



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION I  
2100 RENAISSANCE BLVD.  
KING OF PRUSSIA, PA 19406-2713

June 27, 2017

Mr. Mano Nazar  
President and Chief Nuclear Officer  
Nuclear Division  
NextEra Energy Seabrook, LLC  
Mail Stop: EX/JB  
700 Universe Blvd.  
Juno Beach, FL 33408

**SUBJECT: SEABROOK STATION, UNIT NO. 1 – TEMPORARY  
INSTRUCTION 2515/191 INSPECTION REPORT 05000443/2017009**

Dear Mr. Nazar:

On May 25, 2017, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Seabrook Station, Unit No. 1 (Seabrook). On May 25, 2017, the NRC inspectors discussed the results of this inspection with Mr. Eric McCartney, Regional Vice President, and members of his staff. The results of this inspection are documented in the enclosed report.

The inspection examined activities conducted under your license as they relate to the implementation of mitigation strategies and spent fuel pool instrumentation orders (EA-12-049 and EA-12-051) and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans, your compliance with the Commission's rules and regulations, and with the conditions of your operating license. Within these areas, the inspection involved examination of selected procedures and records, observation of activities, and interviews with plant personnel.

Based on the results of this inspection, no violations of NRC requirements were identified.

M. Nazar

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This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

*/RA/*

Marc S. Ferdas, Chief  
Technical Support and Assessment Branch  
Division of Reactor Projects

Docket No. 50-443  
License No. NPF-86

Enclosure:  
Inspection Report 05000443/2017009  
w/Attachment: Supplementary Information

cc w/encl: Distribution via ListServ

SUBJECT: SEABROOK STATION, UNIT NO. 1 – TEMPORARY  
 INSTRUCTION 2515/191 INSPECTION REPORT 05000443/2017009  
 DATED JUNE 27, 2017

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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION I**

Docket No. 50-443

License No. NPF-86

Report No. 05000443/2017009

Licensee: NextEra Energy Seabrook, LLC (NextEra)

Facility: Seabrook Station, Unit No. 1 (Seabrook)

Location: Seabrook, NH 03874

Dates: May 22-25, 2017

Inspectors: F. Arner, Senior Reactor Analyst, Division of Reactor Safety (DRS)  
M. Patel, Reactor Engineer, DRS  
P. Meier, Resident Inspector

Approved by: Marc S. Ferdas, Chief  
Technical Support and Assessment Branch  
Division of Reactor Projects

**SUMMARY**

Inspection Report 05000443/2017009; 05/22/2017 – 05/25/2017; Seabrook; Temporary Instruction (TI) 2515/191, Inspection of the Implementation of Mitigation Strategies and Spent Fuel Pool Instrumentation Orders and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans.

The inspection covered a one week inspection by one senior reactor analyst, a reactor engineer, and the resident inspector. No findings were identified. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 6.

## REPORT DETAILS

### 4. OTHER ACTIVITIES

#### 4OA5 Other Activities

##### TI 2515/191 – Inspection of the Implementation of Mitigation Strategies and Spent Fuel Pool Instrumentation Orders and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans

The objective of TI 2515/191, “Inspection of the Implementation of Mitigation Strategies and Spent Fuel Pool Instrumentation Orders and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans,” is to verify: (1) that licensees have adequately implemented the mitigation strategies as described in the licensee’s Final Integrated Plan (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16214A244) and the NRC’s plant safety evaluation (ADAMS Accession No. ML16321A418); (2) that the licensees installed reliable water-level measurement instrumentation in their spent fuel pools (SFPs); and (3) that licensees have implemented emergency preparedness enhancements as described in their site-specific submittals and NRC safety assessments, including dose assessment capability, enhancements to ensure that staffing is sufficient, and that communications can be maintained during beyond-design-basis external events.

The team verified that plans for complying with NRC Orders EA-12-049, “Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design Basis External Events,” (ADAMS Accession No. ML12054A735) and EA-12-051, “Order Modifying Licenses With Regard to Reliable Spent Fuel Pool Instrumentation,” (ADAMS Accession No. ML12056A044) were in place and were being implemented by NextEra. The team also verified that NextEra had implemented staffing and communications plans provided in response to the March 12, 2012, request for information letter and dose assessment information provided per COMSECY-13-0010, “Schedule and Plans for Tier 2 Order on Emergency Preparedness for Japan Lessons Learned,” dated March 27, 2013 (ADAMS Accession No. ML12339A262).

The team discussed the plans and strategies with NextEra personnel, reviewed documentation, completed a tabletop exercise involving a beyond design basis event leading to an extended loss of offsite power and, where appropriate, performed plant walk downs to verify that the strategies could be implemented as stated in NextEra’s submittals and the NRC staff prepared safety evaluation. For most strategies, this included verification that the strategy was feasible, procedures and/or guidance had been developed, training had been provided to plant staff, and required equipment had been identified and staged. Specific details of the team’s inspection activities are described in the following sections. Documents reviewed for each section of this report are listed in the Attachment.

## 1. Mitigation Strategies for Beyond-Design Basis External Events

### a. Inspection Scope

The team examined NextEra's established guidelines and implementing procedures for the beyond-design-basis mitigation strategies. The team assessed how the NextEra staff coordinated and documented the interface/transition between existing off-normal and emergency operating procedures with the newly developed mitigation strategies. The team selected a number of mitigation strategies and conducted plant walk downs with licensed operators and responsible plant staff to assess: the adequacy and completeness of the procedures; familiarity of operators with the procedure objectives and specific guidance; staging and compatibility of equipment; and the practicality of the operator actions prescribed by the procedures, consistent with the postulated scenarios.

The team verified that a preventive maintenance program had been established for the Diverse and Flexible Coping Strategies (FLEX) portable equipment and that periodic equipment inventories were in place and being conducted. Additionally, the team examined the introductory and planned periodic/refresher training provided to the Operations and Seabrook staff most likely to be tasked with implementation of the FLEX mitigation strategies. The team also reviewed the introductory and planned periodic training provided to the Emergency Response Organization personnel.

### b. Assessment

Based on samples selected for review, the inspectors verified that NextEra satisfactorily implemented appropriate elements of the FLEX strategy as described in the plant specific submittal(s) and the associated safety evaluation (ADAMS Accession No. ML16321A418) and determined that NextEra was in compliance with NRC Order EA-12-049.

The team verified that NextEra satisfactorily:

- Developed and issued FLEX Support Guidelines (FSGs) to implement the FLEX strategies for postulated external events;
- Integrated their FSGs into their existing emergency operating procedures and off-normal procedures such that entry into and departure from the FSGs are clear when using existing plant procedures;
- Protected FLEX equipment from site-specific hazards;
- Developed and implemented adequate testing and maintenance of FLEX equipment to ensure their availability and capability;
- Trained their staff to assure personnel proficiency in the mitigation of beyond-design-basis events; and
- Developed procedures to ensure that the necessary off-site FLEX equipment will be available from off-site locations.

The team verified that inspector observations identified during the inspection were entered into NextEra's corrective action program, where appropriate.

### c. Findings

No findings were identified.

## 2. Spent Fuel Pool Instrumentation

### a. Inspection Scope

The team examined NextEra's newly installed SFP instrumentation. Specifically, the team verified the sensors were installed as described in the plant specific submittals and the associated safety evaluation, and that the cabling for the power supplies and the indications for each channel are physically and electrically separated. In addition, the team verified that NextEra had evaluated environmental conditions and accessibility of the instrumentation.

The team verified that NextEra had approved procedures for maintenance, testing, calibration, and use of the primary and backup SFP instrumentation channels. The team also verified that the procedures followed the industry guidance contained in Nuclear Energy Institute 12-02, "Industry Guidance for Compliance with NRC Order EA-12-051, "To Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation," and that these procedures were part of an existing NextEra process to be maintained.

### b. Assessment

Based on samples selected for review, the team determined that NextEra satisfactorily installed and established appropriate operating and maintenance controls for the SFP instrumentation as described in the plant specific submittals and the associated safety evaluation. The team determined that NextEra was in compliance with NRC Order EA-12-051.

The team verified that NextEra satisfactorily:

- Installed the SFP instrumentation sensors, cabling, and power supplies to provide physical and electrical separation as described in the plant specific submittals and safety evaluation;
- Installed the SFP instrumentation display in the accessible location, and environmental conditions as described in the plant specific submittals;
- Trained their staff to assure personnel proficiency with the maintenance, testing, and use of the SFP instrumentation; and
- Developed and issued procedures for maintenance, testing, and use of the reliable SFP instrumentation.

The team verified that issues identified during the inspection were entered into NextEra's corrective action program.

### c. Findings

No findings were identified.



### 3. Staffing and Communication Request for Information

#### a. Inspection Scope

Through discussions with plant staff, review of documentation, and plant walk downs, the team verified that NextEra had implemented required changes to staffing, communications equipment, and facilities to support an extended loss of all AC power (ELAP) scenario as described in NextEra's staffing assessment and the NRC safety evaluation. The team also verified that NextEra had implemented dose assessment (including releases from SFPs) capability using site-specific dose assessment software, as described in NextEra's dose assessment submittal.

#### b. Assessment

The team reviewed information provided in NextEra's dose assessment submittal and in response to the NRC's March 12, 2012, request for information letter (ML12053A340), and verified that NextEra satisfactorily implemented enhancements pertaining to Near-Term Task Force (NTTF) Recommendation 9.3, response to a large scale natural emergency event that results in an ELAP and impedes access to the site.

The team verified the following:

- NextEra satisfactorily implemented required staffing changes to support an ELAP scenario;
- Emergency preparedness communications equipment and facilities were sufficient for dealing with an ELAP scenario; and
- NextEra implemented dose assessment capabilities (including releases from SFPs) using Seabrook's site-specific dose assessment software and approach.

The team verified that issues identified during the inspection were entered into NextEra's corrective action program.

#### c. Findings

No findings were identified.

### 4OA6 Meetings, Including Exit

On May 25, 2017, the team debriefed the inspection results to Mr. Eric McCartney, Regional Vice President, and other members of the Seabrook staff. The team verified that no proprietary information was retained by team members or documented in this report.

## **ATTACHMENT: SUPPLEMENTARY INFORMATION**

## **SUPPLEMENTARY INFORMATION**

### **KEY POINTS OF CONTACT**

#### Licensee Personnel

E. McCartney, Site Vice President  
C. Domingos, Plant General Manager  
V. Brown, Senior Licensing Engineer  
K. Browne, Licensing Manager  
E. Mallett, Shift Manager  
J. Fecteau, Senior Nuclear Systems Operator  
S. Folsom, Maintenance Programs

### **LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATED**

#### Opened and Closed

None

#### Discussed

None

### **LIST OF DOCUMENTS REVIEWED**

#### Procedures

ECA-0.0, Loss of All AC Power, Revision 51  
FSG-0.0, Extended Loss of All AC Power With SEPS, Revision 2  
FSG-0.1, Extended Loss of All AC Power Without SEPS, Revision 1  
FSG-3, Alternate Low Pressure Feedwater, Revision 0  
FSG-4, ELAP Power Management, Revision 2  
FSG-5, Initial Assessment and Flex Equipment Staging, Revision 3  
FSG-6, Alternate CST Makeup, Revision 0  
FSG-10, SI Accumulator Isolation, Revision 0  
FSG-3.1, Alternate Low Pressure Feedwater Equipment Deployment, Revision 0  
FSG-4.1, ELAP Power Management Equipment Deployment, Revision 0  
FSG-5.1, FLEX Equipment Deployment, Revision 1  
FSG-6.1, Alternate CST Makeup Equipment Deployment, Revision 0  
FSG-11.1, Alternate SFP Makeup and Cooling Equipment Deployment, Revision 0  
FSG-3.1.1, FLEX Low Pressure Pump (FLPP) Operation, Revision 0  
FSG-4.1.1, FLEX 405 KW Diesel Generator Operation, Revision 1  
FSG-7.1.1, Control Room Instrumentation Alternate Indication Readout, Revision 1  
IS1682.224, 1-SF-L-2616 Train A Spent Fuel Pool Level Calibration, Revision 4  
OS1215.07, Loss of Spent Fuel Pool Cooling or Level, Revision 17  
OX1462.01, FLEX Equipment Inventory and Readiness Surveillance, Revision 6  
OX1462.07, FLEX 405 KW Diesel Generator Periodic Testing, Revision 6

#### Drawings

1185727, Flex 405kW Diesel Generator Mechanical and Electrical Information, Revision 0  
PID-1-SI-D20447-EC282580, SI High Head Injection, Revision 18

Calculations

B1-TMB-CALC-001, Robust Missile Protection Barrier, Calculation and Analyses, Service Water Pump House, Revision 0

CW-29, Design of Walls Above Grade, Roof Slab and Hatch Covers, Service Water Pump House, Revision 7

C-X-1-20718-CALC, Diverse and Flexible Coping Strategy Hydraulic Analysis, Revision 1

SBC-227-CALC, DC System Evaluation for Station Blackout and Beyond Design Basis External Events, Revision 7

Evaluations

EE-15-018, MSFW Pipe Chase ELAP Ventilation Evaluation, Revision 0

Work Orders

40478606

Other

DFCS, Diverse and Flexible Coping Strategies (FLEX) Appendix C Flex Equipment Availability, Revision 0

DFCS, Diverse and Flexible Coping Strategies (FLEX) Program, Revision 1

FP100893 (Seismic Evaluation of Seabrook SEPS) Revision 0

NEI 12-02, Industry Guidance for Compliance with NRO Order EA-12-051, Revision 1

NRC Safety Evaluation Regarding Implementation of Mitigating Strategies and Reliable Spent Fuel Pool Instrumentation Related To Orders EA-12-049 And EA-12-051, Dated 12/1/2016

SBK-L-16108, Final Compliance Letter, NextEra Energy Seabrook, LLC Status of Required Actions for EA-12-049 Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events, Dated 7/26/2016

ARs Reviewed

02206524

02206670

02130541

02125038

02125306

ARs Generated

02206859

02207095

02206922

02206855

02207089

02207086

**List of Acronyms**

AC	Alternating Current
ADAMS	Agencywide Documents Access and Management System
AR	Action Request
DFCS	Diverse and Flexible Coping Strategy
ELAP	Extended Loss of all AC Power
FLEX	Diverse and Flexible Coping Strategies
FSG	FLEX Support Guidelines
NRC	Nuclear Regulatory Commission, U.S.
NTTF	Near-Term Task Force
SFP	Spent Fuel Pool
TI	Temporary Instruction