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

September 20, 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. 175 RE: ONE-TIME ALLOWABLE OUTAGE TIME EXTENSION TO THE TECHNICAL SPECIFICATION 3.8.1.1, A.C. SOURCES – OPERATING, LIMITING CONDITION FOR OPERATION (EPID L-2024-LLA-0064)

Dear Bob Coffey:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 175 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 May 10, 2024, as supplemented by letters dated July 16, 2024, August 5, 2024, August 12, 2024, and August 15, 2024.

NextEra submitted an outage related amendment request pursuant Title 10 of the *Code of Federal Regulations* 50.90, The amendment would modify TS limiting condition for operation (LCO) 3.8.1.1, “A.C. Sources – Operating,” an action by increasing the allowed outage time (AOT) for an inoperable offsite circuit from 72 hours (3 days) to 240 hours (10 days) on a one-time basis. The proposed change would allow Seabrook to change plant modes from Cold Shutdown (MODE 5) to Startup (MODE 2) to support the replacement of the main generator breaker and outage startup activities while one independent circuit between the offsite transmission network and the onsite Class 1E Distribution System is out of service.

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. 175 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. 175
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 May 10, 2024, as supplemented by letters dated July 16, 2024, August 5, 2024, August 12, 2024, and August 15, 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. 175, 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 before October 30, 2024.

FOR THE NUCLEAR REGULATORY COMMISSION

HIPOLITO GONZALEZ

Digitally signed by HIPOLITO GONZALEZ
Date: 2024.09.20 08:56:15 -04'00'

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: September 20, 2024

ATTACHMENT TO

SEABROOK STATION, UNIT NO. 1

LICENSE AMENDMENT NO. 175

RENEWED FACILITY OPERATING LICENSE NO. NPF-86

DOCKET NO. 50-443

Replace the following page of Renewed Facility Operating License No. NPF-86 with the attached revised page. The revised page is identified by amendment number and contains a marginal line indicating the area of change.

Remove	Insert
Page 3	Page 3

Replace the following pages of the Appendix A, Technical Specifications, with the attached revised pages as indicated. The revised pages are identified by amendment number and contain marginal lines indicating the area of change.

Remove	Insert
3/4 8-1a	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. 175, 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.

3.8.1.1 (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.

* A one-time Allowed Outage Time (AOT) extension for an inoperable offsite circuit allows 240 hours to restore the inoperable Unit Auxiliary Transformers to OPERABLE status. Compensatory measures within NextEra Energy Seabrook, LLC letter L-2024-141, dated August 15, 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 Unit Auxiliary Transformers to OPERABLE status or 240 hours, whichever occurs earliest. If the 240-hour one-time allowance has not been fully utilized, by November 30, 2024, this License Amendment will expire. MODE 1 operation is prohibited during the AOT.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO

AMENDMENT NO. 175 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 application dated May 10, 2024 (Agencywide Documents Access and Management System Accession No. ML24131A152), as supplemented by letters dated July 16, 2024 (ML24198A026), and August 5, 2024 (ML24219A036), August 12, 2024 (ML24225A265), and August 15, 2024 (ML24228A119), NextEra Energy Seabrook, LLC (NextEra, the licensee) requested a one-time change to the Technical Specifications (TSs) for the Renewed Facility Operating License No. NPF-86 for Seabrook Station, Unit No. 1 (Seabrook). The proposed change would modify TS limiting condition for operation (LCO) 3.8.1.1, "A.C. Sources – Operating," by increasing the allowed outage time (AOT) for an inoperable offsite circuit from 72 hours (3 days) to 240 hours (10 days) on a one-time basis. The proposed change would allow Seabrook to change plant modes from Cold Shutdown (MODE 5) to Startup (MODE 2) to support the replacement of the main generator breaker and outage startup activities while one independent circuit between the offsite transmission network and the onsite Class 1E Distribution System is out of service.

The supplemental letters dated July 16, 2024, August 5, 2024, August 12, 2024, and August 15, 2024, provided additional information that clarified the application, did not expand the scope of the application as original noticed, and did not change the staff's original proposed no significant hazards consideration determination, as published the *Federal Register* on July 9, 2024 (89 FR 56438).

2.0 REGULATORY EVALUATION

2.1 System Description

In section 2.1, "System Design and Operation," of the application, the licensee provided the following description of the power system:

> The Seabrook Station Class 1E AC Electrical Power Distribution System AC sources consist of the preferred and alternate offsite power sources and the onsite standby power sources (Train A and Train B Emergency Diesel Generators (EDGs)). As required by [Title 10 of the *Code of Federal Regulations*]

> 10 CFR 50, Appendix A, GDC 17, the design of the AC electrical power system provides independence and redundancy to ensure an available source of power to the Engineered Safety Feature (ESF) systems. The onsite Class 1E AC Distribution System is divided into redundant load groups (trains) so that loss of any one group does not prevent the minimum safety functions from being performed. Each train has connections to two offsite power sources and a single EDG. Offsite power is supplied to the unit switchyard from the transmission network by three 345kV [kilo volts] transmission lines. From the switchyard, two electrically and physically separated circuits provide AC power, through the generator step-up transformer and/or step-down station auxiliary transformers, to the 4.16kV ESF buses. An offsite circuit consists of breakers, transformers, switches, interrupting devices, cabling and controls, required to transmit power from the offsite transmission network to the onsite Class 1E ESF buses.
>
> Two qualified circuits between the offsite transmission network and the onsite Class 1E Electrical Power System, and separate and independent EDGs for each train ensure availability of the required power to shutdown the reactor and maintain it in a safe shutdown condition after an anticipated operational occurrence (AOO) or a postulated Design Basis Accident (DBA). One of the required, independent offsite AC sources consists of the circuit from an offsite transmission line through the Unit Auxiliary Transformers (UATs) to buses E5 and E6. Operability of this circuit requires that both UATs supply breakers be closed, energizing the emergency buses. The second required independent offsite AC source consists of the circuit from a separate offsite transmission line through the Reserve Auxiliary Transformers (RATs) to buses E5 and E6. For this circuit to be operable, each emergency bus RATs supply breaker must be either (1) closed, or (2) in standby with capability for automatic closure.

In Seabrook Updated Safety Analysis Report (UFSAR) section 8.2, “Offsite Power System,” the licensee states:

> A generator circuit breaker […], is provided between the main generator and the connections to the generator step-up and unit auxiliary transformers [UATs]. This circuit breaker consists of three single pole units mounted in line with and forming part of the isolated phase bus duct. The circuit breaker is located on a platform inside the north wall of the Turbine Generator Building.
>
> When the generator circuit breaker is tripped, the UATs remain energized from the 345-kV switching station via the [generator step-up transformers] GSUs, thus providing an 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 supply to the unit auxiliary transformers [UATs] can be traced from the transformers through the generator isolated phase bus, the generator step-up transformers, the gas-insulated isolated phase bus of the 345-kV switching station, and then to an offsite transmission line.

2.2 Proposed TS Changes

Seabrook TS LCO 3.8.1.1 requires, as a minimum, two physically independent circuits between the offsite transmission network and the onsite Class 1E Distribution System along with two separate and independent diesel generators in MODES 1 through 4. With an offsite circuit inoperable, the current TS LCO 3.8.1.1 Action a.3. requires that the two offsite circuits be restored to operable status in 72 hours (3 days) or be in at least Hot Standby within 6 hours and in Cold Shutdown within the following 30 hours.

In the supplement dated August 5, 2024, the licensee proposed to add a footnote to modify the AOT of TS 3.8.1.1, Action a.3, from 72 hours to 240 hours in MODES 2-4 on a one-time basis. For the action, an asterisk (*) would be added to indicate that the footnote applies. The proposed footnote would state:

> *A one-time Allowed Outage Time (AOT) extension for an inoperable offsite circuit allows 240 hours to restore the inoperable Unit Auxiliary Transformers to OPERABLE status. Compensatory measures within NextEra Energy Seabrook, LLC letter L-2024-141, dated August 15, 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 Unit Auxiliary Transformers to OPERABLE status or 240 hours, whichever occurs earliest. If the 240-hour one-time allowance has not been fully utilized, by November 30, 2024, this License Amendment will expire. MODE 1 operation is prohibited during the AOT.

2.3 Reason for the Proposed Change

In section 2.3, “Reason for the Proposed Change,” of the application, the licensee provided the following reasons for the proposed change:

> The New England Clean Energy Connect (NECEC) Project is a fully permitted transmission line project that will connect 1200MW from Quebec to the New England grid. It includes 145 miles of new high voltage direct current (HVDC) transmission line to a converter station in Lewiston, ME. ISO New England Inc. (the system operator) performed an impact study of the additional load on the existing system and determined that, in addition to upgrades to existing substations and transmission lines, the Seabrook main generator breaker would be considered over-duty by 2510A. This would exceed the current, PKG2, air blast breaker’s interrupting capabilities. Therefore, a new, SF6, gas type breaker will be installed during the OR23 outage in the Fall of 2024.

2.4 Applicable Regulations and Guidance

Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50 provides the general provisions for “Domestic Licensing of Production and Utilization Facilities.” Under 10 CFR 50.90, whenever a holder of a license wishes to amend the license, including technical specifications 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 or construction permits to the extent applicable and appropriate. Both the common standards 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.

10 CFR Part 50.36, “Technical Specifications,” section (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. 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 (c) of 10 CFR 50.59, “Changes, tests, and experiments,” requires, in part, that a proposed change in the facility be evaluated against specified criteria to determine if a licensee shall obtain a license amendment pursuant to 10 CFR 50.90 prior to implementing the proposed change and that final safety analysis report (FSAR) changes resulting from evaluations and analyses performed for the changes be included in the UFSAR.

Appendix A, General Design Criterion (GDC) 17, “Electric Power Systems,” of 10 CFR 50 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. Electric power from the transmission network to the onsite electric distribution system shall be supplied by two physically independent circuits (not necessarily on separate rights of way) designed and located so as to minimize to the extent practical the likelihood of their simultaneous failure under operating and postulated accident and environmental conditions.

The Nuclear Regulatory Commission (NRC) staff used the following guidance to evaluate the license amendment request (LAR) (i.e., the application and supplements):

- 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.

- Regulatory Guide (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 completion times (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 inoperable offsite circuit in TS LCO 3.8.1.1 from 72 hours (3 days) to 240 hours (10 days) to support replacement of the main generator circuit breaker in MODES 2 – 4 and outage startup activities (MODE 2 only). The proposed change adds a footnote 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 change considering both deterministic and risk-insights information to determine if the licensee justified operation in MODES 2 – 4 with one operable offsite circuit during the proposed one-time extended AOT.

3.1 Deterministic Evaluation

3.1.1 Defense-in-depth

In section 3.0, “Technical Evaluation,” of the application, the licensee stated that with one offsite circuit (through the UATs) inoperable during the generator circuit breaker replacement, the remaining operable offsite circuit (through the RATs) and EDGs are adequate to supply electrical power to the onsite Class 1E Distribution System to support safety functions. Based on Seabrook UFSAR Chapter 8, “Electric Power,” this remaining offsite circuit through the RATs and the onsite EDGs are adequate to supply power to mitigate design basis events, which are described in Seabrook UFSAR Chapter 15, “Accident Analyses.”

The NRC staff evaluated the plant defense-in-depth for the electrical power sources during the proposed one-time AOT extension using relevant portions of BTP 8-8.

BTP 8-8 recommends that a supplemental AC power source be provided as a back up to an inoperable EDG or offsite power source during an extended AOT to maintain the defense-in-depth philosophy of the electrical power sources.

The LAR states that the non-safety related Supplemental Emergency Power System (SEPS) is relied upon for defense-in-depth as a backup power source to an inoperable EDG, and it can supply power to the safety and non-safety related loads in in the event of a total loss of offsite power and the failure of one or both EDG(s). The LAR also states that the SEPS can mitigate the dominant core damage sequences and power to the loads required to safely shut down the unit. The SEPS are included in Seabrook TS 3.8.1.1 as a backup power source for an inoperable EDG.

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, UFSAR descriptions, and TS, the SEPS provides an adequate backup

power source to an inoperable EDG that can safely shut down the unit if the remaining normal offsite power circuit through the RATs is lost and the onsite EDG(s) fail to start, 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.

In the supplement dated August 15, 2024, the licensee provided the following compensatory actions that would be taken in preparation for the extended AOT prior to transitioning from MODE 5 to MODE 4 and during the proposed one-time extended AOT to maintain defense-in-depth:

- Verify that an ISO-NE transmission request is in place requesting to limit maintenance on the offsite transmission lines to emergencies only.

- Verify shutdown power availability risk is GREEN in accordance with SM7.31.

- Verify SEPS is aligned to bus 6 to provide a redundant power source for the motor driven EFW pump.

- Verify no severe weather is forecasted in the next 2 days.

- Verify that electrical FLEX equipment is staged in the Service Water pumphouse once per shift

- Operations will perform a Senior Reactor Operator (SRO) walkdown of all guarded equipment once per shift as follows:

    - Both EDGs
    - SEPS
    - Seabrook's 345kV Switchyard
    - Breaker Enclosure Building
    - 3A and 3B RATs
    - Seabrook's Relay Room
    - Steam Driven Steam Driven Emergency Feedwater Pump when testing is complete in accordance with TS 4.7.1.2.1.b.2 and 4.7 .1.2 .2.

- Risk significant configurations will be avoided in order to preserve safety margins and defense-in-depth strategies.

- At least two of the independent transmission lines will be aligned to the RATs during breaker replacement.

- The Station will contact the load dispatcher (ISO-NE) to stay apprised of any potential grid perturbations or of any switching that might be necessary.

- Switchyard activities and offsite transmission activities will be limited to emergency work or work necessary to restore the UATs.

- Maintenance and testing activities will be controlled by existing Technical Specification requirements and approved procedures during the approved extended AOT.

The licensee referenced the above-mentioned compensatory actions in the proposed TS footnote, thereby making them a requirement for the duration of the extended AOT.

Furthermore, in their supplement dated August 12, 2024, the licensee confirmed that the TS equipment will be maintained operable, except for the affected UATs, on either train during the proposed one-time extended AOT.

The NRC staff determined that the above-mentioned compensatory actions, as required by the proposed TS footnote, and maintaining the required TS equipment operable on a train, incorporate actions recommended by BTP 8-8, provide reasonable assurance that the remaining offsite and onsite sources will be preserved and the availability of equipment important for plant safety will be maintained during the one-time extended 10-day AOT to mitigate design basis and station blackout events.

Based on the above evaluation, the NRC staff finds that Seabrook has the capability for safe shutdown during the one-time extended 10-day 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 loss of offsite power event coincident with unavailability of both EDGs, as recommended by BTP 8-8, and during a design basis event, as required by the plant current licensing basis in Seabrook UFSAR Chapter 15.

3.1.2 Evaluation of proposed one-time extended AOT

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).

In the application, the licensee initially proposed a one-time extended AOT of 456 hours for one inoperable offsite circuit that would modify TS 3.8.1.1 Action a.3. However, the licensee was unable to provide a deterministic justification for the proposed 456-hour extended AOT at the NRC staff's request in their letter dated July 16, 2024. Therefore, in their supplement dated August 5, 2024, the licensee reduced the proposed one-time extended AOT to 240 hours (10 days). In their supplement dated August 12, 2024, the licensee provided an estimated timeline of 5 days from entering the extended AOT and returning the UATs to service to justify the proposed 240-hour AOT. In their letter dated July 16, 2024, the licensee stated that the current Seabrook risk management procedure provides guidance that the expected AOT be under 50% of the total available time.

The NRC staff noted that based on the 50% guidance in the licensee's procedure, the licensee calculated that it would need a 10-day total AOT to replace the generator circuit breaker (i.e., 5 days in the licensee's estimated timeline plus 5 days based on the 50% guidance). This one time 10-day AOT extension is less than the time period recommended by BTP 8-8, and the licensee has provided sufficient justification for the duration of the requested one-time AOT consistent with BTP 8-8. Therefore, the staff finds the proposed one-time 10-day AOT acceptable as it provides a reasonable time for restoring the UATs to service, as described in the licensee's proposed maintenance schedule, and allows time for unexpected challenges during the maintenance activities.

3.1.3 Accident Analysis Impacts of the proposed one-time extended AOT

The NRC staff evaluated the Seabrook Accident Analysis sequences in Chapter 15 of the UFSAR to verify that the existing accident analyses remain bounding under the actions described in the license amendment.

The NRC staff observed that the following sequences were evaluated at no-load power conditions:

a. Decrease in Feedwater Temperature (Subsection 15.1.1)
b. Increase in Feedwater Flow (Subsection 15.1.2)
c. Inadvertent Opening of a Steam Generator Relief or Safety Valve (Subsection 15.1.4)
d. Steam System Piping Failure (Subsection 15.1.5)
e. Uncontrolled Rod Cluster Control Assembly Bank Withdrawal (Subsection 15.4.1)
f. CVCS Malfunction Resulting in Boron Concentration Decrease (Subsection 15.4.6)
g. Control Rod Ejection (Subsection 15.4.8)

Of the sequences evaluated at no-load power conditions the NRC staff found that only one sequence is potentially impacted by offsite electrical power availability, Steam System Piping Failure (Subsection 15.1.5). The remaining sequences were screened out from further analysis because offsite electrical power availability is not required to mitigate the evaluated accident scenario. In the case of a Steam System Piping Failure (Subsection 15.1.5), the staff finds that the offsite power for the zero-power case availability causes a greatest challenge to return to power (RTP) and departure from nucleate boiling (DNB) considerations, and the zero-power case is bounding as the zero to five percent power (Mode 2) conditions maintain adequate safety margins for decay heat removal, RTP, and DNB consideration respectively. The NRC staff also noted that this case specifically assumes end of core life (EOL) conditions, and that the beginning of core life (BOL) conditions with substantively lower burnup and decay heat loading would add conservatism to offset return to power and DNB margins. The analysis relevant to this LAR during the one-time extended AOT will occur at BOL conditions which are less challenging to the return to power and DNB Acceptance Criteria, and therefore the staff concluded that the Steam System Piping Failure accident remains bounded by the existing analysis and that the conditions of the LAR will not challenge the plant response to a steam system piping failure accident under zero to five percent power conditions (Mode 2).

The NRC staff also evaluated the Loss of Nonemergency AC Power to The Plant Auxiliaries (Loss of Offsite Power) (Subsection 15.2.6). The staff noted that this event is analyzed and most limiting at 100% power. If the event occurred at no-load to five percent power (Mode 2) initial plant conditions during the one-time extended AOT that there would be minimal impact to the bounds of the analysis and the mitigating systems credited in the event because the inventory to the steam generators for secondary cooling provided by the Auxiliary Feedwater System during this event is depleted at a much slower rate during initial plant conditions compared to the existing 100% power analysis. The staff concluded that the loss of nonemergency AC power accident remains bounded by the existing analysis and that the conditions of the LAR will not challenge the plant response to a loss of nonemergency AC power accident.

The NRC staff observed that the remaining accident sequences are most limiting at full power and those sequences are not challenged by the proposed actions of this LAR because the plant will be restricted to Mode 2 during the one-time extended AOT. The staff finds that the lower decay heat removal of starting those events at zero to five percent power (Mode 2 conditions) adds substantive margin to the respective safety limits for those sequences. The staff concluded

that the remaining accident sequences remain bounded by the existing analyses and that the conditions of the license amendment request will not challenge the plant response to those respective accident sequences.

In summary the NRC staff finds that the proposed actions described in the LAR do not have any adverse impacts or consequences upon the analyzed accident sequences assumed in Seabrook UFSAR Chapter 15.

3.1.4 Safety margin

In section 6.0, “No Significant Hazards Consideration,” of the LAR, the licensee states:

> Over the course of OR23, the Station will have negligible power history, minimal decay heat, backup power sources and guarded equipment. The risk associated with this one-time extended allowed outage time has been analyzed and found to be within the bounds of regulatory guidance.
>
> Therefore, the proposed change does not involve a significant reduction in a margin of safety.

The NRC staff noted that the proposed one-time AOT extension for TS 3.8.1.1 Action a.3 does not impact the plant’s applicable codes and standards (or alternatives approved for use by the NRC), and any assumptions or inputs specified in applicable Seabrook UFSAR Chapter 15 safety analyses. Therefore, the staff finds that there will be a minimal reduction in safety margin during the one-time extended AOT duration because defense-in-depth is maintained and the proposed one-time 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 Appendix A to 10 CFR Part 50, GDC 17.

3.1.5 Compliance with Existing Regulations

The regulations at 10 CFR 50.36(c) specify the requirements for TS LCO. When a TS LCO is not met, 10 CFR 50.36(c)(2)(i) requires that remedial actions be taken until the LCO is met or the reactor be shut down. The LAR proposed a one-time extension that modifies the AOT for TS LCO 3.8.1.1 Action a.3 from 72 hours to 240 hours (10 days). The proposed TS LCO 3.8.1.1 Action a.3 provides an action to restore two offsite circuits to operable status in 240 hours (10 days) or be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours. Therefore, the NRC staff finds that the proposed TS LCO 3.8.1.1 Action a.3 meets the requirements in 10 CFR 50.36(c)(2)(i) by proposing acceptable remedial actions in the TS until the LCO 3.8.1.1.a can be met or otherwise shut down the plant.

Appendix A to 10 CFR part 50, GDC 17 requires, in part, that electric power from the transmission network to the onsite electric distribution system shall be supplied by two physically independent offsite circuits designed and located so as to minimize to the extent practical the likelihood of their simultaneous failure under operating and postulated accident and environmental conditions.

Seabrook TS LCO 3.8.1.1 requires, in part, the operability of two physically independent circuits between the offsite transmission network and the onsite Class 1E Distribution System. In the LAR, the licensee stated that one of the offsite circuits through the UATs will be inoperable during the proposed one-time extended AOT due to the replacement of the main generator

circuit breaker. The existing main generator air blast circuit breaker will be replaced with a new SF6 gas type circuit breaker with higher interrupting capabilities. The licensee did not request approval for the new generator circuit breaker.

The NRC staff noted that, in accordance with 10 CFR 50.59(c), the licensee is required 1) to evaluate modifications to the plant to determine if a license amendment is required for the modifications, and 2) to include FSAR changes resulting from their evaluations and analyses for the modifications into the plant UFSAR. The staff finds that the requirements of 10 CFR 50.59(c) provide an adequate regulatory control to ensure that, absent a license amendment, the new type of generator circuit breaker will not change the design of the offsite power circuit through the UATs, which provides an immediate access to offsite power when the main generator circuit closes, and therefore the plant's design will continue to meet GDC 17 during the proposed one-time AOT.

Furthermore, in section 3.0 of the application, the licensee provided the following defense-in-depth measures and risk programs to evaluate their compliance with GDC 17 when one of the TS required offsite circuits is not available during the one-time extended AOT:

- The remaining operable offsite circuit and EDGs are adequate to support safety functions.

- The following compensatory actions will be in place:

    - Guarding the remaining offsite and onsite power sources and certain areas will ensure that no unapproved work occurs in those areas that could threaten any of the electrical power supplies.
    - At least two of the independent transmission lines will be aligned to the RATs during the extended AOT
    - The station to be in contact with the load dispatcher to stay apprised of any potential grid perturbations or of any necessary switching will minimize simultaneous failures of the offsite power circuits through both RATs.

- The capability of the remaining power sources will be managed within Seabrook's configuration control and risk management programs to minimize probability of losing electric power from any remaining sources.

The NRC staff noted that the inoperability of one offsite circuit will reduce the redundancy of the TS required offsite circuit, but it is allowed by TS LCO 3.8.1.1 Action a.3 within a limited time. Therefore, the NRC staff finds that the proposed one-time 10-day AOT for restoring the inoperable offsite circuit will not impact the licensee's continuous compliance with Appendix A to 10 CFR Part 50, 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. In addition, the staff finds that, in accordance with 10 CFR 50.59(c), the licensee is required to evaluate the new type of main generator circuit breaker that will be installed during the extended AOT to ensure that, absent a license amendment, the new generator circuit breaker will not change the design of the of the plant electrical power source through the UATs and the plant design will continue to meet GDC 17.

3.1.6 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 required by GDC 17 during the proposed one-time extended 240-hour AOT as the staff finds that the LAR satisfies the defense-in-depth recommendations in BTP 8-8. The 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. The staff also finds that the licensee's required evaluation for the new type of generator circuit breaker in accordance with 10 CFR 50.59(c) will ensure that, absent a license amendment, the new generator circuit breaker will not change the design of the plant electrical power sources required by GDC 17. Therefore, from a deterministic perspective, the 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 to provide a one-time allowance to increase plant modes from Cold Shutdown (MODE 5) to Startup (MODE 2) while one qualified Class 1E AC Electrical Power Distribution System AC source is out of service. The proposed license amendment would extend the AOT of TS LCO 3.8.1.1.a, "A.C. Sources – Operating," from 72 hours to 240 hours for one-time.

While this is not a risk-informed LAR, the licensee provided risk insights related to the proposed one-time 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 1×10^{-6} and an incremental conditional large early release probability (ICLERP) of less than 1×10^{-7}, or
    - an ICCDP of less than 1×10^{-5} and an ICLERP of less than 1×10^{-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 Probabilistic Risk Analysis (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 (ML23312A182) and are therefore determined to be acceptable for the review of the subject LAR, which is deterministic with risk insights.

The ICCDP of 9.52E-07 for core damage frequency and the ICLERP of 2.42E-10 for large early release frequency calculated by the licensee and shown in Table 6 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. The NRC staff finds that the licensee has demonstrated that the impact on plant risk from implementing the one-time TS AOT change is within the range specified in RG 1.177 as the ICCDP is less than 1×10^{-6} and the ICLERP is less than 1×10^{-7} and therefore, satisfies the Tier 1 acceptance guidelines.

Tier 2 Evaluation:

The licensee's supplement dated August 15, 2024, 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. While the licensee did not credit compensatory measures in its risk-informed analysis, the licensee provided the following compensatory measures to reduce the risk of the one-time AOT even further:

- The unit will not transition from MODE 5 to MODE 4 if severe weather is forecasted in the next 2 day.

- During the extended AOT, additional measures include compensatory actions that verify onsite AC sources, including the diesel generators and SEPS, are guarded and maintained available, and limiting switchyard and offsite transmission activity to only emergency work or as necessary to restore the UAT.

- A compensatory action to verify that the Steam Driven Emergency Feedwater Pump (EFW) is guarded once testing is complete in accordance with TS 4.7.1.2.1.b.2 and 4.7.1.2.2.

- A compensatory action to verify SEPS is aligned to BUS 6 to provide a redundant on-site power source for the motor driven EFW pump prior to transitioning the unit from MODE 5 to MODE 4.

- Operations will perform an SRO walkdown of all guarded equipment once per shift as follows:

    - Both Emergency Diesel Generators
    - Supplemental Emergency Power System (SEPS)
    - Seabrook's 345kV Switchyard
    - Breaker Enclosure Building
    - 3A and 3B Reserve Auxiliary Transformers
    - Seabrook's Relay Room
    - Steam Driven EFW pump when testing is complete in accordance with TS 4.7.1.2.1.b.2 and 4.7.1.2.2.

- The Station will contact the load dispatcher (ISO-NE) to stay apprised of any potential grid perturbations or of any switching that might be necessary once per shift.

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 and therefore, satisfies the Tier 2 acceptance guidelines.

Tier 3 Evaluation:

Section 3.0 of the LAR states that the licensee has configuration control policies and procedures as well as risk management policies and procedures and that the capability of the remaining power sources will be managed within these programs.

The NRC staff determined that there are no risk-significant configurations involving the proposed change and therefore, 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 was sufficient to meet the Tier 1 and Tier 2 criteria described in RG 1.177 and determined that a Tier 3 evaluation would not be necessary, it is not required to be used in making the regulatory decision because the LAR is not a risk-informed submittal. While this is not a risk informed LAR, the NRC staff finds the risk-insights support the Staff's conclusions in the deterministic analysis that the proposed one-time change to the TS AOT is 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 240 hours. Based on the NRC staff's technical evaluation in section 3.0 of this safety evaluation, the NRC staff concludes that for the proposed one-time extended 240 extended AOT note inserted into TS 3/4 8-1a, the defense-in-depth for offsite and onsite power sources ensure that Seabrook has capability for safe shutdown during the extended one-time 10-day AOT and 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), and Appendix A to 10 CFR Part 50, GDC 17. Therefore, the NRC Staff concludes that the proposed changes provide reasonable assurance that the proposed one-time AOT will not endanger public health and safety and is acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the NRC staff notified the State of Massachusetts and New Hampshire Officials on August 23, 2024, of the proposed issuance of the amendment. The State officials had no comments.

5.0 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. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration as documented in the *Federal Register* (89 FR 56438 published on July 9, 2024), 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 Contributors: A. Foil, NRR
K. West, NRR
J. Robinson, NRR
C.Peabody, NRR

Date: September 20, 2024

SUBJECT: SEABROOK STATION, UNIT NO. 1, ISSUANCE OF AMENDMENT NO. 175 RE: ONE-TIME ALLOWABLE OUTAGE TIME EXTENSION TO THE TECHNICAL SPECIFICATION 3.8.1.1, A.C. SOURCES – OPERATING, LIMITING CONDITION FOR OPERATION (EPID L-2024-LLA-0064) DATED SEPTEMBER 20, 2024

DISTRIBUTION:
Public
RidsNrrDraAplb Resource
RidsNrrDorlLpl1 Resource
RidsNrrPMSeabrook Resource (hard copy)
RidsAcrs_MailCTR Resource
RidsRgn1MailCenter Resource
RidsNrrDssStsb Resource
RidsNrrDssSnsb Resource
RidsNrrDexEeeb Resource

ADAMS Accession No. ML24239A538 ***via email**

OFFICE	DORL/LPL1/PM	DORL/LPL1/LA	DRA/APLB/BC*
NAME	VSreenivas	KZeleznock	EDavidson
DATE	08/23/2024	08/27/2024	08/01/2024
OFFICE	DEX/EEEB/BC*	DSS/SNSB/BC*	DSS/STSB/BC*
NAME	WMorton	PSahd	SMehta
DATE	08/23/2024	07/30/2024	08/30/2024
OFFICE	OGC	DORL/LPL1/BC	DORL/LPL1/PM
NAME	KBernstein	HGonzalez	VSreenivas
DATE	09/11/2024	09/20/2024	09/20/2024

OFFICIAL RECORD COPY