



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION I  
2100 RENAISSANCE BLVD., SUITE 100  
KING OF PRUSSIA, PA 19406-2713

February 8, 2017

Mr. Eric McCartney  
Site Vice President  
Seabrook Nuclear Power Plant  
NextEra Energy Seabrook, LLC  
c/o Mr. Kenneth Browne  
P.O. Box 300  
Seabrook, NH 03874

SUBJECT: SEABROOK STATION, UNIT NO. 1 – INTEGRATED INSPECTION REPORT  
05000443/2016004

Dear Mr. McCartney:

On December 31, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Seabrook Station, Unit No. 1 (Seabrook). On January 19, 2017, the NRC inspectors discussed the results of this inspection with you and other members of your staff. The results of this inspection are documented in the enclosed report.

The NRC inspectors did not identify any finding or violation of more than minor significance.

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 the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding.

Sincerely,

*/RA/*

Fred L. Bower, III, Chief  
Reactor Projects Branch 3  
Division of Reactor Projects

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

Enclosure:  
Inspection Report 05000443/2016004  
w/Attachment: Supplementary Information

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E. McCartney

-2-

SUBJECT: SEABROOK STATION, UNIT NO. 1 – INTEGRATED INSPECTION REPORT  
05000443/2016004 dated February 8, 2017

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**U.S. NUCLEAR REGULATORY COMMISSION**

## REGION I

Docket No.: 50-443

License No.: NPF-86

Report No.: 05000443/2016004

Licensee: NextEra Energy Seabrook, LLC

Facility: Seabrook Station, Unit No.1

Location: Seabrook, New Hampshire 03874

Dates: October 1, 2016 through December 31, 2016

Inspectors: P. Cataldo, Senior Resident Inspector  
P. Meier, Resident Inspector  
R. Vadella, Project Engineer  
B. Dionne, Health Physicist  
W. Cook, Senior Reactor Analyst  
J. DeBoer, EP Inspector  
P. Ott, Operations Engineer

Approved by: Fred L. Bower, Chief  
Reactor Projects Branch 3  
Division of Reactor Projects

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**SUMMARY**

IR 05000443/2016004; 10/01/2016-12/31/2016; Seabrook Station, Unit No. 1; Routine Integrated Inspection Report.

This report covered a three-month period of inspection by resident inspectors and announced baseline inspections performed by regional inspectors. 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

### Summary of Plant Status

Seabrook operated at full power for the entire assessment period, with the exception of a minor down-power on December 9, 2016, to perform scheduled main turbine control valve testing. Documents reviewed for each section of this inspection report are listed in the Attachment.

## 1. REACTOR SAFETY

### **Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity**

#### 1R01 Adverse Weather Protection (71111.01 – 1 sample)

##### Readiness for Seasonal Extreme Weather Conditions

##### a. Inspection Scope

The inspectors reviewed NextEra's readiness for the onset of seasonal cold temperatures. The review focused on the emergency feedwater pump building, the service water (SW) pumphouse and the cooling tower (CT) pump area. The inspectors reviewed the Updated Final Safety Analysis Report (UFSAR), technical specifications (TSs), control room logs, and the corrective action program (CAP) to determine what temperatures or other seasonal weather could challenge these systems, and to ensure NextEra personnel had adequately prepared for these challenges. The inspectors reviewed station procedures, including NextEra's seasonal weather preparation procedure and applicable operating procedures. The inspectors performed walkdowns of the selected systems to ensure station personnel identified issues that could challenge the operability of the systems during cold weather conditions.

##### b. Findings

No findings were identified.

#### 1R04 Equipment Alignment

##### .1 Partial System Walkdowns (71111.04 – 4 samples)

##### a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

- CT SW train 'B' during 'A' train maintenance on October 11
- 480V AC Bus 52 transformer PM on October 18
- 480V AC Bus 52 secondary breaker maintenance on October 18
- Startup feed pump following maintenance run on October 20

The inspectors selected these systems based on their risk-significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors reviewed applicable operating procedures, system diagrams, the UFSAR, TSs, work orders (WOs), condition reports (CRs), and the impact of ongoing work activities on redundant trains of equipment to identify conditions that could have impacted the system's performance of its intended safety functions. The inspectors also performed field

walkdowns of accessible portions of the systems to verify system components and support equipment were aligned correctly and were operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no deficiencies. The inspectors also reviewed whether NextEra staff had properly identified equipment issues and entered them into the CAP for resolution with the appropriate significance characterization.

b. Findings

No findings were identified.

.2 Full System Walkdown (71111.04S – 1 sample)

a. Inspection Scope

On November 17, 2016, the inspectors performed a complete system walkdown of accessible portions of the 'A' train voltage direct current (VDC) system alignment following battery replacement, to verify the existing equipment lineup was correct. The inspectors reviewed operating procedures, surveillance tests, system diagrams, equipment line-up check-off lists, WOs, work requests, CRs, TSS, and the UFSAR to verify the system was aligned to perform its required safety functions. The inspectors also reviewed electrical power availability, component lubrication and equipment cooling, hanger and support functionality, and operability of support systems. The inspectors performed field walkdowns of accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no deficiencies. The inspectors also reviewed whether NextEra staff had appropriately evaluated and resolved any equipment issues and other performance deficiencies and entered them into their CAP for resolution with the appropriate significance characterization.

b. Findings

No findings were identified.

1R05 Fire Protection

Resident Inspector Quarterly Walkdowns (71111.05Q – 5 samples)

a. Inspection Scope

The inspectors conducted tours of the areas listed below to assess the material condition and operational status of fire protection features. The inspectors verified that NextEra controlled combustible materials and ignition sources in accordance with administrative procedures. The inspectors verified that fire protection and suppression equipment was available for use as specified in the area pre-fire plan, and passive fire barriers were maintained in good material condition. The inspectors also verified that station personnel implemented compensatory measures for out of service, degraded, or inoperable fire protection equipment, as applicable, in accordance with procedures.

- Cable spreading room (CB-F-2A-A) on October 18
- Containment enclosure ventilation area (CE-F-1-A) on October 19
- Turbine building 50' (TB-F-2-0, TB-F-2-Z) on December 29

- Turbine building 75' (TB-F-3-0) on December 29
- Service & circulating water pump house (SW-F-1A-Z) on December 29

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06 – 1 sample)

Internal Flooding Review

a. Inspection Scope

The inspectors reviewed the UFSAR, the site flooding analysis, and plant procedures to identify internal flooding susceptibilities for the site. The inspectors review focused on the cooling water tower pump room to verify the adequacy of drains, electrical connections and boxes, and control circuits. It verified the adequacy of equipment seals located below the flood line, floor and water penetration seals, watertight door seals, common drain lines and sumps, sump pumps, level alarms, control circuits, and temporary or removable flood barriers. It assessed the adequacy of operator actions that NextEra had identified as necessary to cope with flooding in this area and also reviewed the CAP to determine if NextEra was identifying and correcting problems associated with both flood mitigation features and site procedures for responding to flooding.

b. Findings

No findings were identified.

1R07 Heat Sink Performance (711111.07A – 1 sample)

a. Inspection Scope

The inspectors reviewed the 'B' emergency diesel generator (EDG) heat exchanger leak repair to ensure readiness and availability from November 16 through 18. They observed maintenance activities, which included tube leak investigation and plugging. The inspectors discussed the results of the most recent inspection with applicable NextEra staff and observed the as-found and as-left conditions. The inspectors verified that NextEra initiated appropriate corrective actions for identified deficiencies. The inspectors also verified that the number of tubes plugged within the heat exchanger did not exceed the maximum amount allowed.

b. Findings

No findings were identified.



1R11 Licensed Operator Regualification Program and Licensed Operator Performance  
(71111.11Q – 2 samples, 71111.11A – 1 sample)

.1 Quarterly Review of Licensed Operator Regualification Testing and Training

a. Inspection Scope

The inspectors observed licensed operator simulator training on October 19, 2016, which included an anticipated transient without scram scenario. The inspectors evaluated operator performance during the simulated event and verified completion of risk significant operator actions, including the use of abnormal and emergency operating procedures. The inspectors assessed the clarity and effectiveness of communications, implementation of actions in response to alarms and degrading plant conditions, and the oversight and direction provided by the control room supervisor. The inspectors verified the accuracy and timeliness of the emergency classification made by the shift manager and the technical specification action statements entered by the shift manager. Additionally, the inspectors assessed the ability of the crew and training staff to identify and document crew performance problems.

b. Findings

No findings were identified.

.2 Quarterly Review of Licensed Operator Performance in the Main Control Room

a. Inspection Scope

The inspectors observed infrequently performed test or evolution briefings, pre-shift briefings, and reactivity control briefings to verify that the briefings met the criteria specified in NextEra's Administrative Procedure OP-AA-100-1000, "Conduct of Operations," Revisions 18 and 19. In addition, on October 6, 2016, the inspectors observed: control room operators utilize alarm response procedures (ARP) following an unexpected ground on unit substation (US)-52; reactivity (dilution) activity and setup for reactor coolant system hotleg calibration, which included: (1) the placement of condenser steam dump valve control system into steam pressure mode, (2) initiation of forced pressurizer sprays, (3) placement of the rod control system into manual control, and (4) placement of the pressurizer level control system into manual control. The inspectors also observed a deviation log entry for configuration control of power operated relief valve (PORV) RC-456B Block Valve, RC-V-124, which was left open during instrumentation and controls (I&C) performance of surveillance testing. Additionally, on December 19, 2016, the inspectors observed a pre-job brief and performance of a pressurizer pressure operational test and a quarterly PORV block valve timing test, conducted with both Operations and I&C technicians; several annunciator alarm response activities resulting from field activities; recovery from venting the pressurizer relief tank (PRT); and verified senior reactor operator (SRO) TS entries for testing and technical requirements manual (TRM) review for emergent work.

On December 21, 2016, inspectors observed a pre-job brief and high risk discussion, including the reactivity effects of steam usage during performance of the turbine-driven emergency feedwater (EFW) pump surveillance testing and associated valve timing testing, as well as coordination with the emergency news manager for the steam release and chemistry pre-requisites for the testing; and unexpected annunciator response involving SW travelling screen high d/p. The inspectors, as applicable, observed

operator performance to verify that procedure use, crew communications, and coordination of activities between work groups similarly met established expectations and standards.

b. Findings

No findings were identified.

.3 Annual Operator Testing

a. Inspection Scope

On December 15, 2016, one NRC region-based inspector conducted an in-office review of results of the licensee-administered annual operating tests for 2016 for Seabrook Station Unit No.1 operators. The inspection assessed whether Pass/Fail rates were consistent with the guidance of NRC Inspection Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process." The review verified that the failure rate (individual or crew) did not exceed 20 percent.

- None of the 47 operators failed any section of the Annual Exam. The overall individual failure rate was 0.0 percent.
- None of the 10 crews failed the simulator test. The crew failure rate was 0.0 percent.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12Q – 4 samples)

a. Inspection Scope

The inspectors reviewed the samples listed below to assess the effectiveness of maintenance activities on structure, system, and component (SSC) performance and reliability. The inspectors reviewed system health reports, CAP documents, maintenance WOs, and maintenance rule (MR) basis documents to ensure that NextEra was identifying and properly evaluating performance problems within the scope of the MR. For each sample selected, the inspectors verified that the SSC was properly scoped into the MR in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 50.65 and verified that the (a)(2) performance criteria established by NextEra staff were reasonable. As applicable, for SSCs classified as (a)(1), the inspectors assessed the adequacy of goals and corrective actions to return these SSCs to (a)(2). Additionally, the inspectors ensured that NextEra staff was identifying and addressing common cause failures that occurred within and across MR system boundaries.

- SW system leak downstream of 1-SW-V5 on October 4
- 'A' VDC battery cell replacement activities during October - November 2016
- Instrument air system repair history and improvement activities in November 2016
- Breaker maintenance and several associated component failures PC during November – December 2016

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 3 samples)

a. Inspection Scope

The inspectors reviewed station evaluation and management of plant risk for the maintenance and emergent work activities listed below to verify that NextEra performed the appropriate risk assessments prior to removing equipment for work. The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that NextEra personnel performed risk assessments as required by 10 CFR 50.65(a)(4) and that the assessments were accurate and complete. When NextEra performed emergent work, the inspectors verified that operations personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work and discussed the results of the assessment with the station's probabilistic risk analyst to verify plant conditions were consistent with the risk assessment. The inspectors also reviewed the technical specification requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

- CT SW pump 'A' relay testing on October 14
- 'A' vital DC battery inoperable and solar magnetic disturbance off normal condition procedure entry on October 25
- 'A' primary component cooling water (PCCW) pump motor change out on November 15 & 16

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 – 1 sample)

a. Inspection Scope

The inspectors reviewed operability determinations for the following degraded or non-conforming conditions based on the risk significance of the associated components and systems:

- CT SW pump 'A' discharge piping leak on October 14

The inspectors evaluated the technical adequacy of the operability determinations to assess whether technical specification operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the TSs and UFSAR to NextEra's evaluations to determine whether the components or systems were operable. The inspectors confirmed, where appropriate, compliance with bounding limitations associated with the evaluations. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled by NextEra.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18 – 2 samples)

.1 Temporary Modifications

a. Inspection Scope

The inspectors reviewed the temporary modifications listed below to determine whether the modifications affected the safety functions of systems that are important to safety. The inspectors reviewed 10 CFR 50.59 documentation and post-modification testing results, and conducted field walkdowns of the modifications to verify that the temporary modifications did not degrade the design bases, licensing bases, and performance capability of the affected systems.

- 'A' VDC battery cell replacement during October - November 2016

b. Findings

No findings were identified.

.2 Permanent Modifications

a. Inspection Scope

The inspectors evaluated a modification to the SW pumphouse ventilation system, implemented by engineering change (EC) 287688, "Service Water Pumphouse Thermostat Setpoint Change, Revision 0." The inspectors verified that the design bases, licensing bases, and performance capability of the affected systems were not degraded by the modification. In addition, the inspectors reviewed modification documents associated with the design change, including WO 40497981, which implemented the applicable thermostat setpoint changes. The inspectors verified that affected interface documents, such as the calibration procedures utilized to adjust the setpoints, had been revised to the settings consistent with the modification requirements.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 5 samples)

a. Inspection Scope

The inspectors reviewed the post-maintenance tests for the maintenance activities listed below to verify that procedures and test activities adequately tested the safety functions that may have been affected by the maintenance activity, that the acceptance criteria in the procedure were consistent with the information in the applicable licensing basis and/or design basis documents, and that the test results were properly reviewed and accepted and problems were appropriately documented. The inspectors also walked down the affected job site, observed the pre-job brief and post-job critique where possible, confirmed work site cleanliness was maintained, and witnessed the test or

reviewed test data to verify quality control hold point were performed and checked, and that results adequately demonstrated restoration of the affected safety functions.

- CT SW pump 'A' relay testing on October 17
- 480V AC Bus 52 transformer PM/secondary breaker maintenance on October 18
- 'A' residual heat removal (RHR) pump seal cooler flow instrument leak repair on November 4
- 'A' PCCW pump motor change out on November 15 and 16
- 'B' EDG heat exchanger leak repair on November 16 through 18

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 – 3 samples)

a. Inspection Scope

The inspectors observed performance of surveillance tests and/or reviewed test data of selected risk-significant SSCs to assess whether test results satisfied TSs, the UFSAR, and NextEra procedure requirements. The inspectors verified that test acceptance criteria were clear, tests demonstrated operational readiness and were consistent with design documentation, test instrumentation had current calibrations and the range and accuracy for the application, tests were performed as written, and applicable test prerequisites were satisfied. Upon test completion, the inspectors considered whether the test results supported that equipment was capable of performing the required safety functions. The inspectors reviewed the following surveillance tests:

- TS surveillance frequency change project and evaluation for the analog channel operational test frequency extension
- 'B' train RHR quarterly flow and valve stroke testing on November 29 (in-service test)
- '2B' charging pump flow testing on December 5

b. Findings

No findings were identified.

**Cornerstone: Emergency Preparedness**

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04 – 1 sample)

a. Inspection Scope

NextEra implemented various changes to the Seabrook Emergency Action Levels (EALs), Emergency Plan, and Implementing Procedures. NextEra had determined that, in accordance with 10 CFR 50.54(q)(3), any change made to the EALs, Emergency Plan, and its lower-tier implementing procedures, had not resulted in any reduction in effectiveness of the Plan, and that the revised Plan continued to meet the standards in 50.47(b) and the requirements of 10 CFR Part 50 Appendix E.

The inspectors performed an in-office review of all EAL and Emergency Plan changes submitted by NextEra as required by 10 CFR 50.54(q)(5), including the changes to lower-tier emergency plan implementing procedures, to evaluate for any potential

reductions in effectiveness of the Emergency Plan. This review by the inspectors was not documented in an NRC Safety Evaluation Report and does not constitute formal NRC approval of the changes. Therefore, these changes remain subject to future NRC inspection in their entirety. The requirements in 10 CFR 50.54(q) were used as reference criteria.

b. Findings

No findings were identified.

2. RADIATION SAFETY

**Cornerstone: Public Radiation Safety**

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01 – 3 samples)

a. Inspection Scope

The inspectors reviewed Next Era's performance in assessing and controlling radiological hazards in the workplace. The inspectors used the requirements contained in 10 CFR Part 20, TSs, applicable Regulatory Guides (RGs), and the procedures required by TSs as criteria for determining compliance.

Inspection Planning

The inspectors reviewed the performance indicators (PIs) for the occupational exposure cornerstone, radiation protection (RP) program audits, and reports of operational occurrences in occupational radiation safety since the last inspection.

Radiological Hazard Assessment (1 sample)

The inspectors conducted independent radiation measurements during walkdowns of the facility and reviewed, air sampling and analysis, continuous air monitor use, and any changes to plant operations since the last inspection to verify sampling/monitoring adequacy of any new radiological hazards for onsite workers or members of the public.

Contamination and Radioactive Material Control (1 sample)

The inspectors observed the monitoring of potentially contaminated material leaving the radiological controlled area and inspected the methods and radiation monitoring instrumentation used for control, survey, and release of that material.

Radiological Hazards Control and Work Coverage (1 sample)

The inspectors assessed the use of continuous air monitoring, air sampling and engineering controls; and dosimetry monitoring were consistent with the present conditions.

b. Findings

No findings were identified.

## 2RS5 Radiation Monitoring Instrumentation (71124.05)

### a. Inspection Scope

The inspectors reviewed performance in assuring the accuracy and operability of radiation monitoring instruments used to protect occupational workers during plant operations and from postulated accidents. The inspectors used the requirements in 10 CFR Part 20, RGs, American National Standards Institute (ANSI) 323A, N323D, and N42.14, and procedures required by TSs as criteria for determining compliance.

#### Inspection Planning

The inspectors reviewed Next Era's UFSAR, RP audits, records of in-service survey instrumentation, and procedures for instrument source checks and calibrations.

#### Calibration and Testing Program

The inspectors reviewed radioactive effluent discharge system surveillance test results based on TS acceptance criteria. The inspectors verified that high-range effluent monitors used in emergency operating procedures are calibrated and operable and have post-accident effluent sampling capability.

### b. Findings

No findings were identified.

## 4. **OTHER ACTIVITIES**

### 4OA1 Performance Indicator Verification (71151)

#### .1 Mitigating Systems Performance Index (3 samples)

### a. Inspection Scope

The inspectors reviewed NextEra's submittal of the Mitigating Systems Performance Index for the following systems for the period of October 1, 2015, through September 30, 2016:

- Safety System Functional Failures (MS05)
- RHR System (MS09)
- Cooling Water System (MS10)

To determine the accuracy of the PI data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7. The inspectors also reviewed NextEra's operator narrative logs, mitigating systems performance index derivation reports and basis documents, event reports, and NRC integrated inspection reports to validate the accuracy of the submittals.

### b. Findings

No findings were identified.

.2 Occupational Exposure Control Effectiveness (1 sample)

a. Inspection Scope

The inspectors reviewed licensee submittals for the occupational radiological occurrences PI for the fourth quarter 2015 through the third quarter 2016. The inspectors used PI definitions and guidance contained in the NEI Document 99-02, Revision 7, "Regulatory Assessment of Performance Indicator Guidance," to determine the accuracy of the PI data reported. The inspectors reviewed electronic personal dosimetry accumulated dose alarms, dose reports, and dose assignments for any intakes that occurred during the time period reviewed to determine if there were potentially unrecognized PI occurrences. The inspectors conducted walkdowns of various Locked High and Very High Radiation Area entrances to determine the adequacy of the controls in place for these areas.

b. Findings

No findings were identified.

.3 Radiological Effluent Technical Specification/Offsite Dose Calculation Manual Radiological Effluent Occurrences (1 sample)

a. Inspection Scope

The inspectors reviewed licensee submittals for the radiological effluent TS/Offsite Dose Calculation Manual (ODCM) radiological effluent occurrences PI for the fourth quarter 2015 through third quarter 2016. The inspectors used PI definitions and guidance contained in the NEI Document 99-02, Revision 7, "Regulatory Assessment of Performance Indicator Guidance", to determine if the PI data was reported properly. The inspectors reviewed the public dose assessments for the PI for public radiation safety to determine if related data was accurately calculated and reported.

The inspectors reviewed the CAP database to identify any potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose. The inspectors reviewed gaseous and liquid effluent summary data and the results of associated offsite dose calculations to determine if indicator results were accurately reported.

b. Findings

No findings were identified.

40A2 Problem Identification and Resolution (71152 – 3 samples)

.1 Routine Review of Problem Identification and Resolution Activities

a. Inspection Scope

As required by Inspection Procedure 71152, "Problem Identification and Resolution," the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify NextEra entered issues into the CAP at an appropriate threshold, gave adequate attention to timely corrective actions, and identified and addressed adverse trends. In order to assist with the identification of repetitive equipment failures



and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the CAP and periodically attended CR screening meetings. The inspectors also confirmed, on a sampling basis, that, as applicable, for identified defects and non-conformances, NextEra performed an evaluation in accordance with 10 CFR Part 21.

b. Findings

No findings were identified.

.2 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a semi-annual review of site issues to identify trends that might indicate the existence of more significant safety concerns. As part of this review, the inspectors included repetitive or closely-related issues documented by Seabrook personnel in trend reports, site PIs, major equipment problem lists, system health reports, maintenance rule assessments, and maintenance or CAP backlogs. The inspectors also reviewed Seabrook's CAP database for the third and fourth quarters of 2016 to assess CRs written in various subject areas (equipment problems, human performance issues, etc.), as well as individual issues identified during the NRCs daily CR review (Section 40A2.1). The inspectors reviewed Seabrook's quarterly trend report for the third quarter of 2016, conducted under PI-AA-207-1000, "Station Self-Evaluation and Trending Analysis, Revision 6," to verify that Seabrook personnel were appropriately evaluating and trending adverse conditions in accordance with applicable procedures.

b. Findings and Observations

No findings were identified.

The inspectors evaluated a sample of CRs generated over the course of the past two quarters by departments that provide input to the quarterly trend reports. The inspectors determined that, in most cases, the issues were appropriately evaluated by Seabrook staff for potential trends and resolved within the scope of the CAP. Moreover, the inspectors identified instances where potential adverse trends were identified by department staff during the course of the assessment period, which were consistent with similar station-level trends, and confirmed that station personnel were utilizing statistical and trending tools to identify potential emerging trends. Additionally, the inspectors verified that discussions between department and performance improvement staff were occurring to ensure emerging trends were appropriately captured either in the CAP or the quarterly trend report, as applicable. One such example was the declining rate of CR initiation recognized by Maintenance personnel under CR 2168318, and the MRC-identified trend of CR initiation rate under CR 2167899.

The inspectors also confirmed one area of concern of very low safety-significance in the area of housekeeping. NextEra closed out housekeeping as an adverse trend in Seabrook's 3<sup>rd</sup> quarter trend report due to an improved trend noted by station performance improvement personnel in the previous two quarters. However, the inspectors observed that the 4<sup>th</sup> quarter statistical analyses demonstrated that housekeeping issues were still an area that warranted attention based on the increase of this metric exceeding the Upper Control Limit and flagged as a potential trend that warranted further discussions among Seabrook staff. Moreover, this trend was entirely

consistent with inspector observations of housekeeping issues during implementation of baseline inspection throughout the assessment period.

### .3 Follow-up of Seal Penetration Degradation

#### a. Inspection Scope

The inspectors performed an in-depth review of Seabrook's corrective actions following the identification of a degraded containment enclosure ventilation area (CEVA) penetration seal, in February 2016, as detailed in CR 2107678, "Gap Identified in CEVA Seal 1-PB-021-EV101-7602." The inspectors reviewed the initial seal inspections conducted in accordance with MX0599.02, "18 Month Inspection of Technical Requirement Fire Rated Assembly Penetration Seals," Revision 5, and any associated expansion of inspections required under the inspection program for identified seal failures.

The inspectors assessed Seabrook's problem identification threshold, applicable cause analyses, extent of condition reviews, compensatory actions, and the prioritization and timeliness of corrective actions to determine whether Seabrook was appropriately identifying, characterizing, and correcting problems associated with this issue and whether the planned or completed corrective actions were appropriate. The inspectors compared the actions taken to the requirements of Seabrook's CAP and 10 CFR Part 50, Appendix B. In addition, the inspectors performed field walkdowns and interviewed applicable Seabrook personnel to assess the effectiveness of the implemented corrective actions.

#### b. Findings and Observations

No findings were identified.

The inspectors verified that Seabrook had effectively evaluated the failed CEVA seal penetration, and had previously assessed operability of the seal as documented in the First Quarter 2016 NRC Inspection Report, 2016-001. The inspectors further observed and evaluated seal restoration activities, which included a configuration that required laboratory testing and certification. The repair and installation activities were conducted under WO 40446460, and the inspectors verified the installed seal design was consistent with applicable design and licensing basis attributes, and tested in accordance with the original requirements, based on review of the final vendor test report.

The inspectors questioned Seabrook staff regarding the condition of other seals within the similar Category 12 (special seals, fire stops, seismic gaps, etc.) seal population, based on the standard 10 percent population of seals that are inspected every 18-months under MX0599.02. Moreover, the inspectors were concerned that seal No. 7602 could have been degraded for years without being appropriately identified, and the condition of other seals in the same 10 percent population could be potentially degraded without adequate assessment. As a result, Seabrook personnel initiated CR 2108874, and evaluated the extent of condition of the other seals that had been previously inspected during the same timeframe as seal No. 7602. The inspectors evaluated the resultant response as documented in the CAP and determined that Seabrook staff had addressed the applicable performance aspects that could have resulted in additional seals being identified as potentially degraded and not be appropriately addressed within the CAP.

The inspectors evaluated several additional seal inspection results during the assessment period, i.e., through the fourth quarter of 2016, to verify that continued seal inspections were being conducted in accordance with applicable program requirements. In addition, the inspectors verified that as applicable, degraded conditions were being addressed under the CAP.

#### 4 Alkali-Silica Reaction Monitoring

##### a. Inspection Scope

An objective of periodic site visits to Seabrook Station over the past few years has been to review the adequacy of NextEra's monitoring of Alkali-Silica Reaction (ASR) on affected reinforced concrete structures, per their Maintenance Rule Structures Monitoring Program (SMP), and to determine whether the results were appropriately considered for impact to the Seabrook prompt operability determinations for ASR-affected structures. A region-based inspector was onsite between October 11-13, 2016, to conduct an inspection of ongoing ASR-related activities relevant to this objective and to review NextEra's corrective actions in response to Notice of Violation [NOV 05000443/2016008-01]. This NOV was issued by the NRC for failure of the Seabrook Station staff to complete, in two instances, immediate and prompt operability assessments for nonconforming conditions when pertinent new information was developed (see Section 4OA5 below for additional details). The inspector also conducted in-office reviews of ASR-related documentation.

The inspector assessed the problem identification threshold, operability and functionality assessments, extent of condition reviews, and the prioritization and timeliness of corrective actions to determine whether NextEra personnel were appropriately identifying, characterizing, and correcting problems associated with the ASR-affected structures. The inspector evaluated NextEra's actions to verify compliance with Engineering Department Standard 36180, SMP, Revision 09, the CAP and in the quality assurance requirements of 10 CFR Part 50, Appendix B.

##### b. Findings and Observations

No findings were identified.

The inspector toured Seabrook Station with the NRC resident inspectors and NextEra staff to observe several ASR-affected structures and systems and to status NextEra's activities associated with the installation of new crack monitoring instrumentation and through-wall expansion monitors (extensometers). The inspector also:

- observed field activities involving the removal of cover concrete from the containment enclosure building missile shield impinging on the containment outer wall (EC No. 287308 and Foreign Print 101071)
- examined crack gauges and extensometers in the RHR/CS Equipment Vault and 'B' Electrical Tunnel, including a review of preliminary data collected from the first three months of extensometer installation
- reviewed and discussed use of onsite concrete core testing equipment
- reviewed EC No. 285349, Revision 003, Design Change Package for (RHR/containment spray (CS)) Equipment Vault Monitoring using InVar Rod Assemblies and the associated 10 CFR 50.59 evaluation, No. 2015-306
- reviewed preliminary results from the American Society of Mechanical Engineers (ASME) Section XI, 2004 Edition, IWL inservice inspection of containment

The inspector concluded that NextEra appropriately implemented the station SMP per procedure and that information from ASR-related activities was appropriately entered into the Seabrook CAP for proper resolution. However, the inspector noted that the current revision (Rev. 09) of the Seabrook Station SMP provides a more detailed phased approach to monitoring and assessing ASR-affected reinforced concrete structures. The inspector did not review for adequacy the recently implemented structures monitoring methods. Interim monitoring results and NextEra's consideration for impact to current ASR-affected structures' operability determinations were considered reasonable and appropriate. The SMP, Revision 9, is currently under NRC staff review consistent with the processing of NextEra's license amendment request (LAR) 16-03, dated August 1, 2016 (ML16216A250).

#### 4OA5 Other Activities (3 samples)

##### .1 (Closed) Temporary Instruction (TI) 2515-192, "Inspection of the Licensee's Interim Compensatory Measures Associated with the Open Phase Condition Design Vulnerabilities in Electric Power Systems"

###### a. Inspection Scope

The objective of this performance-based TI is to verify implementation of interim compensatory measures associated with an open phase condition (OPC) design vulnerability in electric power systems for operating reactors. The inspectors verified NextEra has implemented the following measures to mitigate the potential impact of an OPC:

- NextEra had identified and discussed with plant staff the lessons-learned from the OPC events at the US operating plants including the Byron station OPC event and its consequences. This included conducting operator training for promptly diagnosing, recognizing consequences, and responding to an OPC event;
- NextEra had updated plant operating procedures to help operators promptly diagnose and respond to OPC events on off-site power sources credited for safe shutdown of the plant;
- NextEra had established and continues to implement periodic walkdown activities to inspect switchyard equipment such as insulators, disconnect switches, and transmission line and transformer connections associated with the offsite power circuits to detect a visible OPC; and,
- NextEra had ensured that routine maintenance and testing activities on switchyard components have been implemented and maintained. As part of the maintenance and testing activities, NextEra assessed and managed plant risk in accordance with 10 CFR 50.65(a)(4) requirements.

###### b. Findings and Observations

No findings of significance were identified; therefore, this one-time TI is considered closed for Seabrook.

.2 Licensee Strike Contingency Plans (92709)

a. Inspection Scope

NextEra Energy Seabrook developed a Staffing Contingency Plan to ensure a sufficient number of qualified personnel were available to continue operations in the event that: (1) the Utility Workers Union of America (UWUA) Local 555, personnel engaged in a job action upon the expiration of their contract at midnight, on December 2, 2016; and, (2) Seabrook Nuclear Security LLC personnel (Formerly known as United Federation of Special Police and Security Officers (UFSPSO) Union Local 501) engaged in a job action upon expiration of their contract on December 31, 2016.

Using the guidance contained in NRC Inspection Procedure (IP) 92709, "Licensee Strike Contingency Plans," the inspectors reviewed NextEra Energy Seabrook's Staffing Contingency Plan content, and verified that adequate qualified personnel were identified to perform key functions necessary for safe operation of the facility. Additionally, the inspectors selected several key positions that required updated qualifications to ensure applicable training requirements were met prior to any proposed job action. The inspector reviewed and/or observed training for key positions including: (1) training of fire brigade personnel through hands on fire-fighting at the Brentwood Fire Facility, (2) re-activation of Senior Reactor Operators through requisite amount of hours in the control room to meet watchstanding requirements, (3) equivalence qualification for key maintenance activities such as Seismic Monitor calibrations, as well as signed agreements for switchyard services through New Hampshire Transmission, and (4) qualification of contingency security officers consistent with NRC rules through live-fire weapons qualifications at the indoor range.

The inspectors verified the control room staffing plan complied with TS and other NRC requirements.

On November 28, 2016, NextEra Energy Seabrook and UWUA, Local 555, tentatively agreed to a new contract and union members approved the contract on December 1, 2016. Additionally, on December 2, 2016, G4S and Seabrook Nuclear Security, LLC, approved a rolling "no job action" bridge agreement until contract negotiations could be finalized.

b. Findings

No findings were identified.

.3 (Closed) NOV 05000443/201600801: Failure to Complete Operability Determinations for ASR-affected Structures

a. Inspection Scope

The objective of IP 92702 is to verify that the root cause(s) for licensee performance deficiencies resulting in enforcement action have been appropriately identified and to determine that adequate corrective actions have been implemented to prevent recurrence. The purpose of this inspection was to review the adequacy of corrective actions implemented to address an NOV (see EA-16-101 at ML16127A155) involving NextEra's inadequate implementation of NextEra Nuclear Fleet Administrative Procedure, EN-AA-203-1001, "Operability Determinations/Functionality Assessments." Specifically, NextEra did not prepare and approve Immediate Operability Determinations

(IOD) and Prompt Operability Determinations (POD) following the identification of nonconforming conditions impacting the RHR and CS Equipment Vaults and the Containment Enclosure Building (CEB). By letter dated June 6, 2016, (ML16161A534) NextEra provided their response to the NOV.

The inspector used the NOV response to focus the in-office review of associated documentation and on-site follow-ups, verifications and interviews with responsible Seabrook staff. The inspector reviewed NextEra's causal analysis and actions to prevent recurrence that included: establishment of a cross-discipline team that provides routine oversight and review of all ASR-related issues and developments; development and promulgation of lessons learned from the untimely implementation of EN-AA-203-1001 and the associated IODs and PODs to all responsible Engineering and Operations staff members; a comprehensive revision to the Engineering Department Standard 36180, "Structures Monitoring Program," that more closely focuses on ASR progression monitoring and assessment; and, a revised integrated ASR corrective action plan that includes the submission of a LAR to reconcile the current licensing basis. This action was completed with NextEra's submittal of a LAR 16-03, dated August 1, 2016 (L16216A240). NextEra has proposed a first-of-its-kind methodology for monitoring the progression of material property changes caused by ASR and for monitoring structural deformation (bulk expansion) impacts on overall structural performance. These monitoring methods are currently being reviewed by NRC staff in the Office of Nuclear Reactor Regulations consistent with the NRC staff's processing of NextEra's LAR.

b. Findings and Observations

This violation is closed. Additional observations were documented above in Section 4OA2.4.

4OA6 Meetings, Including Exit

On January 19, 2017, the inspectors presented the inspection results to you and other members of the Seabrook Station staff. The inspectors verified that no proprietary information was retained by the inspectors 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
- C. Adams, General Supervisor, Operations Training
- K. Boehl, Senior Rad Protection Analyst
- V. Brown, Licensing Engineer
- K. Browne, Licensing Manager
- A. Chesno, PI Manager
- J. Crowley, CIP Manager
- D. Currier, Emergency Planning Manager
- T. Fouts, Operations Training Requalification Supervisor
- A. Giotos, Sr Analyst
- R. Guthrie, System Engineer
- M. Hansen, Engineering Site Manager, Systems
- D. Hickey, Radiation Protection Supervisor
- D. Ritter, Operations Director
- D. Robinson, Chemistry Manager
- D. Strand, RP Manager
- T. Smith, Radiation Protection Supervisor
- C. Thomas, Licensing Engineer
- J. Tucker, Security Manager

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

Closed

05000443/2016008-01                      NOV                      Failure to Complete Operability Determinations  
for ASR-affected Structures (Section 40A5.3)

**LIST OF DOCUMENTS REVIEWED**

**Section 1R01: Adverse Weather Protection**

Procedures

OP-AA-102-1002, Seasonal Readiness, Revision 15

Condition Reports

2153879            2155622            2157259            2168322            2169984            2175241

Maintenance Orders/Work Orders

40426602            40457257            40474933            40507473            40507511            94151166  
94151422

## **Section 1R04: Equipment Alignment**

### Procedures

OS1016.01, Service Water System Fill and Vent, Revision 19  
OS1035.02, Startup Feed Pump Operation, Revision 16  
OS1046.07, Vital 480V Operation, Revision 24  
OS1048.13, Vital Bus 11A Operation, Revision 15  
OX1446.03, Electrical Bus Weekly Operability (Operating), Revision 12

### Drawings

1-CO-B20426, Condensate System Detail, Revision 31  
1-FW-B20684, Feedwater System Overview, Revision 10  
1-FW-B20687, Feedwater System Detail, Revision 30  
1-NHY-310013, 480V Unit Substation Buses E-51 & E-52 One Line Diagram, Revision 22  
1-NHY-310041, 125VDC & 120VAC Instrument Buses Key One Line Diagram, Revision 18  
1-NHY-310042, 125VDC Vital Distribution System One Line Diagram, Revision 4  
1-SW-B20794, Service Water System Nuclear Detail, Revision 37

## **Section 1R05: Fire Protection**

### Condition Reports

2163607      2163620

### Miscellaneous

Seabrook Station Fire Protection Pre-Fire Strategies, Volume I, Containment Enclosure Ventilation Area, CE-F-1-A  
Seabrook Station Fire Protection Pre-Fire Strategies, Volume I, Control Building Cable Spreading Rooms and Mechanical Rooms, CB-F-2A-A  
Seabrook Station Fire Protection Pre-Fire Strategies, Volume II, Service & Circ. Water Pump House, SW-F-1A-Z  
Seabrook Station Fire Protection Pre-Fire Strategies, Volume II, Turbine Building 50', TB-F-2-0  
Seabrook Station Fire Protection Pre-Fire Strategies, Volume II, Turbine Building 50', TB-F-2-Z  
Seabrook Station Fire Protection Pre-Fire Strategies, Volume II, Turbine Building 75', TB-F-3-0

## **Section 1R06: Flood Protection Measures**

### Miscellaneous

Report TP-7, Seabrook Station Moderate Line Break Study, Revision 5  
UFSAR Section 3.6B Revision 8; Section 9.2, Revision 14

### Drawings

9763-F-604139, Cooling Tower Ventilation and Drainage System, Revision 12

## **Section 1R07: Heat Sink Performance**

### Procedures

MS50515.60, Heat Exchanger Tube Cleaning and Inspection, Revision 1  
ES1807.025, Inservice Inspection Visual Examination Procedure, Revision 06

### Condition Reports

2169614



Maintenance Orders/Work Orders

40502704      4050460

**Section 1R11: Licensed Operator Requalification Program**

Procedures

CS0910.01, Primary Systems Sampling at SS-CP-166A, Revision 25  
 TR-AA-230-1007, Conduct of Simulator Training and Evaluation, Revision 4  
 OP 9.2, Transient Response Procedure User's Guide, Revision 17  
 OX1401.03, RCS Vent Path Block Valve Quarterly, Cold Shutdown, and 18 Month Surveillance Test, Revision 14  
 OX1436.02, Turbine Driven Emergency Feedwater Pump Quarterly and Monthly Valve Alignment, Revision 27  
 OX1456.81, Operability Testing of IST Valves, Revision 25

Condition Reports

2176172

Maintenance Orders/Work Orders

40450687      40451046      40451048

**Section 1R12: Maintenance Effectiveness**

Procedures

EC-287539, Temporary Clamping Device for Through Wall Leak Repairs, Revision 0  
 EN-AA-205-1100, Design Change Packages, Revision 19  
 ES1850.003, Motor Operated Valve Performance Monitoring, Revision 12  
 PEG-5, Maintenance Rule Program Monitoring Activities, Revision 11

Condition Reports

0188033	0202006	1681551	1790872	1803668	1850566
1853148	1890951	1907568	1968335	2004541	2060360
2081769	2089810	2135419	2136567	2137168	2158711
2159845	2160307	2164045	2166011	2168141	

Maintenance Orders/Work Orders

01968335      40312977      40438519      40493072      94056612

Drawings

PID-1-SW-B20795, Service Water System Nuclear Detail, Revision 45

**Section 1R13: Maintenance Risk Assessments and Emergent Work Control**

Procedures

WM-AA-100, Risk Management Program, Revision 0  
 WM-AA-100-1000, Work Activity Risk Management, Revision 8  
 ON1246.03, GSU Trouble, Revision 11

Condition Reports

0000300      0209321      2162696      2164045

Miscellaneous

EC 287668, 286883  
UFSAR Section 8.3, Revision 14

**Section 1R15: Operability Determinations and Functionality Assessments**

Procedures

EN-AA-203-1001, Operability Determinations / Functionality Assessments, Revision 22

Condition Reports

2162696

**Section 1R18: Plant Modifications**

Procedures

EN-AA-202-1001, Engineering and Change Scope Screening, Revision 7  
EN-AA-203-1201, 10 CFR Applicability and 10CFR50.59 Screening, Revision 8  
EN-AA-203-1201-F02, 10 CFR 50.59 Screening Form, Revision 1, Screen # 2016-246  
EN-AA-203-1202, 10CFR50.50 Evaluation, Revision 1  
EN-AA-205-1100, Design Change Packages, Revision 19  
EN-AA-205-1102, Temporary Configuration Changes, Revision 8  
IS1674.414, SWA-T-5610 SW Pump House Fan-38A Control Calibration, Revision 9  
IS1674.415, SWA-T-5611 SW Pump House Fan-38B Control Calibration, Revision 7  
LX0556.95, 1-EDE-B-1-A Battery Performance Test, Revision 6  
LX0556.10, 18 Month Technical Specification Battery Surveillance, Revision 2  
LX0556.101, 1-EDE-B-1-A Quarterly Technical Specification Battery Surveillance, Revision 11  
MA 3.5, Post Maintenance Testing Guide, Revision 3.5

Condition Reports

2159845      2164045      2166011

Maintenance Orders/Work Orders

40438519

Miscellaneous

Procedure Change Request (PCR) 02170573, Service Water Pumphouse Ventilation System  
Operation, Revision 11

Drawings

1-NHY-300219, Service Environment Chart, Revision 30

**Section 1R19: Post-Maintenance Testing**

Procedures

AD-AA-100-1006, Procedure and Work Instruction Use and Adherence, Revision 9  
ES1807.025, Inservice Inspection Visual Examination Procedure, Revision 6  
FP71537, Metal Tube Rotameter Instruction Manual, Revision 0  
LS0563.11, Testing of Agastat 125 VDC (7000 Series) TDPUs Timing Relays, Revision 11  
LS0564.38, 4160 Volt Dynamic Motor Monitoring, Revision 7  
LX0557.02, 60 Month PM of 480V US Breakers, Revision 21  
MA3.5, Post Maintenance Testing, Revision 19  
MA-AA-203-1000, Maintenance Testing, Revision 15  
MA3.5, Post Maintenance Testing, Revision 19

MA-AA-203-1000, Maintenance Testing, Revision 15  
 OX1412.01, PCCW Train A Operability, 18 Month Position Indication, and Comprehensive  
 Pump Testing, Revision 21  
 OX1426.05, DG 1B Monthly Operability Surveillance, Revision 44

Condition Reports

2161853      2162103      2162696      2169614

Maintenance Orders/Work Orders

00209321    00628988    40397416    40397420    40437463    40437593  
 40494053    40502704    40504060

Miscellaneous

EC 287668

MM-AA-201, Minor Maintenance Process, Revision 11

Drawings

PID-1-CC-B20207, Primary Component Cooling Loop A, Revision 12

**Section 1R22: Surveillance Testing**

Procedures

OP-AA-200, Surveillance Frequency Change Process, Revision 1

OP-AA-200-1001, Evaluation of Proposed Changes to Surveillance Test Intervals, Revision 4

Condition Reports

2072481      2072484      2076687      2171703

Maintenance Orders/Work Orders

40446945    40451097

Miscellaneous

NEI 04-10, Revision 1

SBK-PRAE-16-004

UFSAR, Revision 17

**Section 1EP4: Emergency Action Level and Emergency Plan Changes**

Procedures

ER 3.5, Joint Information Center Operations, Revision 40

ER 3.6, Assembly Area Operations, Revision 31

ER 5.4 Protective Action Recommendations, Revision 35

**Section 2RS1: Radiological Hazard Assessment and Exposure Controls**

Procedures

HD095817, Performance of Routine Radiological Surveys, Revision 13

HD0955.50, Far West REM-500 Operation, Revision 6

HN0960.10, Radiological Requirements for Entry Beneath Reactor Vessel, Revision 31

HN0960.17, Radiological Controls for Transfer of Spent Fuel between the Containment and the  
 Spent Fuel Pool, Revision 4

OA 13-007 Pre-Planned Posting and Survey Instructions, Revision 0

RP-AA-102-1001, Area Radiological Surveys, Revision 1

RP-AA-103-1001, Posting Requirements for Radiological Hazards, Revision 2  
 RP-AA-103-1002, High Radiation Area Controls, Revision 3  
 RP-AA-107-1001, Radioactive Material Receipt, Revision 2  
 RP-AA-107-1003, Unconditional and Conditional Release of Material, Revision 1

Condition Reports

02142895	02150257	02150260	02151850	02152748	02153269
02154926	02155077	02156307	02170204		

Miscellaneous

Air Sample Results AS 16-93 for WPC -8' EI, March 2, 2016  
 Air Sample Results AS 16-95 for CTMT D SG Platform, March 2, 2016  
 Air Sample Results AS 16-280 for FSB 11' EI, June 24, 2016  
 Air Sample Results AS 16-93 for FSB Transfer Canal, June 28, 2016  
 HD0958.03 Form A Personnel Contamination Report, Badge No 6540, November 13, 2015  
 HRA\LHRA\XHRA Briefing Acknowledgment Form for Containment Entry, December 7, 2016  
 LHRA Stay Time Tracking Form for RWP 16-0010, December 7, 2016  
 LHRA\XHRA Entry Verification for Containment, December 7, 2016  
 Next Era WBC Analysis Results, SID N130658, July 1, 2016  
 Next Era WBC Analysis Results, SID N130674, July 1, 2016  
 Quick Hit/ Department Assessment Report # 02114213 - 2015 Radiation Protection Program Assessment, July 20, 2016  
 RP-AA-104-1000-F06 TEDE ALARA Assessment, RWP 16-0091 Transfer Canal Decon and Liner Repair, May 31, 2016  
 Seabrook Air Sample Log 2016  
 Seabrook Station Radiation Protection Program, Revision 67  
 SB RWP-16-0010, Containment Entry at Power, December 7, 2016

**Section 2RS5: Radiation Monitoring Instrumentation**

Procedures

HX0958.12, Radiation Protection Response to RDMS Tech Spec and Cat 2 or 3 Monitor Failures, Revision 15

Condition Reports

02144082	02148262	02148271	02167707	02172340
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Miscellaneous

SB System Health Report RM Rad Monitoring 3<sup>rd</sup> Quarter 2016

**Section 4OA1: Performance Indicator Verification**

Procedures

CS0917.02, Gaseous Effluent Releases, Revision 14  
 CX0917.01, Liquid Effluent Releases, Revision 20  
 HD0958.33, Performance of Radiation Protection Supervisory Plant Walkdowns, Revision 6  
 JD0999.910, Reporting Key Performance Indicators per NEI 99-02, Revision 8

Condition Reports

2159224	2159236
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Miscellaneous

CP 4.1C Release Index Log 2016, November 30, 2016  
 CS0908.01 Form F – Radioactive Effluent Dose Assessment Report 2016 (Sheets 1 and 2),  
 December 5, 2016  
 JD0999.910 Figure 1 Occupational Exposure Occurrence, October, November and  
 December 2015, dated January 20, 2016  
 JD0999.910 Figure 1 Occupational Exposure Occurrence, January, February and March 2016,  
 dated April 6, 2016  
 JD0999.910 Figure 1 Occupational Exposure Occurrence, April, May and June 2016,  
 dated September 7, 2016  
 JD0999.910 Figure 1 Occupational Exposure Occurrence, July, August and September 2016,  
 dated October 21, 2016  
 LIC-16014, Documentation Supporting the Seabrook Station 3rd Quarter 2016 Performance  
 Indicator Submittal, dated October 21, 2016  
 LIC-16011, Documentation Supporting the Seabrook Station 2nd Quarter 2016 Performance  
 Indicator Submittal, dated July 27, 2016  
 LIC-16006, Documentation Supporting the Seabrook Station 1st Quarter 2016 Performance  
 Indicator Submittal, dated April 20, 2016  
 LIC-16002, Documentation Supporting the Seabrook Station 4th Quarter 2015 Performance  
 Indicator Submittal, dated January 27, 2016  
 LIC-16014, Seabrook Station NRC 3<sup>rd</sup> Quarter 2016 Performance Indicator Submittal  
 MSPI Derivation Report for Seabrook Unit 1, September 2016, MSPI Cooling Water System UAI  
 MSPI Derivation Report for Seabrook Unit 1, September 2016, MSPI Cooling Water System URI  
 MSPI Derivation Report for Seabrook Unit 1, September 2016, RHR System UAI  
 MSPI Derivation Report for Seabrook Unit 1, September 2016, RHR System URI  
 NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 7  
 SBK-PRAE-15-001, Seabrook MSPI Basis Document Update 2014, Revision 0  
 NextEra - Seabrook Station 2015 Annual Radioactive Release Report, April 24, 2015

**Section 40A2: Problem Identification and Resolution**Procedures

C-S-1-61035, Allowable CEVA Penetration Seal Opening Size, Revision 3  
 EC-285777, 1-PB-021-EV101-7602, CEVA Penetration Seal Design Detail, S-33, Revision 1  
 FP4497R-02, Penetration Seal Design, Seal No. PB-021-EV101-7602, Revision 1  
 PI-AA-207, Trend Coding and Analysis, Revision 11  
 PI-AA-207-1000-10000, Performance Improvement Trending Analysis Tools, Revision 1

Condition Reports

2004748	2100572	2145108	2146039	2146805	2167947
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Maintenance Orders/Work Orders

40292272	40408502	40436442	40436446
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Miscellaneous

Final Report, dated May 3, 2016, Hydrostatic and Pneumatic Pressure Integrity Testing of PCI  
 Promatec Low Density Foam SE-Foam  
 Engineering Change (EC) 0287308, dated 9/21/16  
 Engineering Department Standard 36180, Structure Monitoring Program, Revision 09  
 Foreign Print No. 101071, CEB Assess Seismic Gaps and Effect of Cutting Missile Shield,  
 dated 8/30/16  
 NextEra License Amendment Request 16-03, SBK-I-16071, dated August 1, 2016,  
 (ML16216A240)  
 Prompt Operability Determination (POD) AR 02134569, Fuel Storage Building, dated 6/30/16

POD AR-1977456, RHR/CS Vault, Revision 2  
POD AR-2094762, CEB, Revision 1  
POD AR-1804477, Containment, Revision 0  
Seabrook Station Engineering Procedure, ES1807.031, Inservice Inspection Procedure Primary  
Containment Section XI IWL Program, Revision 4

**Section 4OA5: Other Activities**

Procedures

ES1807.16, Thermography Program, Revision 5  
OP-AA-100-1001-F01, License Watch-Standing Record, Revision 0  
OP-AA-100-1001-F02, License Activation/Reactivation Approval, Revision 0  
OP-AA-100-1001-F05, Seabrook Comprehensive Plant Tour, Revision 0  
OAI.22A, Returning to Shift Checklist, Revision 46  
TR-AA-230-1004-F06, Alternate Qualification Form, Revision 2  
QM 3.1, Maintenance Group Job Incumbent Qualification Worksheet, Revision 6

Condition Reports

02120109    02134569    02140522    1732579    1731646

Maintenance Orders/Work Orders

40464635    40460820

Miscellaneous

Apparent Cause Evaluation Report CR2130728, dated 5/26/16  
Day & Zimmerman Agreement dated 10/21/16, Article XXVI: Work Stoppages  
Engineering Evaluation EE-13-016, Seabrook Station Response to NEI Open Phase Condition  
Initiative, Revision 0  
ERO Staffing Succession Plan – 10/14/16  
G4S RSS Seabrook Nuclear Station Staffing Contingency Plan, dated September 19, 2016  
Miscellaneous Badge Access Transaction Reports  
NextEra Energy Seabrook letter SBK-L-16076, dated June 6, 2016 (ML16161A534)  
NextEra Energy Seabrook Staffing Contingency Plan  
SBK LOP L3554C122, Seabrook Licensed Operator Requalification Training, Phase 12-02  
SBK LOP L5076C123, Seabrook Licensed Operator Requalification Training, Phase 12-03  
Strike Contingency Primary Watch Station Qualification Guide, #SBK NLO N0050Q, Revision 0

**LIST OF ACRONYMS**

ADAMS	Agencywide Document Access and Management System
ANSI	American National Standards Institute
ARP	alarm response procedure
ASME	American Society of Mechanical Engineers
ASR	alkali-silica reaction
CAP	corrective action program
CEB	containment enclosure building
CEVA	containment enclosure ventilation area
CFR	<i>Code of Federal Regulations</i>
CR	condition report
CS	containment spray
CT	cooling tower
EAL	emergency action level
EC	engineering change
EDG	emergency diesel generator
EFW	emergency feedwater
I&C	instrumentation and controls
IOD	immediate operability determination
IP	inspection procedure
LAR	license amendment request
MR	Maintenance Rule
NEI	Nuclear Energy Institute
NOV	notice of violation
NRC	Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
OPC	open phase condition
PCCW	primary component cooling water
PI	performance indicator
POD	prompt operability determination
PORV	power operated relief valve
PRT	pressurizer relief tank
RG	Regulatory Guide
RHR	residual heat removal
RP	radiation protection
RWP	radiation work permit
SMP	structures monitoring program
SRO	senior reactor operator
SSC	structure, system, or component
SW	service water
TI	temporary instruction
TRM	technical requirements manual
TS	technical specification
UFSAR	Updated Final Safety Analysis Report
UFSPSO	United Federation of Special Police and Security Officers
US	unit substation
UWUA	Utility Workers Union of America
VDC	voltage direct current
WO	work order