UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
2100 RENAISSANCE BLVD., SUITE 100
KING OF PRUSSIA, PA 19406-2713

February 6, 2015

Mr. Dean Curtland
Site Vice President
Seabrook Nuclear Power Plant
NextEra Energy Seabrook, LLC
c/o Mr. Michael Ossing
P.O. Box 300
Seabrook, NH 03874

SUBJECT: SEABROOK STATION, UNIT NO. 1 - NRC INTEGRATED INSPECTION REPORT 05000443/2014005

Dear Mr. Curtland:

On December 31, 2014, the U. S. Nuclear Regulatory Commission (NRC) completed an inspection at Seabrook Station, Unit No. 1. The enclosed inspection report documents the inspection results, which were discussed on January 29, 2015, with you and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

This report documents three violations of NRC requirements, which were of very low safety significance (Green). However, because of the very low safety significance, and because they are entered into your corrective action program (CAP), the NRC is treating these findings as non-cited violations, consistent with Section 2.3.2.a of the NRC Enforcement Policy. If you contest the non-cited violations in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Seabrook Station. In addition, if you disagree with the cross-cutting aspect assigned to any finding, or a finding not associated with a regulatory requirement in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region I, and the NRC Resident Inspector at Seabrook Station.

In accordance with Title 10 of the *Code of Federal Regulations* (CFR) 2.390 of the NRCs "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC's Public Document Room or from the Publicly Available Records component of the NRC's Agencywide Documents Access Management System (ADAMS). ADAMS is accessible from the NRC website at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Glenn T. Dentel, Chief
Reactor Projects Branch 3
Division of Reactor Projects

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

Enclosure: Inspection Report No. 05000443/2014005
w/ Attachment: Supplemental Information

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In accordance with Title 10 of the *Code of Federal Regulations* (CFR) 2.390 of the NRCs "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC's Public Document Room or from the Publicly Available Records component of the NRC's Agencywide Documents Access Management System (ADAMS). ADAMS is accessible from the NRC website at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.:	50-443
License No.:	NPF-86
Report No.:	05000443/2014005
Licensee:	NextEra Energy Seabrook, LLC
Facility:	Seabrook Station, Unit No.1
Location:	Seabrook, New Hampshire 03874
Dates:	October 1, 2014 through December 31, 2014
Inspectors:	P. Cataldo, Senior Resident Inspector C. Newport, Resident Inspector T. O'Hara, Reactor Inspector W. Cook, Senior Reactor Analyst D. Silk, Senior Operations Engineer R. Barkley, Senior Project Engineer B. Dionne, Health Physicist
Approved by:	Glenn T. Dentel, Chief Reactor Projects Branch 3 Division of Reactor Projects

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SUMMARY

IR 05000443/2014005; 10/01/2014-12/31/2014; Seabrook Station, Unit No. 1; Maintenance Effectiveness and Radiation Monitoring Instrumentation

This report covered a three-month period of inspection by resident inspectors and announced inspections performed by regional inspectors. Inspectors identified three findings of very low safety significance (Green), which were classified as NCVs. The significance of most findings is indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," dated June 2, 2011. Cross-cutting aspects are determined using IMC 0310, "Components Within Cross-Cutting Areas," dated October 28, 2011. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated July 9, 2013. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5.

Cornerstone: Barrier Integrity

- Green. The inspectors identified an NCV of 10 CFR 50 Appendix B Criterion XVI, Corrective Actions, of very low safety significance because NextEra staff did not promptly identify nine visual indications of structural problems representing conditions adverse to quality. These problems were observed by NextEra staff during a maintenance rule (MR) walkdown of the Fuel Storage Building (FSB) on November 20, 2014, and documented in walkdown notes as conditions warranting entry into the corrective action program (CAP). However these problems were not entered into the CAP to identify them as conditions adverse to quality until questioned by the inspectors. NextEra staff took corrective actions to enter the issues into their CAP in AR10206192, AR02016238, AR02016225 and AR020168863 and initiated AR02014116 for not promptly identifying these problems.

  This performance deficiency was considered to be more than minor because it is associated with the Barrier Integrity Cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events, and affected the attribute of design control – structural integrity. Specifically, the inspectors determined the finding was more than minor because four of the conditions exceeded American Concrete Institute (ACI) 349.3R-96 "Tier II structural criteria," which indicated they require further technical evaluation and analysis to validate the existing conditions or repair to preserve structural function. This issue was evaluated in accordance with IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," Exhibit 3, "Barrier Integrity Screening Questions," and screened as very low safety significance (Green) because the observed FSB degradation did not adversely impact structural or radiological barrier functions of the building. This finding is related to the cross-cutting area of Human Performance - Procedure Adherence because individuals did not follow CAP process, procedures, and work instructions [H.8]. (Section 1R12)

- Green. The inspectors identified a violation of 10 CFR 50 Appendix B Criterion XVI, Corrective Actions, of very low safety significance because NextEra did not promptly identify a condition adverse to quality in December 2013 that involved a deviation from expected settling assumptions in the Seabrook Station design basis for the FSB. FSB elevation measurements were received by NextEra staff in December 2010 and in December 2013 indicating that settling at some locations of the FSB was occurring. NextEra staff did not

enter this condition, a condition adverse to quality, into their CAP until December 8, 2014, in response to questions from the inspectors. NextEra initiated AR02011698 to enter this issue in the CAP and AR02014116 to address their staff not entering this issue previously into the CAP.

This performance deficiency was considered to be more than minor because it is associated with the Barrier Integrity Cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events, and adversely affected the attribute of design control – structural integrity. Specifically, the inspectors concluded that the structural integrity of the FSB was potentially adversely affected because measured settling of the structure deviated from assumed design basis values. Also, this condition exceeded the ACI 349.3R-96 "Tier II structural criteria" of the Structures Monitoring Program and requires a structural evaluation. This issue was evaluated in accordance with IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," Exhibit 3, "Barrier Integrity Screening Questions," and screened as very low safety significance (Green) because the observed degradation does not adversely impact structural or radiological barrier functions for the FSB. This finding is related to the cross-cutting area of Human Performance - Design Margins. The organization did not maintain the FSB within design margins and did not utilize the systematic and rigorous corrective action process. [H.6]. (Section 1R12)

Cornerstone: Occupational Radiation Safety

- Green. The inspectors identified a Green NCV of TS 6.7.1.a, "Procedures and Programs," because NextEra failed to conduct appropriate periodic calibration of neutron survey instruments. Specifically, since 1996, NextEra assumed that an operability check of certain neutron survey instruments using an internal alpha check source would provide a calibration equivalent to that performed to a traceable neutron source of a known neutron flux, contrary to the periodic calibration frequency requirements specified in the Seabrook Station Radiation Protection Manual. NextEra's immediate corrective actions included capturing this issue in its CAP (AR 01969397), calibrating all of the neutron survey instruments in question, and revising the neutron survey instrument operating procedure to require annual calibrations.

  This performance deficiency was determined to be more than minor because it adversely affected the Occupational Radiation Safety Cornerstone to ensure the adequate protection of the worker from radiation exposure. Additionally, it was similar to example 6.b in IMC 0612, Appendix E, "Examples of Minor Issues," which states that the performance deficiency is more than minor if a radiation protection instrument was not calibrated properly, and when recalibrated the as-found condition of the instrument was not within acceptance criteria for calibration and the accuracy was non-conservative. The issue was evaluated in accordance with IMC 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," and determined to be of very low safety significance (Green) since it was not an as low as is reasonably achievable (ALARA) issue and did not involve an overexposure or a potential overexposure and it did not affect any significant neutron exposures of plant personnel. The inspectors determined there was no cross-cutting aspect associated with this finding since it was not representative of current NextEra performance. Specifically, in accordance with IMC 0612, the causal factors associated with this finding occurred outside the nominal three-year period of consideration and were not considered representative of present performance. (Section 2RS5)

REPORT DETAILS

Summary of Plant Status

Seabrook operated at full power for the quarter, with the exception of a down-power to 94 percent, on October 3, 2014, for performance of 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 performed a review of NextEra's readiness for the onset of seasonal cold temperatures. The review focused on the emergency feedwater pump house, condensate storage tank, turbine building, service water (SW) cooling tower, and miscellaneous heating systems. The inspectors reviewed the Updated Final Safety Analysis Report (UFSAR), technical specifications (TSs), the seasonal readiness memorandum, and the CAP to determine specific temperatures or other seasonal weather that 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 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 (71111.04Q – 4 samples)

a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

- 'B' safety injection system return to service on November 4, 2014
- Startup feed pump return to service on November 19, 2014
- 'B' train of control building air handling chilled water system unit 230A, during 'A' train unit 230B maintenance on December 1, 2014
- 'A' and 'B' SW cooling tower while ocean SW out of service (OOS) for 'A' pump replacement on December 16, 2014

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 in order to identify conditions that could have impacted system performance of their 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

During December 11 to 12, 2014, the inspectors performed a complete system walkdown of accessible portions of the 'B' emergency diesel generator (EDG) system to verify the existing equipment lineup was correct while the licensee was working on equipment on the 'A' train. The inspectors reviewed operating procedures, drawings, equipment line-up check-off lists, 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 the 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. Additionally, the inspectors reviewed a sample of related action requests (ARs) and WOs to ensure NextEra appropriately evaluated and resolved any deficiencies.

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 OOS, degraded or inoperable fire protection equipment, as applicable, in accordance with procedures.

- Turbine building fire areas/zones (TB-F-1A-Z, TB-F-1B-Z, TB-F-1C-Z, and TB-F-1-0) on October 17, 2014
- Control building fire areas/zones (CB-F-3A-A, CB-F-3B-A, and CB-F-3C-A) on October 21, 2014
- Turbine building fire areas/zones (TB-F-3-0 and TB-F-3-Z) on October 27, 2014
- Control building fire areas/zones (CB-F-1D-A, CB-F-1E-A, CB-F-1F-A, and CB-F-1G-A) on December 4, 2014
- Control building fire area/zone (CB-F-1A-A) on December 20, 2014

1R11 Licensed Operator Requalification Program (71111.11Q and 71111.11A – 3 samples)

.1 Quarterly Review of Licensed Operator Requalification Testing and Training

a. Inspection Scope

The inspectors observed licensed operator simulator training during the conduct of a 10 CFR 55.59 required requalification examination on December 2, 2014, which included spurious main steam isolation valve closure and a failure of the reactor to automatically trip. 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 TS action statements entered by the shift technical advisor. 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 EDG 1B operability surveillance testing on November 1, 2014, main steam isolation valve testing on November 7, 2014 and SW valve timing testing on November 25, 2014. The inspectors observed test 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 Licensed Operator Requalification

a. Inspection Scope

On December 22, 2014, one NRC region-based inspector conducted an in-office review of results of licensee-administered annual operating tests for 2014, for Seabrook Station, Unit No.1 operators. (The biennial requalification written examination was not administered in 2014.) The inspection assessed whether failure rates were consistent with the guidance of NRC Manual Chapter 0609, Appendix I, and "Operator Requalification Human Performance Significance Determination Process." The review verified that the failure rate (individual or crew) did not exceed 20%.

- 2 out of 47 operators failed at least one section of the Annual Exam. The overall individual failure rate was 4.3%
- 0 out of 9 crews failed the simulator test. The crew failure rate was 0.0%

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12 – 3 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 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 SCC was properly scoped into the MR in accordance with 10 CFR 50.65 and verified that the (a)(2) performance criteria established by NextEra staff was reasonable. As applicable, for SCCs classified as (a)(1), the inspectors assessed the adequacy of the 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.

- Fuel Storage Building (FSB) structural monitoring results.

b. Findings

.1 Failure to Identify Conditions Adverse to Quality in the Fuel Storage Building Structure

Introduction: The inspectors identified a non-cited violation of 10 CFR 50 Appendix B Criterion XVI, Corrective Actions, of very low safety significance (Green) because NextEra staff did not promptly identify nine visual indications of structural problems representing conditions adverse to quality. These problems were observed by NextEra staff during a MR walkdown of the FSB on November 20, 2014, and documented in walkdown notes as conditions warranting entry into the corrective action process (CAP).

However these problems were not entered into the corrective action program (CAP) to identify them as conditions adverse to quality until questioned by the inspectors.

Description: NextEra's Engineering Department Procedure 36180, Revision 5, "Structural Monitoring Program," provides guidance to NextEra staff for completing periodic structural examinations to implement the requirements of 10 CFR 50.65. This procedure incorporates tiered examination criteria from ACI 349.3R-96, "Evaluation of Existing Nuclear Safety Related Concrete Structures" to guide NextEra staff in identifying visual indications of structural problems that warrant further evaluation.

Procedure 36180, Revision 5, Paragraph 5.2.1 states that measurable discontinuities exceeding specified ACI 'Tier II" quantitative limits shall be considered unacceptable and that further evaluation should consider the use of other inspection, testing or analytical tools to obtain condition and functional information of the structures in question.

On December 18, 2014, in response to a request for the results of the last MR walkdown of the FSB, the inspectors received and reviewed the walkdown notes prepared by NextEra staff on November 20, 2014, after completing MR structural walkdowns in eight rooms within the FSB. The inspectors observed that NextEra staff documented nine visual conditions which they indicated needed to be entered into the CAP as Action Reports (ARs) but were not entered at that time. Additionally, NextEra staff indicated that four of the conditions exceeded the Tier II criteria and warranted further evaluation and examination to develop corrective actions. These four conditions documented a crack in a column exceeding 0.04 inches, a diagonal crack in an integral stairwell wall exceeding 0.04 inches, and multiple indications of cracks in a curb and spalled concrete supporting the east side of the deck in the New Fuel Storage Area (NFSA). The inspectors also identified NextEra staff had not issued a work order for this walkdown activity as per the guidance in their MR procedure.

NextEra staff completed corrective actions to enter the issues into their CAP in AR10206192, AR020216238, AR020216225 and AR020168863 for further examination and evaluation. In initial review of these conditions, NextEra staff concluded that each of these structural elements remained functional. NextEra staff planned to conduct a Root Cause evaluation of the causes of these conditions in AR 2014325.

Analysis: The inspectors determined that NextEra staff did not promptly identify the nine visual indications of structural problems as conditions adverse to quality by entering the issues into their CAP. This was a performance deficiency. It was reasonable to enter these issues into the CAP because NextEra staff documented in their MR walkdown notes that these conditions warranted entry into the CAP.

This performance deficiency was considered to be more than minor because it is associated with the Barrier Integrity Cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events, and affected the attribute of design control – structural integrity. Specifically, the inspectors determined the finding was more than minor because four conditions exceeded "Tier II" structural criteria, which indicated they required further investigation and evaluation to determine the causes.

The issue was evaluated in accordance with IMC 609, Appendix A, "The Significance Determination Process for Findings At-Power," Exhibit 3, "Barrier Integrity Screening Questions," and screened as very low safety significance (Green) because the observed FSB degradation did not adversely impact structural or radiological barrier functions of the building. The finding is related to the cross-cutting area of Human Performance - Procedure Adherence because individuals did not follow CAP process, procedures, and work instructions [H.8].

Enforcement: 10 CFR 50, Appendix B, Criterion XVI, Corrective Actions; states, in part, that "measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and non-conformances are promptly identified and corrected." Contrary to the above NextEra identified nine structural integrity conditions in FSB structures, but did not promptly enter the issues into their CAP on November 20, 2014, for structural evaluations until identified by the inspectors. NextEra staff took corrective actions to enter the issues into their CAP in AR02016225, AR020168863, AR02016238, AR10206192 and AR02014116 in January 2015. This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy. The conditions and the violation were entered into the licensee's corrective action process in the ARs listed. **(NCV 05000443/2014005-01, Failure to Identify Conditions Adverse to Quality in the Fuel Storage Building Structure)**

.2 Fuel Storage Building Measurements

Introduction: The inspectors identified a violation of 10 CFR 50 Appendix B Criterion XVI, Corrective Actions, of very low safety significance (Green) because NextEra did not promptly identify a condition adverse to quality in December 2013, that involved a deviation from design assumptions regarding structure settling in the Seabrook Station design basis for the FSB. Specifically, FSB elevation measurements were received by NextEra staff in December 2013, which indicated settling was occurring in some locations of the FSB. NextEra staff did not enter this condition into their CAP until December 8, 2014, and did not further investigate the condition.

Description: The Seabrook Station UFSAR Section 3.8.5.7 indicates that for seismic Category 1 structure foundations such as the FSB, no preoperational or in-service surveillance is required related to settling because these structures, which are founded on sound rock, do not have any potential areas of settlement or displacement which should be monitored. The inspectors reviewed reports received by NextEra staff providing the results of elevation readings taken from 2010 and 2013. These reports indicated elevation readings of -0.052" (reference point 15) in December 2010, and an elevation reading of -.102" (reference point 17) in December of 2013, indicating settlement. The measurement tolerance on the reported elevations was +/- 0.00012."

These measurements were received by NextEra staff in December 2010 and December 2013, as part of their initiative to monitor the FSB structure. These results indicated that FSB settlement was occurring in some measured locations, and these results would deviate from the site design basis as described in the Seabrook UFSAR, Section 3.8.5.7. In response to the inspectors' inquiries regarding design allowances for building settlement, NextEra staff initiated AR02011698 on December 8, 2014, to identify this condition and track to completion an overall evaluation of the FSB structure.

The inspectors also noted that NextEra Procedure 36180, "Structural Monitoring Program," Revision 05, paragraph 5.2.1, described conditions which, if exceeded, required further evaluation. This procedure stated that passive settlements or deflections greater than the original design limits warranted evaluation. This procedure further stated that active settlements that are observed in a structure must be treated carefully as the source of cracking may continue to act or intensify. The inspectors concluded data indicating FSB settlement was available to NextEra staff, involved a condition that exceeded their "Tier II" criteria and warranted evaluation as part of their periodic MR activities. However this data was not identified in MR or structures system health report documents reviewed by the inspectors. NextEra initiated AR02011698 on December 8, 2014, to enter this condition into their CAP and AR AR02014116 to document not identifying this as a condition adverse to quality. NextEra assessed that the condition did not adversely impact the structural or radiological barrier functions for the FSB.

Analysis: The inspectors determined that NextEra's staff failure to identify a condition adverse to quality, involving measured FSB settlement in some locations that involved a deviation from expected settling assumptions in the Seabrook design basis, as described in Seabrook Station UFSAR, Section 3.8.5.7, was a performance deficiency within NextEra's ability to foresee and correct.

The performance deficiency was more than minor because it affected the Barrier Integrity Cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events, and the condition adversely affected the Cornerstone Attribute of Design Control – structural integrity because data indicted some locations of the FSB were settling which would deviate from the design basis as described in the Seabrook UFSAR, Section 3.8.5.7. This issue was evaluated in accordance with IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," Exhibit 3, "Barrier Integrity Screening Questions," and screened as very low safety significance (Green) because the observed degradation does not adversely impact structural or radiological barrier functions for the FSB. This finding is related to the cross-cutting area of Human Performance - Design Margins. Specifically, the organization did not maintain the FSB within design margins and did not utilize the systematic and rigorous corrective action process [H.6].

Enforcement: 10 CFR 50, Appendix B, Criterion XVI, Corrective Actions; states, in part, that "measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and non-conformances, are promptly identified and corrected." Contrary to the above, NextEra did not promptly identify FSB elevation values, when available in December 2010 and December 2013, as conditions adverse to quality because they represented deviations from design basis assumptions and did not perform evaluations of the effect

of the elevation readings on the FSB. NextEra initiated AR02011698 on December 8, 2014, to enter this condition into their CAP and AR AR02014116 to document not identifying this as a condition adverse to quality. This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy. NextEra entered the condition into their corrective action process in the identified ARs. **(NCV 05000443/2014005-02, Failure to Identify and Evaluate FSB Settlement Data and the Design Basis)**

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 4 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 TS requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

- 'D' battery charger cross-tie operations and capacity testing during switchyard maintenance on October 1, 2014
- 'A' EDG fuel leak repair on October 15, 2014
- Emergent issues on 'A' EDG during offsite power line 394 outage on October 20, 2014
- 'B' EDG digital reference unit and electronic governor replacement on October 30, 2014

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 – 4 samples)

a. Inspection Scope

The inspectors reviewed operability determinations for the following degraded or non-conforming conditions:

- Open 'B' phase heater element for CBA-H-372 on October 1, 2014
- 'A' EDG cumulative deficiencies on October 20, 2014
- 'B' EDG Windrock Engine analyzer report on December 16, 2014
- Degraded mechanical penetration room seals on December 19, 2014

The inspectors selected these issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the operability determinations to assess whether TS 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. 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. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations.

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.

- SB-V-9 leak repair temporary modification on December 4, 2014

b. Findings

No findings were identified.

.2 Permanent Modifications

a. Inspection Scope

The inspectors evaluated a modification to vital Bus 6 implemented by Engineering Change 271074, "Bus 6 Sync Check Relay Device 25R Replacement." 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 upgrade and design change, including associated engineering changes, calculations, communication with the vendor, and industry operating experience.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 7 samples)

a. Inspection Scope

The inspectors reviewed the post-maintenance tests for the maintenance activities listed below to verify that procedures and test activities ensured system operability and functional capability. The inspectors reviewed the test procedure to verify that the procedure adequately tested the safety functions that may have been affected by the maintenance activity, that the acceptance criteria in the procedure was consistent with the information in the applicable licensing basis and/or design basis documents, and that the procedure had been properly reviewed and approved. The inspectors also witnessed the test or reviewed test data to verify that the test results adequately demonstrated restoration of the affected safety functions.

- Safety injection pump 6A static breaker testing on September 9, 2014
- 'A' EDG fuel leak repair on October 16, 2014
- SW pump P-41D packing maintenance on October 27, 2014
- Reactor coolant pump 62V UV relay on-line setpoint verification on October 28, 2014
- 'B' EDG 24-hour run failure on October 29, 2014 and retest on November 2, 2014
- Control building air conditioning unit 230B testing following maintenance on December 1, 2014
- 'B' primary component cooling water (PCCW) discharge check valve following internal inspection on December 10, 2014

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 – 2 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:

- Emergency power sequencer operability surveillance on October 2, 2014
- 'B' SW cooling tower pump and discharge valve quarterly test on November 25, 2014 (IST)

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2RS3 In-Plant Airborne Radioactivity Control and Mitigation (71124.03 – 1 sample)

a. Inspection Scope

From December 8 to 11, 2014, inspectors reviewed the control of in-plant airborne radioactivity and the use of respiratory protection devices. The inspectors used the requirements in 10 CFR Part 20, the guidance in RG 8.15, RG 8.25, NUREG-0041, and procedures required by TSs as criteria for determining compliance.

Inspection Planning

The inspectors reviewed the UFSAR, TSs, and emergency planning documents to identify the location and quantity of respiratory protection devices stored for emergency use.

Engineering Controls

The inspectors reviewed airborne monitoring protocols associated with four installed ventilation systems, and associated airborne monitor alarm set-points.

Use of Respiratory Protection Devices

The inspectors reviewed records of air testing for supplied-air devices and self-contained breathing air (SCBA) bottles; and qualification records for five individuals for use of respiratory protection devices.

Use of Respiratory Protection Devices

There were no opportunities to observe workers using respiratory protection devices during the inspection period.

The inspectors reviewed:

- the training curricula for users of respiratory protection devices
- ten respiratory protection devices staged and ready for use in the plant
- records of inspection and maintenance repairs for each type of respiratory protection device
- training qualifications for onsite personnel assigned to repair respiratory protection equipment

SCBA for Emergency Use

The inspectors reviewed:

- the method used for refilling and transporting SCBA air bottles to and from the control room and the operations support center
- the past two years of maintenance records for three SCBA units
- the periodic air cylinder hydrostatic testing surveillance documentation

b. Findings

No findings were identified.

2RS4 Occupational Dose Assessment (71124.04 – 1 sample)

a. Inspection Scope

The inspectors reviewed the monitoring and assessment of occupational dose by NextEra. The inspectors used the requirements in 10 CFR Part 20, the guidance in RG 8.13, RG 8.36, RG 8.40, TSs, and procedures required by TSs as criteria for determining compliance.

Internal Dosimetry

The inspectors selected three whole body counts (WBCs) and evaluated whether the counting system was used to ensure appropriate sensitivity for the potential radionuclides of interest and included a sufficient radionuclide reference library identify the gamma-emitting radionuclides expected at the site. The inspectors evaluated how NextEra accounts for non-gamma emitting radionuclides in their internal dose assessments.

NextEra has not documented any internal dose assessments using WBC results during the period reviewed.

b. Findings

No findings were identified.

2RS5 Radiation Monitoring Instrumentation (71124.05)

a. Inspection Scope

From December 8 to 11, 2014, inspectors reviewed NextEra's performance in assuring the accuracy and operability of radiation monitoring instruments used for occupational radiation safety. The inspectors used the requirements in 10 CFR 20; 10 CFR 50, Appendix I; TSs; offsite dose calculation manual; applicable industry standards; and procedures required by TSs as criteria for determining compliance.

Portable Survey Instruments, Area Radiation Monitors (ARMs), Electronic Dosimetry, and Air Samplers/Continuous Air Monitors

The inspectors reviewed calibration documentation for at least one of each type of instrument. For portable survey instruments and ARMs, the inspectors reviewed detector measurement geometry and calibration methods for each type.

The inspectors selected four portable survey instruments that did not meet acceptance criteria during calibration or source checks, and reviewed the corrective actions taken for instruments found out of calibration.

b. Findings

Introduction. The inspectors identified a Green NCV of TS 6.7.1.a, "Procedures and Programs," because NextEra failed to conduct appropriate periodic calibration of neutron survey instruments. Specifically, since 1996, NextEra assumed that an operability check of certain neutron survey instruments using an internal alpha check source would provide a calibration equivalent to that performed to a traceable neutron source of a known neutron flux, contrary to the periodic calibration frequency requirements specified in the Seabrook Station Radiation Protection Manual.

Description. At Seabrook Station, the REM 500 neutron survey instrument is used for conducting neutron radiation surveys to ensure adequate protection of workers. Since 1996, the licensee assumed that an operability check performed prior to each instrument use, using an internal radioactive source that emitted alpha particles, would provide an equivalent calibration to that performed using a National Institute of Science and Technology (NIST) traceable neutron source. As a result, the licensee did not calibrate the REM-500 neutron survey instruments by comparing the instrument response to a known acceptable neutron radiation flux. The operability response checks that had been performed since 1996 did not ensure the instrument performance was within established calibration acceptance criteria.

During the month of August 2013, REM 500 neutron survey instrument serial number 108 was used for performing five surveys during Independent Spent Fuel Storage Installation (ISFSI) cask loading, transport and storage work activities. The last successful operability check on the REM 500 neutron survey instrument, using the built in alpha check source, was August 6, 2013. This neutron survey instrument was previously calibrated by the manufacturer using a NIST calibrated neutron source on August 9, 2002.

In July 2014, NextEra sent this instrument to the manufacturer for calibration due to an out of tolerance operability check. In August 2014, the manufacturer reported the "as-found" condition of this neutron meter to be outside the calibration acceptance criteria of $\pm$20%. The "as-found" results indicated this survey instrument had a non-conservative low response of -43%, -17%, -22% and -34% at the 1.04, 12.7, 101.5 and 1,000 mrem/hr delivered dose rates, respectively. Based on review of all of the neutron survey instrument calibration results, other REM 500 instruments were also outside of the calibration acceptance criteria, while successfully passing the operability response checks, confirming that the previous practice of using an alpha source operability check was not sufficient to ensure adequate calibration of the REM 500 neutron survey instruments.

NextEra performed an impact evaluation to determine the possible consequences of the REM 500 Serial number 108 instrument use since the last successful operability check. The use of this instrument in August 2013 for ISFSI surveys resulted in establishing inaccurate and non-conservative neutron radiation dose rates for the spent fuel dry cask loading campaign work activities. The non-conservative neutron radiation dose rates did not result in any adverse impact on assessing occupational dose associated with neutrons. After the issue was identified by the inspectors, NextEra entered it into their corrective action program (AR 01969397), sent all affected REM 500 neutron meters to the manufacturer for calibration, revised the applicable instrument procedure to include a requirement to calibrate the instrument to a NIST traceable neutron source annually, and performed an impact evaluation on the out-of-calibration instruments past use.

Analysis. The inspectors determined that failing to conduct appropriate periodic calibration of neutron survey instruments was a performance deficiency within NextEra's ability to foresee and correct. Specifically, since 1996, NextEra assumed that an operability check of certain neutron survey instruments using an internal alpha check source would provide a calibration equivalent to that performed to a traceable neutron source of a known neutron flux, contrary to the periodic calibration frequency requirements specified in the Seabrook Station Radiation Protection Manual. This performance deficiency was determined to be more than minor because it adversely affected the Occupational Radiation Safety cornerstone to ensure the adequate protection of the worker from radiation exposure. Additionally, it was similar to example 6.b in IMC 0612, Appendix E, "Examples of Minor Issues," which states that the performance deficiency is more than minor if a radiation protection instrument was not calibrated properly and when recalibrated the as-found condition of the instrument was not within acceptance criteria for calibration and the accuracy was non-conservative. The issue was evaluated in accordance with IMC 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," and determined to be of very low safety significance (Green) since it was not an ALARA issue and did not involve an overexposure or a potential overexposure and it did not affect any significant neutron exposures of plant personnel. The inspectors determined there was no cross-cutting aspect associated with this finding since it was not representative of current NextEra performance. Specifically, in accordance with IMC 0612, the causal factors associated with this finding occurred outside the nominal three-year period of consideration and were not considered representative of present performance.

Enforcement. Technical Specification 6.7.1.a, "Procedures and Programs," requires written procedures be established and implemented, including administrative procedures described in RG 1.33. RG 1.33 requires sites to establish and maintain radiation protection procedures. Seabrook Radiation Protection Manual, Revision 67, Figure 1-3-1 specifies a semi-annual calibration frequency for portable survey instruments. Contrary to the above, the inspectors identified that the REM 500 portable neutron survey instruments were not appropriately calibrated on a semi-annual frequency. Specifically, the REM 500 portable neutron survey instrument in question had not been properly calibrated since August 9, 2002. After the issue was identified by the inspectors, NextEra entered it into their corrective action program (AR 01969397), sent all affected REM 500 neutron meters to the manufacturer for calibration, revised the applicable instrument procedure to include a requirement to calibrate the instrument to a NIST traceable neutron source annually, and performed an impact evaluation on the out-of-calibration instruments past use, which indicated no significant impact on

assessing occupational neutron dose. Because this finding was of very low safety significance and was documented in the licensee's corrective action program, this violation is being treated as an NCV, consistent with the NRC Enforcement Policy. **(NCV 05000443/2014005-03, Failure to Periodically Calibrate REM-500 Neutron Survey Instruments)**

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 System Performance Index for the following systems for the period of November 1, 2013 to October 31, 2014:

- Safety System Functional Failures (MS05)
- Residual Heat Removal System (MS09)
- Cooling Water System (MS10)

To determine the accuracy of the performance indicator (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

During December 8 to 11, 2014, the inspectors sampled licensee submittals for the occupational exposure control effectiveness PI for the period from the fourth quarter 2013 through the third quarter 2014. The inspectors used PI definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the PI data reported.

The inspectors reviewed condition reports, electronic personal dosimetry 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.

b. Findings

No findings were identified.

.3 Radiological Effluent Occurrences (1 sample)

a. Inspection Scope

During December 8 to 11, 2014, the inspectors sampled licensee submittals for the radiological effluent TS/Offsite Dose Calculation Manual radiological effluent occurrences PI for the period from the fourth quarter 2013 through the third quarter 2014. The inspectors used PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the PI data reported.

The inspectors reviewed NextEra's corrective action report database and reviewed reports generated since this indicator was last reviewed to identify any potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose. The inspectors also reviewed the licensee's methods for quantifying gaseous and liquid effluents and determining effluent dose.

b. Findings

No findings were identified.

4OA2 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 that 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 condition report screening meetings.

b. Findings

No findings were identified.

.2 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a semi-annual review of site issues, as required by Inspection Procedure 71152, "Problem Identification and Resolution," to identify trends that might indicate the existence of more significant safety issues. In this review, the inspectors included repetitive or closely-related issues that may have been documented by NextEra outside of the CAP, such as trend reports, performance indicators, major equipment problem lists, system health reports, MR assessments, and maintenance or CAP

backlogs. The inspectors also reviewed NextEra's CAP database for the third and fourth quarters of 2014 to assess action requests/condition reports written in various subject areas (equipment problems, human performance issues, etc.), as well as individual issues identified during the NRCs daily condition report review (Section 4OA2.1). The inspectors reviewed Seabrook Station's Self-Evaluation and Trending Analysis Report for third quarter of 2014, conducted under PI-AA-207-1000, Station Self-Evaluation and Trending Analysis, Revision 1, to verify that NextEra 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 departments that are required to provide input into the quarterly trend reports, which included Operations and Maintenance. This review included a sample of issues and events that occurred over the course of the past two quarters to objectively determine whether issues were appropriately considered or ruled as emerging or adverse trends, and in some cases, verified the appropriate disposition of resolved trends. The inspectors verified that these issues were addressed within the scope of the CAP, or through department review and documentation in the quarterly trend report for overall assessment. For example, while potential adverse trends that are included in the quarterly trend reports are often identified through the use of statistical methods to identify statistically significant issues that reach a predetermined threshold, cognitive trends are often identified by staff or collectively during review by the Management Review Committee while screening ARs. The inspectors noted that quite often, cognitive trends are not ultimately documented in the trend report as they are appropriately assigned trend codes, but do not screen into the report based on the established thresholds. One such example involved multiple alarms associated with the loose parts monitoring system (LPMS), which revealed some potential equipment problems as the source. These LPMS issues were identified in action requests, had trend codes applied, but were dispositioned within the work control system. Another example involved several trips of breaker thermal overloads for various loads that were entered into the CAP and ultimately resolved through the work management system. While these issues were processed through the CAP and the work management system, the inspectors noted they were assigned trend codes to ensure they could be identified as potential trends through the use of statistical tools and enable the staff an opportunity to properly assess these issues, if applicable, within the trending process. The inspectors also noted that a multitude of fire protection deficiencies had occurred throughout the past two quarters, ranging from fire door issues, fire seal delaminations, and fire alarm circuit problems, and verified that the trend reports had appropriately identified these fire deficiencies as an adverse trend in the third quarter report. As a result, the inspectors concluded that NextEra's trending process, as well as the CAP (through the use of trend codes) had the appropriate sensitivity and thresholds to identify and assess adverse trends.

During review of the trend report, the inspectors assessed the appropriateness of an adverse trend that was closed out in the third quarter report in the area of work control supervisor human errors. The inspectors noted that this trend shared common attributes with fourth quarter human performance issues (see Section 1R22) associated with an emergency power sequencer (EPS) surveillance, particularly related to personnel not

being present during pre-job briefs. However, the inspectors noted extensive and appropriate corrective actions had resulted in overall improvement in the area of pre-job briefs and supervisory oversight, notwithstanding anecdotal evidence supplied by this discrete EPS human performance issue that occurred in the fourth quarter. Also, the inspector noted corrective actions for this fourth quarter EPS issue included communication of improved management expectations, which were considered reasonable and appropriate. Overall, the inspectors verified that individual issues and trends discussed in this section were evaluated and determined to be of minor safety significance and, as documented in Section 1R22 of this report, determined that the human performance issues did not result in the identification of regulatory findings.

.3 Annual Sample: Operability Determinations

a. Inspection Scope

The inspectors performed an in-depth review of NextEra's corrective actions for longstanding weaknesses in the performance of operability determinations, conducted under NextEra procedure EN-AA-203-1001, Operability Determinations/Functionality Assessments, Revision 18. While inspectors had previously evaluated issues regarding operability determinations in the root cause analysis (AR1919736) and associated corrective actions for the SW leak in August 2013, the inspectors on several occasions, had identified weaknesses in various attributes of the operability determination (OD) process. As a result, the inspectors assessed several ODs to ensure consistency with the applicable procedure. In particular, the inspectors assessed the documented basis for operability, any supporting information that was considered and/or discounted, as well as comments provided by the management review committee, and evaluated these actions to the requirements of NextEra's CAP and 10 CFR 50, Appendix B. In addition, the inspectors interviewed NextEra personnel to assess the effectiveness of the implemented corrective actions.

b. Findings and Observations

No findings were identified.

The inspectors evaluated several ARs generated since the August 2013 service water leak operability issue was identified as noted above. This review focused on various aspects of the operability process to assess the effectiveness and scope of corrective actions. This included bases and supporting information for immediate operability evaluations as detailed in the CAP; if applicable, prompt operability evaluations and associated documentation and bases; and MRC's review of operability statements and actions to address weaknesses, if identified. Some examples included:

- AR 01953499: MRC identified condition report for Operations to revise operability screening
- AR 01971462: 'A' Boric acid transfer pump trip
- AR 01987810: 'B' Emergency diesel generator exhaust silencer pipe support corrosion
- AR 01997819: ARs required rescreening by shift manager
- AR 01997929: Self-assessment regarding timeliness of prompt operability determinations and functionality assessments
- AR 02000487: 'A' emergency diesel generator loose air intake manifold cap screws

The inspectors identified improvements in the functioning of MRC to return operability determinations that did not contain adequate rigor or provide appropriate bases in support of operability. In addition, the inspectors verified that the operability screenings of specific ARs reviewed for this assessment contained appropriate information that supported operability, and that these determinations were performed in accordance with applicable procedures.

.4 Annual Sample: Review of Corrective Actions for Alkali-Silica Reaction Affected Structures

a. Inspection Scope

During the week of October 20, 2014, NRC inspectors from Region I and a structural engineer from the Division of License Renewal, NRR, witnessed testing conducted at the Ferguson Structural Engineering Laboratory at the University of Texas – Austin (UT-Austin) in support of the Seabrook Alkali-Silica Reaction (ASR) Project Corrective Action Plan. Specifically, the inspectors observed the load testing of reinforcement anchorage (lap splice) beam No. A3, performed on October 22, 2014. The inspectors verified compliance with associated testing program procedures and quality assurance/control requirements; discussed recent testing results and the overall status of the test program, including projected milestones with the responsible staff; ensured testing results were appropriately reflected into current open Prompt Operability Determinations (PODs) for ASR-affected Seabrook structures; and, examined the newly fabricated instrument beam and associated monitoring devices.

During this inspection period, the inspectors were also on-site to review station activities related to routine sampling and analysis of groundwater. Groundwater sampling is being conducted by the licensee to: 1) monitor the movement of tritium contamination inadvertently released via a spent fuel pool (SFP) cask handling/dewatering area liner leak that was identified in mid-1999; 2) monitor for potentially “aggressive” groundwater that may have an adverse impact on below grade reinforced concrete structures; and, 3) satisfy commitments to NEI 07-07, “Industry Ground Water Protection initiative,” guidance as it pertains to monitoring site hydrology and migration of ground contaminants. The inspectors reviewed groundwater well sample results and discussed past, current and future groundwater monitoring activities with the Seabrook Station Chemistry Manager.

b. Findings

No findings were identified.

Groundwater Monitoring Review Observations

The inspectors observed that the scope of NextEra’s groundwater monitoring program has evolved over the past 15 years. An expanded groundwater sampling effort was initiated following the discovery of a SFP cask handling/dewatering area liner leak in September 1999. Groundwater radionuclide monitoring (principally tritium) continues to the present due to this legacy issue. The results of this monitoring program are reported to the NRC on an annual basis. Currently, a total of 27 monitoring wells located within the site boundary are sampled annually and the quantification of any measurable

radionuclides is reported to the NRC in the Annual Radionuclide Effluent Release Report. This annual report includes a listing of the groundwater monitoring wells (by identifier and location) and the associated radionuclide activity concentration (picocuries/liter) measured for each sample location. The most recent published report (2013 sample results) is dated April 29, 2014 (ML14121A399). Following resolution of the SFP leak, NextEra initiated a dewatering campaign in 2004 to contain and mitigate the tritium plume. This groundwater dewatering effort included removal of groundwater in-leakage from the containment enclosure area, primary auxiliary building, emergency feed water pump house, residual heat removal equipment vault, and the 'B' electrical tunnel. Water removed from these areas has totaled, at times, over 3000 gallons per day (gpd). Along with the Unit 1 dewatering campaign, approximately 32,000 gpd is pumped from the Unit 2 containment building area and discharged via the monitored (for radionuclides) storm water drainage system. Pumping groundwater from Unit 2 has assisted in the containment of the Unit 1 tritium plume and preventing its migration off site (reference Seabrook Station's Final Applicant's Environment Report- Operating License Renewal Stage, ML101590092).

In support of license renewal activities and the current Structures Monitoring Program (SMP), NextEra implemented additional groundwater sampling of five on-site wells (SW-1, SW-2, SW-3, SD-1 and SD-2). The SMP groundwater sampling and associated chemical analysis supports NRC guidelines for monitoring for potential "aggressive" groundwater conditions consistent with NUREG 1801, "Generic Aging Lessons Learned (GALL) Report," Section XI.S7, and "Regulatory Guide 1.127, Inspection of Water-Control Structures Associated with Nuclear Power Plants." "Aggressive" groundwater is identified in the GALL report as having measured pH <5.5, chlorides >500 ppm, or sulfates >1500 ppm. "Aggressive" groundwater potentially neutralizes normally high alkali content concrete and can contribute to the oxidation of carbon steel reinforcing bars. The initial sampling for aggressive groundwater was conducted in September 2009 and continued into the first quarter of 2011. Based on the indications of chlorides, Seabrook is sampling for four consecutive quarters every five years in accordance with NextEra's SMP groundwater monitoring program.

The inspectors determined that the NextEra staff planned to conduct their next series of four quarterly samples beginning in July 2014. The initial SMP groundwater sampling in September 2009 indicated that wells SW-1, SW-2, and SW-3 contained potentially aggressive groundwater based on a chloride content range of 2,300 to 2,600 ppm; however, the sulfate content was only 34 to 92 ppm and the pH 5.8 to 6.7. The inspector learned from the Chemistry Manager that during the baseline groundwater monitoring period (early 2010), a buried SW pipe leak occurred in a section buried between Units 1 and 2, spilling several hundreds of gallons of ocean water into the surrounding soils before being isolated. The inspectors observed that the groundwater monitoring data illustrated the affected wells (BD-6, SD-5, SW-1, SW-2 and SW-3) had chloride content spikes that ranged from 2,600 to 19,000 ppm and are attributable to the seawater contamination. Typical saltwater (ocean) chloride content is in the 19,000 to 20,000 ppm range. Further inspector review of the sample data and associated site hydrological studies identified that the below grade concrete structures more likely to be impacted by the ocean water spill from 2010 were associated with Unit 2 (SW-3, SD-5, BD-6). The two wells (SW-2 and SD-5) with chloride spikes as high as 19,000 ppm in the 3rd quarter of 2010 had decreased to 770 ppm and 15,000 ppm by the 1st quarter of

2011. The Unit 1 fuel storage building (SW-1) and waste processing building (SW-4) monitoring wells indicated some continued elevated chloride levels, but was trending downward due to the ongoing dewatering efforts.

In 2008, NextEra contracted for a hydrological survey, consistent with the guidelines published in NEI 07-07, "Industry Ground Water Protection Initiative – Final Guidance Document." The results of the initial hydrological study were documented in a proprietary report. Based upon the commencement of pumping of groundwater from a site construction dewatering well (designated well emergency feedwater (EFW)) in October 2013, NextEra plans to update their 2008 hydrological survey, consistent with NEI 07-07 guidelines, to identify the impact of this recent dewatering effort on ground-water radiological plume migration. Based upon plant walk-through observations by the inspectors, the EFW well pumping regime (dewatering at a rate of between 14-15 gallons per minute) has significantly reduced the water infiltration into the adjacent 'B' Electrical Tunnel. The inspector noted that the water being removed from the EFW well was being discharged to the site storm water drainage system where it was continuously monitored prior to release to the environment.

Based upon discussions with NextEra personnel, the monitoring wells SW-1 and SW-3 (located within close proximity to the Unit 1 spent fuel pool) were identified as sentinel wells (considered the best indicators of the groundwater tritium contamination plume) and typically had indicated between 2,000 to 5,000 picocuries/liter tritium. The water being pumped from the EFW construction dewatering well averaged between 1200 to 1600 picocuries/liter tritium. None of the wells on-site were being used for potable (drinking) water and all of the wells were indicating radioactivity levels significantly below the US Environmental Protection Agency (EPA) drinking water limit of <20,000 picocuries/liter.

In summary, the inspectors concluded that NextEra's various groundwater sampling and monitoring processes were in conformance with current regulatory requirements, standards, and station commitments. In addition to the elevation differences (the site grade is 20 feet above mean sea level), the historic monitoring data and trend results provided reasonable assurance that the groundwater currently being pumped from onsite monitoring wells or removed for below grade structures is freshwater infiltrating from initial construction/excavation exposed aquifers and not saltwater from the surrounding tidal saltwater marshes.

UT-Austin Testing Program Observations

The inspectors witnessed the performance of load testing of reinforcement anchorage (e.g. lap splice) beam No. A3. Beam A3 was fabricated on July 9, 2013, and had undergone controlled accelerated ASR aging per the UT-Austin testing program since that time. Beam expansion measurements and core sample material property testing data obtained a few days prior to the October 22 load test by NextEra identified the following: core compressive strength 3470 psi (compared to the 28-day cylinder strength of 4500 psi); core Modulus of Elasticity (E_c) 850 ksi (compared to the 28-day cylinder E_c of 3980 ksi); xy-strain (ϵ_{xy}) 0.06 percent; and, z-strain (ϵ_z) 2.02 percent. Beam A3 was tested in accordance with MPR Project 0326-0063, Procedure 5-7, "Structural Testing of Shear and Anchorage Specimens," Revision 2, dated 5/28/2014. Beam failure occurred at a load of approximately 271,000 pounds (compared to

control beam A7 that failed at 251,000 pounds). No testing anomalies were identified. Preliminary review of the large specimen load testing results indicated that beam structural performance (measured by load carrying capacity prior to failure) was generally inversely proportional to the extracted cores' material properties determined just prior to testing. Specifically, concrete core test results indicated reduced compressive strength and reduced Modulus of Elasticity, but the overall test specimen structural performance remained unaffected or slightly improved. ASR-affected specimens tested, to date, exhibited increased rigidity proportional to the increased degree of (or time subjected to) ASR aging. Overall, the inspectors observed proper procedural adherence, appropriate test coordination and proper communications exhibited by the testing staff, supervisory personnel and quality assurance overseers.

Based upon the large specimen monitoring and testing completed, to date, the NextEra staff has concluded that it is necessary to modify the test program to address the apparent plateauing of the x- and y-plane expansion and the associated continuing expansion in the z-direction (through-wall) of all large test specimens. Deep pin (cast in-place) expansion measurements in all three planes have been used to compare the xy-plane combined crack index (CCI) data for validation. Based upon the observed plateauing of xy-strain (determined by deep pin direct measurement) in all of the large test specimens, the NextEra staff has preliminarily concluded that the CCI method will be of minimal value for long-term ASR monitoring. Consequently, an additional large specimen beam was fabricated in June 2014 and instrumented with three different types of extensometers to validate future application/installation of extensometers in Seabrook Station ASR-affected reinforced concrete structures. An extensometer is an instrument that measures the amount of movement (e.g., expansion or elongation) in a particular direction. The NextEra staff indicated that the testing program's instrument beam extensometer outputs will be compared to the installed deep pin expansion measurements to identify the most reliable and accurate device for long term z-strain ASR monitoring.

Based upon overall testing program progress, to date, NextEra staff projected to have the large specimen reinforcement anchorage and shear testing completed by the third quarter of 2015. Following the completion of testing, NextEra currently plans to summarize the results in a written report, update the current Seabrook Station ASR-affected reinforced concrete building structural evaluations and PODs, revise the Seabrook Structures Monitoring Program, and submit a license amendment, if appropriate, in 2016. The inspectors concluded that the current ASR-affected structures PODs remained valid and continued to provide reasonable assurance of operability because none of the testing program results or insights gained, to date, undermined the engineered margins or assumptions used in the PODs.

4OA6 Meetings, Including Exit

On January 29, 2015, the inspectors presented the inspection results to Mr. Dean Curtland, Site Vice President, 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
D. Curtland, Site Vice President
R. Dodds, Plant General Manager
P. Allen, Radiation Protection Technician
B. Brown, NextEra Engineering
V. Brown, Senior Licensing Engineer
J. Buyak, Radiation Protection Technician
J. Connolly, Site Engineering Director
K. Douglas, Maintenance Director
P. Dundin, Operations Shift Manager
D. Flahardy, Radiation Protection Manager
D. Hampton, Nuclear Oversight Auditor
J. Klempa, System Engineer
E. Kotkowski, Control room operator
B. McAllister, Nuclear Engineer
L. Michaud, Work Week Manager
M. Nadeau, Radiation Protection Dosimetry Supervisor
M. Ossing, Licensing Manager
E. Pigott, Operations Training Supervisor-Continuing Training
D. Ritter, Operations Director
D. Robinson, Chemistry Manager
T. Smith, Radiation Protection Supervisor
T. Waechter, Nuclear Plant Shift Manager
N. Watts, Senior Reactor Operator

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATED

Opened/Closed

05000443/2014005-01	NCV	Failure to Identify and Evaluate Class 1 Structural Conditions Adverse to Quality (Section 1R12)
05000443/2014005-02	NCV	Failure to Identify and Evaluate FSB Deviation from Design Basis (Section 1R12)
05000443/2014005-03	NCV	Failure to Periodically Calibrate REM-500 Neutron Survey Instruments (Section 2RS5)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures
OP-AA-102-1002, Seasonal Readiness, Revision 5
OS1200.03, Severe Weather Conditions

Condition Reports
01989778 01992418 02000138

Miscellaneous
Seasonal Readiness Memo to Mano Nazar dated 9/24/14
UFSAR Section 8

Section 1R04: Equipment Alignment

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OS1005.05, Safety Injection System Operation, Revision 26
OS1016.05, Service Water Cooling Tower Operation, Revision 28
OS1026.11, Operating DG 1B Jacket Cooling Water System, Revision 10
OS1023.51, Control Room Ventilation and Air Conditioning System Operation, Revision 22
OX1405.07, Safety Injection Quarterly and 18 Month Pump Flow and Valve Test, Revision 13
OX1436.20, Startup Feed Pump Monthly Valve Operability Surveillance, Revision 2

Condition Reports
01869005 02004748* 02004780* 02013363* 02013369

* NRC identified

Maintenance Orders/Work Orders
40234817 40245048 40111372 40196116 40042857 94109967*
94109969 94072242

Drawings
1-CBA-B20308, Control Building Air Conditioning System Safety Related Chilled Water System Train 'B' Detail, Revision 7
1-DG-B20463, Diesel Generator Lube oil System Train 'B' Detail, Revision 20
1-DG-B20464, Diesel Generator Fuel Oil System Train 'B' Detail, Revision 17
1-DG-B20465, Diesel Generator Starting Air System Train 'B' Detail, Revision 25
1-DG-B20466, Diesel Generator Cooling Water System Train 'B' Detail, Revision 22
1-DG-B20467, Diesel Generator Intake Exhaust & Crankcase Vacuum System Train 'B' Detail, Revision 8

Section 1R05: Fire Protection

Miscellaneous
Seabrook Station Fire Protection Pre-Fire Strategies, Volume I, CB-F-1A-A
Seabrook Station Fire Protection Pre-Fire Strategies, Volume I, CB-F-1D-A
Seabrook Station Fire Protection Pre-Fire Strategies, Volume I, CB-F-1E-A
Seabrook Station Fire Protection Pre-Fire Strategies, Volume I, CB-F-1F-A
Seabrook Station Fire Protection Pre-Fire Strategies, Volume I, CB-F-1G-A
Seabrook Station Fire Protection Pre-Fire Strategies, Volume I, CB-F-3A-A

Seabrook Station Fire Protection Pre-Fire Strategies, Volume I, CB-F-3B-A
Seabrook Station Fire Protection Pre-Fire Strategies, Volume I, CB-F-3C-A
Seabrook Station Fire Protection Pre-Fire Strategies, Volume II, TB-F-1A-Z
Seabrook Station Fire Protection Pre-Fire Strategies, Volume II, TB-F-1B-A
Seabrook Station Fire Protection Pre-Fire Strategies, Volume II, TB-F-1C-Z
Seabrook Station Fire Protection Pre-Fire Strategies, Volume II, TB-F-1-0
Seabrook Station Fire Protection Pre-Fire Strategies, Volume II, TB-F-3-0
Seabrook Station Fire Protection Pre-Fire Strategies, Volume II, TB-F-3-0
Seabrook Station Fire Protection Pre-Fire Strategies, Volume II, TB-2-F-Z
Seabrook Station Fire Protection Pre-Fire Strategies, Volume II, TB-F-3-Z

Section 1R11: Licensed Operator Requalification Program

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ER 1.1, Classification of Emergencies, Revision 52
ER 1.2, Emergency Action Plan Activation, Revision 61
OX1426.23, Emergency Diesel Generator 1B 24 Hour Load Test and Hot Restart Surveillance, Revision 18
OX1430.02, Main Steam Isolation Valve Quarterly Test, Revision 16

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40279900

Miscellaneous

Seabrook Technical Specifications

Section 1R12: Maintenance Effectiveness

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MA 3.5, Post Maintenance Testing, Revision 14
OS1046.18, 4.16 KV Breaker Racking Operations, Revision 11
OX1456.21, Train A ESFAS Slave Relay K601 Quarterly Go Test, Revision 10
PI-AA-104-1000, Corrective Action, 07/18/14
Technical Procedure 36180, Structural Monitoring Program, Revision 4, 7/29/13
Technical Procedure 36180, Structural Monitoring Program, Revision 5, 10/14/14

Action Requests

02014116*	01831660	00196973
02014120*	01617960	01986980
02011698*	00197551	04-05036
02011698	01992998	02016192*
01921217	01977456	02016238*
01920005	00581434	02016225*
01992998	00396307	02016863*
00196973	00004916	
01986980	00197551	

*ARs initiated in response to this inspection

Engineering Evaluations, Analyses, Calculations & Standards:

ACI 349.3R-02, Evaluation of Existing Nuclear Safety-Related Concrete Structures, Reapproved 2012
Apparent Cause Evaluation for AR 196973
Apparent Cause Evaluation Report for AR 1977456
Revised Safety Culture Evaluation for CR1976944, 1977233 and 1977456
Seabrook Station Maintenance Rule (a)(1) Improvement Plan For CE-01, CB-01, CS-01, CT-01, CST-01, DGB-01, EF-01, EM-01, FB-01, ITS/DTS-01, MF-01, SWB-01, PB-01, RV-01 and WB-01, Degradation of Concrete, Revision 05, 9/18/2014; AR581434, AR1664399, AR1636419, AR1687932-(a)(1) Plan, AR1757861, AR1804477, AR1952162
Seabrook Calculation FB-18, Revision 6, Title: Mats & Walls Below Grade, Fuel Storage Building

Engineering Change Documents:

EC 0000249139 002, Spent Fuel Pool Gate Latch Modification – AR 00396307, 10/4/11

36180, Rev.2, SMP FORM 2, Structural Deficiency Report – Initial Discovery:

CST-SVR-D-001, 11/7/13	CST-SVR-D-002, 11/7/13	CST-SVR-D-003, 11/7/13
CB105-D-001, 11/7/13	CB105-D-002, 11/7/13	CP101-D-001, 10/10/13
CP101-D-002, no date	CP101-D-003, 10/10/13	CP101-D-003, no date
PB207-D-001, 6/29/11	PB206-D-001, 6/28/11	MF102-D-001, 9/20/11

36180, Rev.2, SMP FORM 3, Structural Deficiency Report – Engineering Staff Review:

CST-SVR-D-001, 11/7/13	CST-SVR-D-002, 11/7/13	CST-SVR-D-003, 11/7/13
CB105-D-001, 11/7/13	CB105-D-002, 11/7/13	CP101-D-001, 10/21/13
CP101-D-002, 10/21/13	CP101-D-003, 10/21/13	PB207-D-001, 7/20/11
PB206-D-001, 7/20/11	MF102-D-001, 10/18/11	

36180, Rev.2, SMP FORM 4, Structural Deficiency Report – Follow-up Inspection:
MF102-D-001, MF102-D-002, MF102-D-003, MF102-D-004

Program Documents:

NextEra Energy Seabrook, Technical Procedure, Structural Monitoring Program, 36180, Revision 5, 10/14/14
NextEra Energy Seabrook, Technical Procedure, Structural Monitoring Program, 36180, Revision 4, 7/29/13

Procedures:

NextEra Energy, Nuclear Fleet Administrative Procedure, PI-AA-104-1000, CORRECTIVE ACTION, 07/18/14

Operability Determinations:

Prompt Operability Determination for AR581434, Revision 000
Prompt Operability Determination for AR581434, Revision 001
Prompt Operability Determination for AR581434, Revision 002

Vendor Inspection Contract:

Contractor Metrology Inspection Services Within the Cooling Pool of the FSB, 12/16/13

Work Orders:

0543784, 7/10/06, 1-BM-INSP-BLDG-INTG-FSB-000 Building Maintenance

Miscellaneous Documents:

Seabrook Station UFSAR, Revision 16, Section 3.8, Page 148 – 153,
Design Of Structures, Components, Equipment AND Systems, Design of Category I Structures U.S. Nuclear Regulatory Commission, Regulatory Guide 1.13,
Spent Fuel Storage Facility Design Basis, Revision 2, March 2007

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures
OP-AA-102-1003, Guarded Equipment, Revision 5

Miscellaneous
Maintenance Rule (a)(4) Risk Profile for Work Week 1439-05
Maintenance Rule (a)(4) Risk Profile for Work Week 1442-08
Maintenance Rule (a)(4) Risk Profile for Work Week 1443-09

Condition Reports
02000207

Maintenance Orders/Work Orders
40279916

Miscellaneous
PRA-301, MR (a)(4) Process for On-Line Maintenance Group Instruction, Revision 0
WM-AA-100-1000, Work Activity Risk Management, Revision 1

Section 1R15: Operability Determinations and Functionality Assessments

Procedures
EN-AA-203-1001, Operability Determinations/Functionality Assessments, Revision 19
OX1461.03, SEPS Operational Readiness Status Surveillance, Revision 01
OX1446.01, AC Power Source Weekly Operability Surveillance, Revision 23

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00017982	00018003	01868380	01986793	01995888	01998684
02000487	02000545	02000743	02000743	02003027	02003067
02003427	02013363	02013369	02013417	02013442	02013457
02013458					

Maintenance Orders/Work Orders

40191176	40287143	40347648	40347646	40346051

Miscellaneous
Foreign Print FP 22620, Seismic Test Report, Issue No. 6
Plant Engineering Action Plan Register, EDG-B Main Bearings #7 and #8 Vibration Indication During Engine Analysis Collection
PM Technical Basis – New PM Activity to Replace Heaters on 1-CBA-H-371 and 372 Periodically, Dated 2/27/08

Section 1R18: Plant Modifications
Procedures
MS0526.09, On Stream Leak Repairs, Revision 6

Condition Reports
00394022 01907792 01944267 01944282 02003019 02004186
02004461 02004690 02005370

Maintenance Orders/Work Orders
01383187 40204470

Miscellaneous
Engineering Change 282744, 1-SB-V-9 Temporary Leak Repair, Revision 3
FP100873, 1-SB-V-9 Team Inc. Clamp Design Calculations, Revision 1

Drawings
1-NHY-310102, 4160 Bus 1-E6 RAT Incoming Line, Sheet A72m, Revision 0
1-NHY-310102, 4160 Bus 1-E6 RAT Incoming Line, Sheet A72n, Revision 3
1-NHY-310102, 4160 Bus 1-E6 Potential Xfmrs, Sheet A73j, Revision 1
1-SB-B20626, Steam Generator Blowdown (Blowdown Flash), Revision 18

Section 1R19: Post-Maintenance Testing
Procedures
LS0558.03, 4.16KV Motor – Routine Testing, Inspection and PM, Revision 9
LS0563.23, Type IAC Overcurrent Relay Inspection, Testing and PM, Revision 9
LS0563.186, Trip Relay Checks, Revision 0
LS0564.34, 4160 Volt Static Motor Testing, Revision 8
MS0523.56, Ingersoll-Dresser Ocean Service Water Pump removal and Installation, Revision 12
MS0539.37, Emergency Diesel Generator Engine Cylinder Head Maintenance, Revision 8
OS1016.04, Service Water Train B Operation, Revision 19
OS1023.51, Control Room Ventilation and Air Conditioning System Operation, Revision 22
OX1405.07, Safety Injection Quarterly and 18 Month Pump Flow and Valve Test, Revision 13
OX1412.02, PCCW Train B Quarterly Operability, 18 month Position Indication, and Comprehensive Pump Testing, Revision 20
OX1426.26, EDG 1A Semiannual Operability Surveillance, Revision 17
OX1456.26, Train A ESFAS Slave Relay K610 Quarterly Go Test, Revision 7
OX1656.81, Operability Testing of IST Valves, Revision 19
OX1426.23, Emergency Diesel Generator 1B 24 Hour Load Test and Hot Restart Surveillance, Revision 18

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01969615 01991632 01992923 01998684 01999416 02003706
02003768 02003900 02004037 02004187

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01047450 40279688 40279790 40279791 40279792 40279794
40279900 40281987 40325695 40325696 40332384 40337807
40347648 40347769

Miscellaneous
2MSE235-00, Alternate Materials for Check Valve Disc Washer
DRR 92-060, Walworth Disc Washer Material Substitution and Sizing
MS0519.65, Walworth 16-, 18-, 20- and 24-Inch swing check valve maintenance
Seabrook Station UFSAR, Revision 16

Drawings
1-NHY-310882, Reactor Coolant Pump 1-P-1D Three Line Diagram, Sheet A24a, Revision 10
1-NHY-310882, Reactor Coolant Pump 1-P-1D Trip Contacts, Sheet A24c, Revision 5
1-NHY-310882, Reactor Coolant Pump 1-P-1D Protection Schematic, Sheet A24d, Revision 7
1-NHY-310882, Reactor Coolant Pump 1-P-1D Auxiliary Contacts, Sheet A24e, Revision 5
1-NHY-310882, Reactor Coolant Pump 1-P-1D, Sheet A24k, Revision 2
1-NHY-310882, Reactor Coolant Pump 1-P-1D, Sheet A241, Revision 1

Section 1R22: Surveillance Testing

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OX1412.02, Revision 20, PCCW Train B Quarterly Operability, 18 month Position Indication, and Comprehensive Pump Testing
OX1416.05, Service Water Cooling Tower Pump Quarterly and 2 Year Comprehensive Test, Revision 22
OX1416.06, Service Water Discharge Valves Quarterly Test and 18 Month Position Verification, Revision 11
OX1426.03, Emergency Power Sequencer 18 Month Operability Test, Revision 7
OX1456.81, Operability Testing of IST Valves, Revision 19
OX1456.86, Operability Testing of IST Pumps, Revision 10

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01995518 01995561

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40279856 40279857 40292315 40292326

Drawings
FP31418, Emergency Power Sequencer Electrical Schematic, Issue 14
FP31416, Emergency Power Sequencer Electrical Schematic, Issue 13
FP31374, Emergency Power Sequencer Logic Diagram, Issue 08

Miscellaneous
Seabrook Station UFSAR Table 8.3-1, Engineered Safety Features, Revision 14

Section 2RS3: In-Plant Airborne Radioactivity Mitigation and Control

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CS0917.04, Monitoring Plant Systems for Radioactivity, Revision 1
CS0910.11, Wide Range Gas Monitor Sampling, Revision 1
HD0965.10, Respirator Fit Testing Using the TSI Portacount, Revision 18
HD0965.12, Respiratory Equipment Issue and Use, Revision 39
HD0965.14, Use of PosiChek 3, Revision 10
HD09-01-01, Firehawk M7 and M7 Responder Air Mask Maintenance and Repair, Revision 3
HD0965.08, Breathing Air Certification, Revision 16
JD0999.102, Radiological Guidelines for Use of Containments and Air Handling, Revision 8

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2007480

Miscellaneous

Fit Test Report MSA Ultra Elite 1000 Full Face Negative Pressure Respirator Serial No. 008709147, November 13, 2014
Fit Test Report for Test Subject using MSA Ultra Rubber 1000 using Portacount Pro Serial No. 803014209, December 10, 2014
HD0965.08 Form A: Grade D In-House Breathing Air Certification for Firefighter Annex Air Compressor, November 14, 2014
HD0965.14 Form A: SCBA HIP- AIR Regulator Flow Checks Serial No. ML337078, April 21, 2014
HD0965.14 Form A: SCBA HIP- AIR Regulator Flow Checks Serial No. ANPE186198, April 23, 2014
HD0965.14 Form B: SCBA Face Piece Test Serial No. FH 80, September 30, 2014
HRE-M01 SCBA Inspection and Inventory, October 17, 2014
HRE-M02 Inspect Routine Use Radiological Ultra-Vue FFAP Respirators, December 8, 2014
HRE-M11 Inventory Routine Use Radiological Ultra-Twin FFAP Respirators, December 8, 2014
MSA Training Certificate Authorized Repair Center, MSA M7 MMR Certified C.A.R.E. Technician, February 7, 2013
PosiChek 3 USB Test Results for Serial Number ANAD063777 Firehawk M7 Air Mask, December 10, 2014
Seabrook Updated Final Safety Analysis Report
Seabrook Station Nuclear Training Group OJT/TPE Guide for Firehawk M7 SCBA OJT #GT1074J, Revision 15
Sentinel Respirator Qualification Expiration Date Report, November 3, 2014
Service History for Instrument Serial Number APAB279682 Firehawk SCBA Regulator, December 10, 2014
Service History for Instrument Serial Number ANAE186198 Firehawk SCBA Regulator, December 10, 2014
Service History for Instrument Serial Number FH-86 UltraElite Respirator, December 10, 2014
TRI Air Testing, Inc Laboratory Report-Compressed Air Gas Quality Testing, September 30, 2014
TSI Certificate of Testing for Portacount Pro Serial No. 8030134708, November 12, 2014

Audits, Self-Assessments, and Surveillances

SBK 14-001 Seabrook Nuclear Oversight Report - Radiation Protection and Radwaste Programs, February 24, 2014
Seabrook Daily Quality Summary Reports January 1, 2014 to December 8, 2014

Section 2RS4: Occupational Dose Assessment

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HD0961.29, Internal Dosimetry Assessment, Revision 27
RP-AA-101-2001, SENTINEL Software Transactions Associated with Issuance and Control of Personnel Monitoring Devices, Revision 2
RP-AA-103-2003, SENTINEL Software Miscellaneous Tasks User Guide, Revision 2

Condition Reports

01957032 01957390 01957400 01957403 01957427 01957495 01981002

Miscellaneous

Calibration of the FASTSCAN WBC System at Next Era Seabrook Generating Station, March 4, 2014
HPSTID 14-007 Calibration of WBC System 2014, March 19, 2014
Seabrook 1 Updated Final Safety Analysis Report
Seabrook 2014-10CFR60 Analysis for Rad Monitor Instrument Response, November 2014
Seabrook Body Count Results for three employees, April 11, 2014

Audits, Self-Assessments, and Surveillances

SBK 14-001 Seabrook Nuclear Oversight Report - Radiation Protection and Radwaste Programs, February 24, 2014

Section 2RS05: Radiation Monitoring Instrumentation

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HD0951.11, Documentation of Health Physics Studies and Technical Information, Revision 1
HD0955.50, Far West REM-500 Operation, Revision 6

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01980404

Miscellaneous

ANSI N323AB-2013, Radiation Protection Instrumentation Test and Calibration, December 16, 2013
CD0900.15 Form A, Chemistry Performance Indicator Report Form, February 18, 2014
CD0900.15 Form A, Chemistry Performance Indicator Report Form, September 14, 2014
CHL-219 Reactor Coolant Specific Activity and RETS ODCM Radiological Effluent Occurrence KPIs, January 2014
CHL-219 Reactor Coolant Specific Activity and RETS ODCM Radiological Effluent Occurrence KPIs, February 2014
CHL-219 Reactor Coolant Specific Activity and RETS ODCM Radiological Effluent Occurrence KPIs, March 2014
CHL-219 Reactor Coolant Specific Activity and RETS ODCM Radiological Effluent Occurrence KPIs, April 2014
CHL-219 Reactor Coolant Specific Activity and RETS ODCM Radiological Effluent Occurrence KPIs, May 2014
CHL-219 Reactor Coolant Specific Activity and RETS ODCM Radiological Effluent Occurrence KPIs, June 2014
CHL-219 Reactor Coolant Specific Activity and RETS ODCM Radiological Effluent Occurrence KPIs, July 2014

CHL-219 Reactor Coolant Specific Activity and RETS ODCM Radiological Effluent Occurrence KPIs, August 2014
CHL-219 Reactor Coolant Specific Activity and RETS ODCM Radiological Effluent Occurrence KPIs, September 2014
CHL-219 Reactor Coolant Specific Activity and RETS ODCM Radiological Effluent Occurrence KPIs, October 2014
CHL-219 Reactor Coolant Specific Activity and RETS ODCM Radiological Effluent Occurrence KPIs, November 2014
Far West Technology Operation and Repair Manual for REM-500 Neutron Survey Meter, September 1998
GEL Laboratories, LLC, Laboratory Certificate of Analysis for Sample Data Group 360401, Samples received November 3 and December 1, 2014
HPSTID-96-004, Basis for Performing Operability Checks for Use of the Far West Technology REM-500 Meter, February 10, 1996
JD0999.910 Figure 1: Occupational Exposure Occurrence for October, November and December 2013
JD0999.910 Figure 1: Occupational Exposure Occurrence for January, February and March 2014
JD0999.910 Figure 1: Occupational Exposure Occurrence for April, May and June 2014
JD0999.910 Figure 1: Occupational Exposure Occurrence for July, August and September 2014
Maintenance Rule Functional Failure Evaluation for RM-6481-1 Main Stem Line "A" Rad Monitor, July 25, 2014
SB UFSAR, Chapter12 Table 12.5-1 Portable Health Physics Instruments, Revision 16
Seabrook 1 Updated Final Safety Analysis Report
Seabrook Station Radiation Protection Manual, Revision 67

Section 4OA1: Performance Indicator Verification

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CS0917.02, Gaseous Effluent Releases, Revision 14
CX0917.01, Liquid Effluent Releases, Revision 20
HD0958.33, Performance of Radiation Protection Supervisory Plant Walk-downs, Revision 6
JD0999.910, Reporting Key Performance Indicators per NEI 99-02, Revision 6
NAP-206, NRC Performance Indicators, Revision 7

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01856230 01996503

Miscellaneous

Engineering Evaluation EE-11-020, FPL-Seabrook Mitigating System Performance Indicator Basis Document, Revision 0
LIC-14039, Documentation Supporting the Seabrook Station NRC 3rd Quarter 2014 Performance Indicator Submittal
LIC-14031, Documentation Supporting the Seabrook Station NRC 2nd Quarter 2014 Performance Indicator Submittal
LIC-14018, Documentation Supporting the Seabrook Station NRC 1st Quarter 2014 Performance Indicator Submittal
LIC-14004, Documentation Supporting the Seabrook Station NRC 4th Quarter 2013 Performance Indicator Submittal
NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 7

Audits, Self-Assessments, and Surveillances

Quick Hit Assessment Report 1914767, HP Performance Indicator Verification, November 1, 2013

Section 4OA2: Problem Identification and Resolution

Condition Reports

01904703	01916618	01919736	01930049	01953499	01971447
01997899	02001541	02005503	02007961	02008681	02013888
02014819					

Maintenance Orders/Work Orders

40262945

Miscellaneous

Groundwater Monitoring Well SW-1, SW-2, SW-3, SD-1, SD-2 Data, collected on September 4, 2009

Groundwater Monitoring Well Chemistry Data for 1st QTR 2010 through 1st QTR 2011

Groundwater Monitoring Well Specific Conductivity for BD-6, SD-5, SW-3, collected between August 2012 and March 2014

MPR Project 0326-0063, Procedure 5-7, Structural Testing of Shear and Anchorage Specimens, Revision 2

MPR Procedure 0326-0062-46, Procedure for In-process Inspections of FSEL Reinforcement Anchorage Test Set-up for Seabrook Station, Revision 2

Source Verification Record (SVR) 0326-0062-23-44, Revision 0

Special Test and Inspection Record (STIR) 0326-0062-24-56, Revision 0

STIR 0326-0062-24-57, Revision 0

STIR 0326-0062-24-86, Revision 0

STIR 0326-0062-24-91, Revision 0

STIR 0326-0062-24-92, Revision 0

SVR 0326-0062-23-53, Revision 0

SVR 0326-0062-23-59, Revision 0

SVR 0326-0062-23-61, Revision 0

SVR 0326-0062-23-62, Revision 0

LIST OF ACRONYMS

ACI	American Concrete Institute
ADAMS	Agencywide Document Access and Management System
ALARA	as low as reasonably achievable
AR	action request
ARM	area radiation monitor
ASR	alkali-silica reaction
CAP	corrective action program
CCI	combined crack index
CFR	*Code of Federal Regulations*
CR	condition report
EDG	emergency diesel generator
EFW	emergency feedwater
EPS	emergency power sequencer
FSB	fuel storage building
gpd	gallons per day
GALL	Generic Aging Lessons Learned
IMC	Inspection Manual chapter
ISFSI	independent spent fuel storage installation
LPMS	loose parts monitoring system
MR	maintenance rule
NCV	non-cited violation
NEI	Nuclear Energy Institute
NFSA	New Fuel Storage Area
NIST	National Institute of Science and Technology
NRC	Nuclear Regulatory Commission
OOS	out of service
OD	operability determination
PCCW	primary component cooling water
PARS	Publicly Available Records
PI	performance indicator
PODs	prompt operability determinations
RG	Regulatory Guide
SCBA	self-contained breathing apparatus
SFP	spent fuel pool
SMP	structures monitoring program
SSC	structure, system, or component
SW	service water
TS	technical specification
UFSAR	Updated Final Safety Analysis Report
WBC	whole body count
WO	work order