will notify the grid operator (Load Dispatcher) to request maintenance and switching activities be restricted to emergency operations only on the following lines:
  - o Newington / Timber Swamp Line #3,
  - o Scobie Pond Line #2, and
  - o Ward Hill / West Amesbury Line #1.

Additionally, the grid operator (Load Dispatcher) will be contacted once per day during the extended 30-day AOT to ensure no significant grid disturbances are expected during the extended 30-day AOT.

- NextEra will not conduct any discretionary testing or maintenance, which can increase the likelihood of a plant transient (unit trip) or LOOP, on safety systems and important non-safety equipment in the offsite power systems while in the extended 30-day AOT. In addition, no discretionary switchyard maintenance will be performed on guarded equipment. OP-AA-102-1003, "Guarded Equipment," will be used to guard equipment that has been identified as being necessary to comply with TS LCOs and to support nuclear safety during the extended 30-day AOT. This equipment includes the steam turbine-driven emergency feed water pump.

The NRC staff determined that the above-mentioned actions, as required by the proposed TSs change during the extended 30-day AOT, are consistent with BTP 8-8 recommended actions, and therefore, provide reasonable assurance that the remaining offsite sources will be preserved and maintain the availability of equipment important for plant safety during the extended 30-day AOT.

In its LAR, the licensee states that GDC 17 will continue to be satisfied as a result of the proposed amendment. In section 4.3 "No Significant Hazards Consideration" of the LAR, the licensee states that the proposed AOT extension for replacement of the 3B RAT will remove redundancy in the offsite power source; does not alter the design, physical configuration, or mode of operation of any other plant structure, system, or component; and no physical changes are being made to any other portion of the plant (i.e., no new or different type of equipment will be installed). The licensee, in its LAR, provides compensatory actions to guard the remaining offsite and onsite power sources during the extended AOT. The compensatory measures are referenced in the proposed TS footnote, thereby making them a requirement for the duration of the extended AOT.

The NRC staff finds that the proposed one-time 30-day AOT will not impact the licensee's continuous compliance with 10 CFR Part 50, Appendix A, GDC 17 because the remaining offsite and onsite power sources will be guarded to provide defense-in-depth for safe shutdown of the plant while the reduction in redundancy in the offsite power source is temporarily allowed by TS 3/4.8.1.

Based on the above evaluation, the NRC staff finds that Seabrook has the capability for safe shutdown during the one-time 30-day extended AOT for action a.3 because the plant defense-in-depth for the onsite electrical power systems continues to ensure adequate power for safe shutdown during an extended LOOP event coincident with unavailability of both EDGs, as recommended by BTP 8-8, and during a LOOP/LOCA event, as required by the plant current licensing basis in Seabrook UFSAR Chapter 15, "Accident Analyses."

### 3.1.2 Safety Margin

In section 4.3 of the LAR, the licensee states:

The proposed amendment increasing the AOT for TS 3/4.8.1 Action a.3 for replacement of the 3B Reserve Auxiliary Transformer does not reduce the margin of safety for accident mitigation by temporarily removing redundancy in the offsite power source since the availability of the onsite emergency power distribution system is credited in plant safety analyses which is unaffected by the proposed change. No new or altered methods of assessing plant performance are introduced and all accident analysis inputs and assumptions remain the

same. Thereby, no safety limits or limiting safety settings are challenged by the proposed change.

Therefore, the proposed license amendment would not involve a significant reduction in the margin of safety.

Based on the above-mentioned statements in section 4.3 of the LAR and the defense-in-depth evaluation discussed above, the NRC staff finds that the proposed one-time AOT extension for action a.3 does not impact the design criteria, testing methods, and acceptance criteria for the new 3B RAT in applicable codes and standards (or alternatives approved for use by the NRC) and any assumptions or inputs specified in applicable UFSAR Chapter 15, "Accident Analyses," safety analyses. Therefore, the staff finds that there will be a minimal reduction in safety margin during the extended AOT duration because defense-in-depth is maintained and the proposed AOT extension will not impact the plant safety analysis and its applicable codes and standards and, as such, the licensee will continue to comply with 10 CFR Part 50 Appendix A, GDC 17.

### 3.1.3 Station Blackout

"The LAR states that, "Seabrook is a single unit site that responds to Station Blackout (SBO) as an AC Independent plant relying only on the station batteries as a source of electrical power for the coping duration." The NRC staff examined Seabrook FSAR Section 8.3.2.1 (b) and confirmed the station battery capacity is sufficient for the four-hour SBO coping duration. Therefore, the NRC staff determined that the proposed LAR will not impact Seabrook's ability to cope with a loss of all on-site and off-site AC power because the LAR does not impact the station batteries or on-site distribution system required for the coping strategy and therefore continues to meet the criteria of 10 CFR 50.63.

### 3.1.4 Deterministic Evaluation Conclusion

Based on the above deterministic evaluation, the NRC staff finds there is reasonable assurance that the plant will have electrical power systems for safe shutdown during the proposed extended 30-day AOT. The NRC staff finds that the change meets the requirements in 10 CFR 50.36(c)(2)(i) by proposing acceptable remedial actions in the TS until the LCO can be met or otherwise shut down the plant. Therefore, from a deterministic perspective, the NRC staff finds the proposed one-time change to the TS 3/4.8.1 AOT to be acceptable.

## 3.2 Risk Insights Evaluation

In the LAR, the licensee requested a one-time change that would modify the Allowed Outage Time for Seabrook TS 3/4.8.1, "AC Sources - Operating," Actions a.3 from 72 hours to 30 days. The licensee submitted the change using the guidance in BTP 8-8 (ML113640138) which provides guidance, from a deterministic perspective, for reviewing onsite and offsite power source allowed outage time extensions. Therefore, it is not a risk-informed LAR, and the detailed risk evaluation that was submitted by the licensee was not used in making the regulatory decision.

While this is not a risk-informed LAR, the licensee provided risk insights related to the proposed TS AOT change. To aid in the deterministic review of the proposed one-time change, the NRC staff considered the licensee-provided risk insights utilizing guidance described in section 2.4,



“Acceptance Guidelines for Technical Specification Changes,” of RG 1.177 (ML20164A034). RG 1.177 describes a three-tier approach to evaluating risk-insights for one-time-only changes to TS AOTs, summarized below:

- The licensee has demonstrated that the impact on plant risk from implementing the one-time-only TS CT change is acceptable (Tier 1):
  - an incremental conditional core damage probability (ICCDP) of less than  $1 \times 10^{-6}$  and an incremental conditional large early release probability (ICLERP) of less than  $1 \times 10^{-7}$ , or
  - an ICCDP of less than  $1 \times 10^{-5}$  and an ICLERP of less than  $1 \times 10^{-6}$  with effective compensatory measures implemented to reduce the sources of increased risk.
- The licensee has demonstrated that there are appropriate restrictions on dominant risk-significant configurations associated with the change (Tier 2).
- The licensee has implemented a risk-informed plant configuration control program, including procedures to use, maintain, and control such a program (Tier 3).

#### Tier 1 Evaluation:

The NRC staff has previously reviewed the technical adequacy of the Seabrook PRA models for “Risk-Informed Justifications for the Relocation of Specific Surveillance Frequency Requirements to a Licensee Controlled Program” (ML13212A069). The PRA models were previously reviewed to the extent needed to support previous risk-informed LARs (see ML23312A182) and are therefore determined to be acceptable for the review of the subject LAR, which is deterministic with risk insights.

The ICCDP for both CDF and LERF calculated by the licensee and shown in Table 4 of Attachment 2 to the LAR was evaluated against RG 1.177, Section 2.4, “Acceptance Guidelines for Technical Specification Changes,” for one-time TS AOT changes, and was found to fall within the range where the one-time TS AOT change is acceptable.

#### Tier 2 Evaluation:

Section 3.4 of the LAR enclosure contains a description of compensatory measures that would be required during the one-time TS AOT change to reduce the risk impact of the change. The compensatory measures include the following:

Guarding of the following equipment to ensure that no unapproved work occurs in those areas that could threaten any of the electrical power supplies and subsequently reduce the current allowed outage time to a lesser allowed outage time. The licensee stated that Operations will perform SRO walkdowns of the guarded equipment per shift.

- Both Emergency Diesel Generators (EDGs),
- The Supplemental Emergency Power System (SEPS),
- The 345 kV Switchyard, including the Breaker Enclosure building,
- Generator Step Up Transformers,
- Unit Auxiliary Transformers,

- Reserve Auxiliary Transformer 3A,
- Relay Room,
- B and D Battery Chargers,
- B and D Battery Room, and
- Steam turbine-driven emergency feed water pump.

Current scheduled work is being reviewed to ensure no work is performed that could threaten offsite and onsite power sources.

Any scheduled work that is a threat to generation is being moved.

Any online scheduled work is being reviewed to ensure no impact to AC power sources.

ISO will provide daily updates to validate future grid work that could put the station under further ISO contingency actions.

Hourly fire watches will be performed in high fire risk areas.

Just In Time Training (JITT) will be performed with Licensed Operators prior to placing reserve auxiliary transformers in service and will include potential faults to aid in operator response and overall proficiency. In addition, Licensed Operators will perform a review of the following procedures at the beginning of each shift rotation period (day shift; peak shift; mid shift): OS1246.02, Degraded Vital AC Power; E-0, Reactor Trip or Safety Injection; and ECA-0.0, Loss of All AC Power.

The NRC staff reviewed the above list of compensatory measure and determined that these measures would be effective in reducing the sources of increased risk.

Tier 3 Evaluation:

In section 7.3 of attachment 2 to the LAR, the licensee indicated that a common cause failure sensitivity analysis demonstrated that with one reserve auxiliary transformer out of service, any maintenance on the EDGs shall be restricted. The licensee stated that the dominant contributors are from cutsets where either of the EDGs are unavailable and that since this configuration is unlikely to be entered into for the duration of the proposed change, the assumption that common cause does not exist between the two transformers is not a key assumption and does not impact the risk insights for this proposed change.

The NRC staff determined that with reasonable assurance, there are no risk-significant configurations involving the proposed change and that the application of the Tier 3 acceptance guidelines to this proposed change are not necessary.

### 3.2.1 Risk Insights Conclusion

The NRC staff determined that the licensee-provided risk insights support the engineering conclusion that the proposed change maintains defense-in-depth. The NRC staff also determined that the information provided in the LAR while sufficient to meet the Tier 1 and Tier 2 criteria described in RG 1.177, and to determine that a Tier 3 evaluation would not be

necessary, is not required to be used in making the regulatory decision because the LAR is not a risk-informed submittal. Therefore, from a risk-insight perspective, the NRC staff finds the proposed one-time change to the TS AOT to be acceptable.

### 3.3 Technical Conclusion

The NRC staff has reviewed the licensee's proposed change to the Seabrook TS 3.8.1.1 to extend the current 72-hour AOT for an inoperable offsite circuit to a temporary one-time AOT of up to 30 days for the replacement of the 3B RAT. Based on the NRC staff's technical evaluation in section 3.0 of this SE, the NRC staff concludes that the proposed notes inserted into TS 3/4 8.1 Action a.3 for the extended 30-day AOT are acceptable, and the defense-in-depth for offsite and onsite power sources ensure that Seabrook has capability for safe shutdown during the extended 30-day AOT. Therefore, the NRC staff concludes that the proposed change will not impact the licensee's continuous compliance with the regulatory requirements in 10 CFR Sections 50.36(c)(2)(i), 50.63, and 10 CFR 50 Appendix A, GDC 17.

### 4.0 EMERGENCY SITUATION

The NRC's regulations in 10 CFR 50.91(a)(5) state that where the NRC finds that an emergency situation exists, in that failure to act in a timely way would result in derating or shutdown of a nuclear power plant, or in prevention of either resumption of operation or of increase in power output up to the plant's licensed power level, it may issue a license amendment involving no significant hazards consideration without prior notice and opportunity for a hearing or for public comment. In such a situation, the NRC will publish a notice of issuance under 10 CFR 2.106, providing for opportunity for a hearing and for public comment after issuance.

As discussed in the licensee's application dated March 8, 2024, the licensee requested that the proposed amendment be processed by the NRC on an emergency basis. In the application the licensee explained that on March 1, 2024, at 0542, Seabrook entered TS LCO 3.8.1.1 Action a.3, which requires Seabrook to shut down at 0542 on March 4, 2024, unless at least two offsite circuits are restored to Operable status. In response to a request made by the licensee, the NRC granted the licensee a Notice of Enforcement Discretion on March 1, 2024, that expires at 0542 on March 9, 2024. The licensee stated that restoration of the offsite circuit requires the replacement of the 3B Reserve Auxiliary Transformer, which the licensee states will not be completed upon the expiration of the NOED. Failure to issue this license amendment on an emergency basis would result in a shutdown of Seabrook pursuant to TS LCO 3.8.1.1 Action a.3. The licensee filed this license amendment in a timely fashion, notifying the NRC staff that it would be seeking the license amendment promptly after entering the unplanned outage and filing the license amendment request on March 4, 2024, three days after it entered the unplanned outage.

In Seabrook's license amendment request section 2.5, the licensee states that the situation could not be avoided because there were no prior indications of a failure that would have driven a proactive replacement and that testing, surveillance, and past data indicated no adverse trend.

The NRC staff reviewed the licensee's basis for processing the proposed amendment as an emergency amendment (as discussed above) and determines that an emergency situation exists consistent with the provisions in 10 CFR 50.91(a)(5) because failure to act by not granting this license amendment would result in shutdown of Seabrook. Furthermore, the NRC staff determined that: (1) the licensee used its best efforts to make a timely application; (2) the

licensee could not reasonably have avoided the situation; and (3) the licensee has not abused the provisions of 10 CFR 50.91(a)(5). Based on these findings, and the determination that the amendment involves no significant hazards consideration as discussed below, the NRC staff has determined that a valid need exists for issuance of the license amendment using the emergency provisions of 10 CFR 50.91(a)(5).

## 5.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATION

The NRC's regulation in 10 CFR 50.92(c) states that the NRC may make a final determination, under the procedures in 10 CFR 50.91, that a license amendment involves no significant hazards consideration if operation of the facility, in accordance with the amendment, would not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety.

The proposed license amendment requests a one-time change to the Allowed Outage Time (AOT) for Seabrook Technical Specification (TS) 3/4.8.1, "AC. Sources - Operating," Action a.3 from 72 hours to 30 days to facilitate replacement of the 3B Reserve Auxiliary Transformer. An evaluation of the issue of no significant hazards consideration is presented below:

- (1) Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No

The proposed change involves a one-time extension to the AOT for TS 3/4.8.1 Action a.3 to allow necessary time to replace the 3B Reserve Auxiliary Transformer.

With 3B Reserve Auxiliary Transformer out of service for non-elective maintenance as an initial condition the only accident with a changed probability of occurrence is the Loss of Nonemergency AC Power to the Plant Auxiliaries (Loss of Offsite Power). In this case, multiple faults would be required on the redundant offsite circuit and an additional fault on the offsite circuit supported by the 3B Reserve Auxiliary Transformer to result in a loss of offsite power (LOOP). The use of compensatory measures such as guarding both Emergency Diesel Generators (EDGs), the Supplemental Emergency Power System, the 345 Kv Switchyard, including the Breaker Enclosure building, the Generator Step Up Transformers, Unit Auxiliary Transformers, 3A Reserve Auxiliary Transformer, and the Relay Room will preclude a significant increase in the probability of total loss of the offsite power source. The proposed amendment has no effect on the consequences of a LOOP because the EDGs provide power to safety related equipment following a LOOP. The design and function of the EDGs are not affected by the proposed change.

The probability of other previously evaluated accidents is not affected since initiation of these events is not dependent on changes in status of the electrical power supply.

Therefore, the proposed license amendment would not involve a significant increase in the probability or consequences of an accident previously evaluated.

- (2) Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No

The proposed amendment involves replacement of the 3B Reserve Auxiliary Transformer that provides power to safety-related equipment for accident mitigation. The proposed change does not alter the design, physical configuration, or mode of operation of any other plant structure, system, or component. No physical changes are being made to any other portion of the plant (i.e., no new or different type of equipment will be installed) or a change in the method governing normal plant operation; therefore, no new accident scenarios, failure mechanisms, or limiting single failures are introduced as a result of this change. The proposed change to the AOT for TS 3/4.8.1 Action a.3 to allow replacement of the 3B Reserve Auxiliary Transformer does not result in any new mechanisms that could initiate damage to the reactor or its principal safety barriers since all design and performance criteria will continue to be met Seabrook Station and the nuclear unit will continue to be operated within the limits of its licensing basis.

Therefore, the proposed license amendment would not create the possibility of a new or different kind of accident from any previously evaluated.

- (3) Does the proposed amendment involve a significant reduction in a margin of safety?

Response: No

The proposed amendment increasing the AOT for TS 3/4.8.1 Action a.3 for replacement of the 3B Reserve Auxiliary Transformer does not reduce the margin of safety for accident mitigation by temporarily removing redundancy in the offsite power source since the availability of the onsite emergency power distribution system is credited in plant safety analyses which is unaffected by the proposed change. No new or altered methods of assessing plant performance are introduced and all accident analysis inputs and assumptions remain the same. Thereby, no safety limits or limiting safety settings are challenged by the proposed change.

Therefore, the proposed license amendment would not involve a significant reduction in the margin of safety.

Based upon the above analysis, NextEra proposes that the proposed amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and accordingly, a finding of no significant hazards consideration is justified.

Based on the above evaluation, the NRC staff concludes that 10 CFR 50.92(c)(1) – (3) is satisfied. Therefore, the NRC staff has made a final determination that no significant hazards consideration is involved for the proposed amendment and that the amendment may be issued on an emergency basis pursuant to 10 CFR 50.91(a)(5).

## 6.0 STATE CONSULTATION

In accordance with the Commission's regulations, the NRC staff notified the State of Massachusetts and New Hampshire Officials on March 5, 2024, of the proposed issuance of the amendment. The State officials had no comments.

## 7.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of facility components 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. As discussed in Section 6.0, the Commission has determined that the amendment involves no significant hazards consideration. 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.

## 8.0 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.

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Date: March 8, 2024

SUBJECT: SEABROOK STATION, UNIT NO. 1, ISSUANCE OF AMENDMENT NO. 173  
 RE: REVISE TECHNICAL SPECIFICATION 3/4.8.1 TO ALLOW  
 REPLACEMENT OF RESERVE AUXILIARY TRANSFORMER (EMERGENCY  
 CIRCUMSTANCES) (EPID L-2024-LLA-0024) DATED MARCH 8, 2024

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**\*via email**

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