



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

November 24, 2020

Mr. Don Moul
Executive Vice President, Nuclear Division,
and Chief Nuclear Officer
Florida Power & Light Company
NextEra Energy Seabrook, LLC
Mail Stop: EXJB
700 University Blvd.
Juno Beach, FL 3340

SUBJECT: SEABROOK STATION, UNIT NO. 1 - ISSUANCE OF AMENDMENT NO. 166
RE: REVISE TECHNICAL SPECIFICATION 3/4.8.1, "A.C. SOURCES
OPERATING" (EPID L-2020-LLA-0157)

Dear Mr. Moul:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment No. 166 to Renewed Facility Operating License No. NPF-86 for the Seabrook Station, Unit No. 1. This amendment consists of changes to the Technical Specifications in response to your application dated July 13, 2020, as supplemented by letter dated September 23, 2020.

The amendment revises Technical Specification 3/4.8.1, "A.C. [Alternating Current] Sources Operating," to allow for a one-time extension of the allowed outage time for one emergency diesel generator inoperable from 14 days to 30 days. The change will allow the licensee to perform planned maintenance on the B emergency diesel generator while at power.

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

Sincerely,

/RA/

Justin C. Poole, Project Manager
Plant Licensing Branch I
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-443

Enclosures:

1. Amendment No. 166 to NPF-86
2. Safety Evaluation

cc: Listserv



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

NEXTERA ENERGY SEABROOK, LLC, ET AL.*

DOCKET NO. 50-443

SEABROOK STATION, UNIT NO. 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 166
Renewed License No. NPF-86

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment filed by NextEra Energy Seabrook, LLC, et al. (the licensee), dated July 13, 2020, as supplemented by letter dated September 23, 2020, 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.

*NextEra Energy Seabrook, LLC, is authorized to act as agent for the: Hudson Light & Power Department, Massachusetts Municipal Wholesale Electric Company, and Taunton Municipal Lighting Plant (collectively, with NextEra Energy Seabrook, LLC, "licensees") and has exclusive responsibility and control over the physical construction, operation and maintenance of the facility.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Renewed Facility Operating License No. NPF-86 is hereby amended to read as follows:

- (2) Technical Specifications

- The Technical Specifications contained in Appendix A, and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 166, 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 within 90 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

James G. Danna, Chief
Plant Licensing Branch I
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Renewed Facility
Operating License and Technical
Specifications

Date of Issuance: November 24, 2020

ATTACHMENT TO LICENSE AMENDMENT NO. 166

SEABROOK STATION, UNIT NO. 1

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
3

Insert
3

Replace the following page of the Appendix A, Technical Specifications, with the attached revised page. The revised page is identified by amendment number and contains marginal lines indicating the areas of change.

Remove
3/4 8-2

Insert
3/4 8-2

- (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. 166, 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.

ELECTRICAL POWER SYSTEMS

A.C. SOURCES

OPERATING

LIMITING CONDITION FOR OPERATION

3.8.1.1 (Continued)

ACTION:

- b. With a diesel generator inoperable:
 - 1) Demonstrate the OPERABILITY of the remaining A.C. sources by performing Specification 4.8.1.1.1a within 1 hour and at least once per 8 hours thereafter. Perform ACTION d. Demonstrate the OPERABILITY of the remaining diesel generator by performing Specification 4.8.1.1.2a.5) within 24 hours.*
 - 2) Restore at least two diesel generators 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, unless the following condition exists:
 - (a) The requirement for restoration of the diesel generator to OPERABLE status within 72 hours may be extended to 14** days if the Supplemental Emergency Power System (SEPS) is available, as specified in the Bases, and
 - (b) If at any time the SEPS availability cannot be met, either restore the SEPS to available status within 72 hours (not to exceed 14 days from the time the diesel generator originally became inoperable), or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

* The OPERABILITY of the remaining diesel generator need not be verified if it has been successfully operated within the last 24 hours, or if currently operating, or if the diesel generator became inoperable due to:

- 1. Preplanned preventive maintenance or testing,
- 2. An inoperable support system with no potential common mode failure for the remaining diesel generator, or
- 3. An independently testable component with no potential common mode failure for the remaining diesel generator.

**A one-time allowed outage time (AOT) extension for an inoperable diesel generator allows 30 days to restore the associated diesel generator to OPERABLE status. Compensatory measures within NEE Letters SBK-L-20068 dated July 13, 2020, and SBK-L-20117 dated September 23, 2020, will remain in effect during the extended AOT period. The one-time AOT extension shall expire upon completion of the maintenance or 90 days after the issuance of the amendment, whichever comes first. In addition, SEPS availability will be checked prior to entering the 30-day extended AOT, and subsequently once per shift during the 30-day extended AOT. If SEPS becomes unavailable any time during the extended AOT, restore SEPS to available within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. This 24-hour period will be allowed only once within any given extended EDG AOT.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 166 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 July 13, 2020, as supplemented by letter dated September 23, 2020 (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML20196L772 and ML20267A542, respectively), NextEra Energy Seabrook, LLC (NextEra or the licensee) submitted License Amendment Request (LAR) No. 20-01 requesting changes to the Technical Specifications (TSs) for the Seabrook Station, Unit No. 1 (Seabrook).

The LAR proposes revisions to TS 3/4.8.1, "A.C. [Alternating Current] Sources Operating," to allow for a one-time extension of the allowed outage time (AOT) for one emergency diesel generator (EDG) inoperable from 14 to 30 days. The proposed change would allow the licensee to perform planned maintenance on the B EDG while at power.

The supplement dated September 23, 2020, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the U.S. Nuclear Regulatory Commission (NRC, the Commission) staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on September 8, 2020 (85 FR 55507).

2.0 REGULATORY EVALUATION

2.1 System Description

In Section 2.1, "System Design and Operation," of the LAR, and Updated Final Safety Analysis Report (UFSAR) Section 8.3, "Onsite Power Systems," the licensee provided the following description of the Seabrook alternating current (AC) power system:

The onsite A.C. power systems include the 13,800V [volt] Distribution System, including the connections from the unit auxiliary transformers (UAT) and reserve auxiliary transformers (RAT); the 4160V distribution system, including the standby diesel generators, the Supplemental Emergency Power System and connections from the UATs and RATS; the 480V Distribution System; and the

120V Vital Instrumentation and Control Power System. The 4160V Distribution System consists of four buses, two of which are redundant Class 1 emergency busses supplying the redundant engineered safety features loads. These safety loads are divided into two separate and independent trains, Train A and B. The preferred power supply to each 4160-volt bus is from the UAT. An alternate source is available to each bus through a RAT. A standby power supply, consisting of a diesel generator, is available to each emergency bus. A non-safety related supplemental emergency power system (SEPS) is available as a backup power source, when one or both emergency diesel generators fail to start. SEPS is capable of providing the required safety related loads in the event of a loss of offsite power (LOP) coincident with the loss of one or both emergency diesel generators. During an event of a LOP and both EDGs fail to start and load, no seismic event or an event that requires safeguards actuation is assumed because this event is considered a non design basis event.

The standby power supply is provided by two redundant diesel engine generator systems of identical design and characteristics which supply onsite power of sufficient capacity and capability to shut down the reactor reliably. The capacity of each diesel generator is sufficient to meet the safety features demand caused by a loss of offsite power with or without a coincident loss-of-coolant accident.

Each diesel generator system comprises the auxiliaries necessary for fast start operation, connection to the 4160-volt emergency bus, and connections to the required services. No auxiliaries are shared between the diesel generator systems. External power sources, other than D.C. [direct current] control power from the unit's station batteries and A.C. power from vital uninterruptible power supply (UPS) units, are not required for starting or subsequent operation.

2.2 Description of Proposed TS Changes

In its supplement dated September 23, 2020, the licensee, in response to request for additional information (RAI) #4, proposed to revise Action b of TS Limiting Condition for Operation (LCO) 3.8.1.1 by adding a new asterisk (*) to Action b(2)(a) and a new footnote denoted by the asterisk (*) to allow a one-time AOT extension for an inoperable EDG from 14 to 30 days as follows:

ACTION

- (a) The requirement for restoration of the diesel generator to OPERABLE status within 72 hours may be extended to 14 days* if the Supplemental Emergency Power System (SEPS) is available, as specified in the Bases, and

*A one-time AOT extension for an inoperable diesel generator allows 30 days to restore the associated diesel generator to OPERABLE status. Compensatory measures within NEE Letters SBK-L-20068 dated July 13, 2020, and SBK-L-20117 dated September 23, 2020, will remain in effect during the extended AOT period. The one-time AOT extension shall expire upon completion of the maintenance or 90 days after the issuance of the amendment, whichever comes first. In addition, SEPS availability will be checked prior to entering the 30-day extended AOT, and subsequently once per shift thereafter during the 30-day extended AOT. If SEPS becomes unavailable any time during

the extended AOT, restore SEPS to available within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. This 24-hour period will be allowed only once within any given extended EDG AOT.

2.3 Regulatory Requirements and Guidance

The NRC staff used the following regulatory requirements to review the LAR:

Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix A, General Design Criteria for Nuclear Power Plants” (GDC). 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 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.

Provisions shall be included to minimize the probability of losing electric power from any of the remaining supplies as a result of, or coincident with, the loss of power generated by the nuclear power unit, the loss of power from the transmission network, or the loss of power from the onsite electric power supplies.

The regulation at 10 CFR 50.36, “Technical specifications,” requires, in part, that each applicant for a license authorizing operation of a production or utilization facility shall include in their application proposed TSs. Section 50.36(c) of 10 CFR requires that TSs include items in five specific categories related to station operation. These categories are (1) safety limits, limiting safety system settings, and limiting control settings; (2) LCOs; (3) surveillance requirements; (4) design features; and (5) administrative controls. The proposed changes to the Seabrook TSs relate to the LCO category.

The regulation at 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 AC sources (i.e., a station blackout (SBO)).

The regulation at 10 CFR 50.65, “Requirements for monitoring the effectiveness of maintenance at nuclear power plants,” requires, in part, that performing maintenance activities shall not reduce the overall availability of the structures, systems, and components (SSCs), which are important to safety of the plant. The regulations at 10 CFR 50.65(a)(4) require, in part, that before performing maintenance activities, the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities.

The NRC staff used the following guidance documents for review of the LAR:

NUREG-0800, Branch Technical Position (BTP) 8-8, “Onsite (Emergency Diesel Generators) and Offsite Power Sources Allowed Outage Time Extensions,” dated February 2012 (ADAMS Accession No. ML113640138), provides guidance to the NRC staff in reviewing LARs for

licensees proposing a one-time or permanent TS change to extend an EDG AOT beyond 72 hours.

Regulatory Guide (RG) 1.177, Revision 1, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications," dated May 2011 (ADAMS Accession No. ML100910008) describes, in part, an acceptable risk-informed approach specifically for assessing proposed one-time TS changes in completion times.

3.0 TECHNICAL EVALUATION

The NRC staff reviewed the proposed change to extend the AOT for the B EDG from 14 to 30 days.

3.1 Defense-in Depth Considerations

The purpose of NRC BTP 8-8 is to provide deterministic guidance for reviewing the defense in depth for EDGs and offsite power sources for which a one-time or permanent AOT extension is proposed to perform online maintenance of these power sources. The NRC staff reviewed the proposed 30-day AOT using the BTP 8-8 guidance. BTP 8-8 recommends that a supplemental power source capable of supplying the loss-of-offsite power (LOOP) loads to bring the unit to a cold shutdown be provided as a backup to a single inoperable EDG in case of a LOOP event concurrent with a failure of the remaining diesel generator during the extended AOT.

In the LAR, the licensee stated that the B EDG maintenance will be performed while at-power. In Section 2.1 of the LAR, the licensee stated, "The capacity of each diesel generator is sufficient to meet the safety features demand caused by a loss of offsite power with or without a coincident loss-of-coolant accident." In addition, in Section 3.2.2, "Safety Margin," of the LAR, the licensee stated that the proposed one-time extended AOT for the inoperable B EDG will not impact any assumptions or consequences specified in applicable safety analyses provided in the UFSAR.

The NRC staff reviewed UFSAR Chapters 8 and 15 and finds that during maintenance on the B EDG, the A EDG will remain available during normal operation to mitigate the consequences of an accident without offsite power to support safe shutdown of the unit. The licensee provided compensatory actions to protect the remaining A EDG during the proposed extended AOT, as discussed in Section 3.2 of this safety evaluation.

In its supplement dated September 23, 2020, the licensee, in response to RAI #1, stated the total connected load for SEPS is 4,371 kilowatt (kW), and each of the two SEPS generators has a capacity of 2,700 kW per unit, for a combined total of 5,400 kW. Also, the total fuel consumption required by SEPS to reach 200 degrees Fahrenheit (°F) is 8,675.8 gallons, and each SEPS generator has a fuel tank containing 6,085 gallons, for a total of 12,170 gallons available storage. The licensee further stated that the procedural requirements include a minimum of 4,775 gallons of fuel per engine, for a total on hand supply of 9,550 gallons.

LAR Section 2.1 and UFSAR Section 8.3 state that a non-safety related SEPS can provide the required safety-related loads in the event of a LOOP coincident with the loss of one or both EDGs. In addition, the TS average coolant temperature for cold shutdown is less than or equal to 200 °F. Therefore, the NRC staff finds that the SEPS has the capacity and sufficient fuel to supply the connected loads required to bring the unit to cold shutdown in the event of a LOOP concurrent with a failure of the A EDG while the B EDG is unavailable. The NRC staff finds that

the proposed change meets the intent of the BTP 8-8 guidance with respect to the capacity of the supplemental power source.

BTP 8-8 also recommends that the TSs contain required actions and completion times to verify the availability of the supplemental AC source within the last 30 days before entering the extended AOT by operating or bringing the power source to its rated voltage and frequency and ensuring all its auxiliary support systems are available or operational. BTP 8-8 further recommends verifying the availability of the supplemental source every 8-12 hours (once per shift) and to start shutting down the unit within 24 hours if the supplemental source becomes unavailable any time during the extended AOT.

In response to RAI #4, the licensee proposed to revise the TS footnote provided in the LAR for the AOT extension as follows:

In addition, SEPS availability will be checked prior to entering the 30-day extended AOT, and subsequently once per shift thereafter during the 30-day extended AOT. If SEPS becomes unavailable any time during the extended AOT, restore SEPS to available within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. This 24-hour period will be allowed only once within any given extended EDG AOT.

The NRC staff notes that the current TS LCO 3.8.1.1 Action b(2)(a) requires the availability of the SEPS for a 14-day AOT, as specified in the TS Bases. To verify the availability of the SEPS, TS Bases 3.8.1.1 states that an operational readiness status check of the SEPS must be performed when an EDG is inoperable, and the SEPS is relied upon as a backup power source. Additionally, the operational readiness status check, which is specified in Seabrook Technical Requirement 31, consists of: (1) verifying the SEPS is operationally ready for automatic start and energization of the selected emergency bus, (2) verifying 24-hour onsite fuel supply, and (3) verifying alignment to the selected 4,160 V emergency bus and associated 480 V bus.

As proposed in the revised footnote of TS LCO 3.8.1.1 Action b(2)(a), the licensee will perform the above verification of the availability of the SEPS prior to and once per shift during the extended 30-day extended AOT. In addition, the proposed footnote requires shutting down the unit within 24 hours if the SEPS becomes unavailable during the 30-day extended AOT. Therefore, the NRC staff finds that the licensee's verification of the availability of the SEPS prior to and during the extended AOT from 14 to 30 days and the unit shutdown requirement when the SEPS is unavailable during the extended AOT meet the intent of the BTP 8-8 guidance.

BTP 8-8 recommends that the time to make the supplemental power source available to supply the loads, including cross-connection, should be approximately 1 hour to enable restoration of battery chargers and control reactor coolant system inventory.

In response to RAI #2, the licensee stated that if the station had a LOOP event during maintenance on the B EDG with the transfer switch for SEPS aligned to Bus E6, the A EDG would automatically start and repower Bus E5. The SEPS would automatically start but would be manually connected to Bus E6 from the main control board in approximately 5 to 15 minutes. The licensee further described a scenario in which the A EDG did not repower Bus E5 during the LOOP event. The licensee stated that operators would enter a loss of all AC power scenario and attempt to restore power to at least one emergency bus by first trying to restore the A EDG. If not successful, operators would close the SEPS feeder breaker on Bus E6 from

the main control board to repower Bus E6. The licensee stated that the timeline to align the SEPS to an emergency bus in the above scenario would likely be 5 to 15 minutes.

The NRC staff finds that the SEPS will connect to the emergency bus within a timely manner to supply power to the safe shutdown loads, as recommended by the BTP 8-8 guidance.

To support the timeframe for making the supplemental power source available, BTP 8-8 recommends that plants assess their ability to cope with loss of all AC power (i.e., SBO) for this timeframe, independent of an alternate AC power source. UFSAR Section 8.4, "Compliance with 10 CFR 50.63, Loss of all Alternating Current Power (Station Blackout)," states that Seabrook relies on station batteries as a source of electrical power to cope with a 4-hour SBO.

The NRC staff notes that, since Seabrook is an AC independent plant for coping with an SBO, the plant will cope with the SBO using the station batteries for the estimated 5- to 15-minute timeframe for making the SEPS available. The NRC staff finds that Seabrook has the ability to cope with an SBO without an AC power source in accordance with 10 CFR 50.63 for the timeframe provided to make the SEPS available, as recommended by BTP 8-8.

BTP 8-8 recommends that a justification be provided for the duration of the requested AOT extension based on plant-specific past operating experience. In response to RAI #3, the licensee provided a list of maintenance activities for the planned scope of work on the B EDG, which is similar to the scope of work performed on the A EDG, and stated that the current schedule for the maintenance on the B EDG during the one-time 30-day extended AOT is approximately 18 days with contingencies. The licensee further justified the additional 12-day, for a total of 30-day AOT, to allow for any unforeseen issues related to the maintenance of the B EDG and unforeseen circumstances related to the public health emergency surrounding the Coronavirus Disease 2019.

The NRC staff finds that although the proposed AOT is beyond the BTP 8-8 14-day limit, the estimated time to complete the B EDG maintenance based on past operating experience and unforeseen circumstances is reasonable. The NRC staff finds the licensee's justification for the proposed 30-day AOT meets the intent of the BTP 8-8 guidance.

Based on the above evaluation, the NRC staff finds that the proposed AOT extension for the B EDG maintenance using the SEPS as a backup power source meets the defense-in-depth intent of the BTP 8-8 with respect to the provision of a supplemental power source during the extended AOT and is, therefore, acceptable.

3.2 Use of Compensatory Measures/Additional Defense-in-Depth Measures

In Section 3.2.1, "Compensatory Actions," of the LAR, the licensee provided the following compensatory actions during the proposed AOT extension:

- (1) No testing or maintenance activities will be planned during the extended AOT interval that could potentially cause a plant transient.
- (2) No testing or surveillances will be planned that could potentially adversely impact the A EDG during the extended AOT interval.

- (3) Operations will guard the equipment/ systems listed below in accordance with NextEra procedure OP-AA-102-1003, Attachment 2, Figure 5.1 when the B EDG is inoperable:
1. SEPS Diesel Generators, Breaker and Selected Control Panels
 2. Unit Auxiliary Transformers
 3. Reserve Auxiliary Transformers
 4. Generator Step-Up (GSU) Transformers
 5. Switchyard Breakers and Busses
 6. Switchyard Relay Room and Selected Control Cabinets
 7. Start-Up Feed Water Pump (SUFW)
 8. Emergency Feed Water Pumps (EFW)
 9. Motor-Driven EFW Pump Breaker
 10. A Diesel Generator and Selected Controls
- (4) Operations will verify that no adverse weather conditions are forecasted prior to entering the extended AOT interval.
- (5) Operations will coordinate with grid operators and request that conditions remain stable in accordance with Master/Local Control Center Procedure No. 1 (M/LCC 1) - Nuclear Plant Transmission Operations. The extended AOT interval will not be entered if Seabrook has been notified of entry into Master/Local Control Center Procedure No. 2 (M/LCC 2) - Abnormal Conditions Alert.

In response to RAI #5, the licensee provided an additional compensatory action:

As a compensatory measure during the extended one-time AOT for the B EOG, Seabrook operations will communicate daily with ISO [Independent System Operator] New England, and “ensure that significant grid perturbations (high grid loading unable to withstand a single contingency of line or generation outage) will not be expected during the extended AOT.”

In Section 3.2.3, “Other Defense-in-Depth Considerations,” of the LAR, the licensee stated, in part:

A reasonable balance among the prevention of core damage and consequence mitigation will be preserved during the proposed Allowed Outage Time extension. No other SSCs will be affected by the proposed AOT extension, and no limits will be imposed on any SSC performing its specified function. Elevated risk awareness and the protection of critical equipment will be executed (as shown in Compensatory Actions above) during the proposed AOT extension in accordance with existing plant procedures. However, these programmatic activities will be accompanied by pre-job and periodic (e.g., shift change) briefings, equipment walk-downs, progress updates, and increased operational and managerial scrutiny. As such, there will be no overreliance on programmatic activities as compensatory measures during the proposed AOT extension. ...

Potentially risk significant plant configurations will not occur during the proposed one-time AOT extension due to online risk assessment tools and increased operational and managerial scrutiny of plant operations. During the planned

maintenance of B EDG, no risk significant plant equipment will be removed from service, and protective measures will be implemented to reduce the likelihood of challenges to risk significant equipment.

The NRC staff finds that the above compensatory actions will help protect the offsite power sources and the remaining EDG and other equipment necessary to safely shut down the unit in case of a LOOP event during the extended AOT, as recommended by BTP 8-8. The NRC staff also finds that the above other defense-in-depth considerations provide reasonable measures for managing the increase in risk per 10 CFR 50.65(a)(4).

3.3 Safety Margin

As discussed in Sections 3.1 and 3.2 of this safety evaluation, the licensee will continue to meet the design-basis requirements to safely shut down the unit in case of a LOOP event during the extended AOT; therefore, the NRC staff finds that there will have no or minimal reduction in safety margin during the extended AOT duration.

3.4 Compliance with Existing Regulations

The regulations at 10 CFR 50.36(c) specify the requirements for TSs. The licensee proposed a one-time extension for the completion time of TS LCO 3.8.1.1 Action b(2)(a) (i.e., requirement for restoration of an inoperable EDG) from 14 to 30 days. During the entry into TS LCO 3.8.1.1 Action b(2)(a), the LCO will not be met due to the inoperable EDG, and the redundancy of the EDGs, as required by the TS LCO (in operating modes) and specified by GDC 17, will not be maintained. The regulations at 10 CFR 50.36(c)(2) permit a limited period to restore the inoperable train to operable status and/or take other remedial measures when the necessary redundancy is not maintained (e.g., one train in a redundant train system is inoperable). If these actions are not completed within the AOT, the TSs normally require that the plant exit the mode of applicability for the LCO.

The NRC staff finds that the actions added in the note for the one-time extension, along with the compensatory actions described in Sections 3.1 and 3.2 of this safety evaluation, ensure the regulations in 10 CFR 50.36(c)(2) continue to be met for restoring the inoperable B EDG to operable status. The NRC staff also finds that the use of SEPS as an alternate power source, as described in Section 3.1 of this safety evaluation, along with the compensatory actions described in Sections 3.1 and 3.2 of this safety evaluation, ensure that the intent of GDC 17 continues to be met. The staff also finds that the licensee will continue to comply with 10 CFR 50.63 and 50.65(a)(4), as discussed in Sections 3.1 and 3.2, respectively, of this safety evaluation.

3.5 Deterministic Conclusion

Based on the discussions in Sections 3.1 through 3.4 of this safety evaluation, the NRC staff finds that the proposed TS change will have minimal impact on the continued safe operation and safe shutdown capability of the plant and is, therefore, acceptable from a defense-in-depth perspective. The NRC staff concludes that the proposed TS change will have no or minimal adverse impact on the licensee's compliance with the existing regulatory requirements, as discussed in Section 2.3 of this safety evaluation.

3.6 Evaluation of Risk Insights

In the LAR, the licensee stated that it applied RG 1.177 as the basis for the proposed one-time increase in the AOT for the EDG B from 14 to 30 days. Each of the engineering issues in RG 1.177 was discussed in the LAR and compared to the acceptance guidelines for a one-time AOT extension in RG 1.177.

However, the discussion in this LAR on the history of the internal events peer reviews probabilistic risk assessment (PRA) did not support a conclusion that all aspects of the PRA had been independently peer-reviewed against all the internal events supporting requirements in ASME/ANS SA-b-2009. Additionally, the fire PRA had not yet been peer-reviewed. As a result, the NRC staff did not review the LAR as a risk-informed application. Accordingly, the NRC staff did not review the PRA models used to derive risk insights in the LAR to determine their technical acceptability as a basis to support this application. As a result, the NRC staff did not rely on the numerical results provided by the licensee.

The NRC staff did consider the risk insights provided by the licensee to aid in the deterministic review of the proposed changes. The staff reviewed the quantitative and qualitative risk insights provided in the LAR against applicable guidelines in RG 1.177, as the acceptance guidelines in RG 1.177 include both quantitative and qualitative guidelines.

3.6.1 Effective Compensatory Measures are Implemented to Reduce the Sources of Increased Risk, and There is No Overreliance on Programmatic Measures

In Section 3.2 of this safety evaluation, the NRC staff documented its review of the licensee's proposed compensatory measures and found that the compensatory actions will help protect the offsite power sources and the remaining EDG and other equipment necessary to safely shut down the unit in case of a LOOP event during the extended AOT, as recommended by BTP 8-8. The NRC staff also found that the defense-in-depth considerations provide reasonable measures for managing the increase in risk per 10 CFR 50.65(a)(4).

3.6.2 Appropriate Restrictions on Dominant Risk-Significant Configurations Associated with the Change

The licensee stated that potentially risk-significant plant configurations will not occur during the proposed AOT extension because of online risk assessment tools and increased operational and managerial scrutiny of plant operations. Further, as described in LAR Section 3.2.1, "Compensatory Actions," during the planned maintenance of the B EDG, no risk-significant plant equipment will be removed from service, and protective measures will be implemented to reduce the likelihood of challenges to risk-significant equipment. The NRC staff finds this acceptable because the licensee stated that it has identified and will avoid potentially risk-significant configurations and will use its available risk assessment tools to monitor the risk of actual plant configurations.

3.6.3 The NRC Staff's Independent Risk Assessment of the Proposal

The NRC staff used the NRC SPAR models for Seabrook to evaluate the quantitative risk insights associated with the licensee's request. The results of this independent assessment were consistent with the results reported by the licensee and well below the quantitative change in risk acceptance guidelines in RG 1.177.

3.6.4 Risk Insights Conclusion

The licensee-provided risk insights and the risk insights developed by the NRC staff both supported the engineering conclusions that the risk associated with the extension of the AOT is consistent with all the applicable acceptance guidelines in RG 1.177. The licensee further stated that it has identified and will avoid potentially risk-significant configurations and will use its available risk assessment tools to monitor the risk of actual plant configurations. Therefore, the NRC staff finds that the currently available risk insights and results did not challenge the engineering conclusions that the proposed change is an acceptable change that may be implemented as requested by the licensee.

3.7 Technical Conclusion

Based on the discussions in Sections 3.1 through 3.6 of this safety evaluation, the NRC staff finds that the proposed TS change will have minimal impact on the continued safe operation and safe shutdown capability of the plant, and that the licensee has identified, and will avoid, potentially risk-significant configurations and will use its available risk assessment tools to monitor the risk of actual plant configurations and is, therefore, acceptable. The NRC staff concludes that the proposed TS change will continue to comply with the regulations found in 10 CFR 50.36, 10 CFR 50.63, 10 50.65(a)(4), and the criteria found in GDC 17.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the State of New Hampshire and Commonwealth of Massachusetts officials were notified of the proposed issuance of the amendment on October 28, 2020. The officials had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding published in the *Federal Register* on (85 FR 55507). 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.

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Date: November 24, 2020

SUBJECT: SEABROOK STATION, UNIT NO. 1 - ISSUANCE OF AMENDMENT NO. 166
RE: REVISE TECHNICAL SPECIFICATION 3/4.8.1, "A.C. SOURCES OPERATING" (EPID L-2020-LLA-0157) DATED NOVEMBER 24, 2020

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